

**Florida Department of Education
Curriculum Framework**

Program Title: Motion Picture Post Production
Career Cluster: Arts A/V Technology and Communication

CCC	
CIP Number	0650060205
Program Type	College Credit Certificate (CCC)
Program Length	16 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4099 – Media and Communication Equipment Workers, All Other

Purpose

The purpose of this program is to prepare students for initial employment as a post-production assistant or to provide supplemental training for persons previously or currently employed in these occupations. The content should include, but not be limited to, instruction that prepares individuals to function as members of a technical team within the framework of an organized film/video production. Instruction includes: synchronization of dailies, interpreting and implementing the audio requirements for a film production and employability skills.

This certificate program is part of the Film Production Technology AS degree program (1650060213).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Synchronize dailies.
- 02.0 Function as part of a team on film/video productions.
- 03.0 Interpret and implement the audio requirements for film production.
- 04.0 Demonstrate employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Motion Picture Post Production
 CIP Number: 0650060205
 Program Length: 16 credit hours
 SOC Code(s): 27-4099

This certificate program is part of the Film Production Technology AS degree program (1650060213). At the completion of this program, the student will be able to:

01.0 Synchronize dailies – the student will be able to:

- 01.01 Transfer location sound from location recording format to display format.
- 01.02 Synchronize sound element to picture element.
- 01.03 Demonstrate basic sound editing skills (manually or electronically).

02.0 Function as part of a team on film/video productions – the student will be able to:

- 02.01 Differentiate the working relationships that exist between the various participants involved in the film making process.
- 02.02 Perform as a member of a technical team within the framework of an organized theater/film production.
- 02.03 Adapt learned skills and generate new approaches in order to solve unique production problems.
- 02.04 Demonstrate the proper use of standard film making forms.
- 02.05 Define the specific technical processes used by the camera, grip, lighting, sound, art, costume, special effects, make-up and editing departments.
- 02.06 Compare the techniques used in film and video production.
- 02.07 Manage resources and personnel in order to meet production deadlines.
- 02.08 Analyze job needs and perform transactions with rental houses and suppliers.
- 02.09 Apply accepted principles of film technology to production situations.
- 02.10 Interpret a film script and storyboard for their production requirements.
- 02.11 Develop appropriate industry contacts.

03.0	Interpret and implement the audio requirements for film production – the student will be able to:
03.01	Formulate sound design for required sound effects and dialogue replacement to complete motion picture soundtrack.
03.02	Augment picture soundtrack with pre-recorded score from various sources.
03.03	Edit and synchronize pre-recorded sound effects from pre-recorded source in sync to picture.
03.04	Evaluate and edit production dialogue track.
04.0	Demonstrate employability skills – the student will be able to:
04.01	Conduct a job search.
04.02	Secure information about a job.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

**Florida Department of Education
Curriculum Framework**

Program Title: Motion Picture Production Management
Career Cluster: Arts A/V Technology and Communication

CCC	
CIP Number	0650060206
Program Type	College Credit Certificate (CCC)
Program Length	16 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4099 – Media and Communication Equipment Workers, all Other

Purpose

The purpose of this program is to prepare students for initial employment as a producer’s assistant, production assistant, production manager, or to provide supplemental training for persons previously or currently employed in these occupations.

The content should include, but not be limited to, instruction that prepares individuals to function as members of a technical team within the framework of an organized film/video production. Instruction includes the analysis and implementation of tasks for gripping, camera, lighting, and film/video editing.

This certificate program is part of the Film Production Technology AS degree program (1650060213).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Function as part of a team on film/video productions.
- 02.0 Analyze and implement tasks for gripping.
- 03.0 Analyze and execute tasks for camera operations.
- 04.0 Analyze and execute tasks for film/video editing.
- 05.0 Analyze and execute tasks for film lighting.
- 06.0 Demonstrate employability skills.
- 07.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Motion Picture Production Management
 CIP Number: 0650060206
 Program Length: 16 credit hours
 SOC Code(s): 27-4099

This certificate program is part of the Film Production Technology AS degree program (1650060213). At the completion of this program, the student will be able to:

01.0	Function as part of a team on film/video productions – the student will be able to:
01.01	Demonstrate the proper use of standard film making forms.
01.02	Define the specific technical processes used by the camera, grip, lighting, sound, art, costume, special effects, make-up and editing departments.
01.03	Compare the techniques used in film and video production.
01.04	Manage resources and personnel in order to meet production deadlines.
01.05	Analyze job needs and perform transactions with rental houses and suppliers.
01.06	Apply accepted principles of film technology to production situations.
01.07	Interpret a film script and storyboard for their production requirements.
01.08	Develop appropriate industry contacts.
01.09	Formulate and implement a production plan in the areas of sync sound, camera, grip, electrical, sound, art direction, post-production, special effects, wardrobe, make-up, assistant direction, casting, script supervision and production management.
02.0	Analyze and implement tasks for gripping – the student will be able to:
02.01	Translate script needs into creative uses of dollies, cranes and their camera mounts as required for film and video production.
02.02	Originate solutions to unique shooting problems.
02.03	Organize production routines.
02.04	Analyze a script for its technical requirements.

02.05	Work as a member of a film production team.
02.06	Develop appropriate industry contacts.
02.07	Demonstrate safe work habits.
02.08	Analyze production requirements to determine grip equipment needs.
02.09	Demonstrate proper and safe use of equipment.
03.0	Analyze and execute tasks for camera operations – the student will be able to:
03.01	Analyze the aesthetic needs of a shot and accomplish them by using standard industry camera equipment.
03.02	Interpret shooting activities required for appropriate camera department documentation.
03.03	Develop appropriate industry contacts.
03.04	Analyze production requirements to determine camera equipment needs.
03.05	Demonstrate knowledge of camera blocking and screen direction.
04.0	Analyze and execute tasks for film/video editing – the student will be able to:
04.01	Demonstrate understanding of picture and sound editing techniques using nonlinear video editing systems.
04.02	Demonstrate understanding of organizing, archiving and cataloguing film and tape media.
05.0	Analyze and execute tasks for film lighting – the student will be able to:
05.01	Work as a member of a film production team.
05.02	Develop appropriate industry contacts.
05.03	Analyze production requirements to determine lighting equipment needs.
06.0	Demonstrate employability skills – the student will be able to:
06.01	Conduct a job search.
06.02	Secure information about a job.
06.03	Identify documents that may be required when applying for a job.
06.04	Complete a job application form correctly.

06.05	Demonstrate competence in job interview techniques.
06.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons.
06.07	Identify acceptable work habits.
06.08	Demonstrate knowledge of how to make job changes appropriately.
06.09	Demonstrate acceptable employee health habits.
06.10	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
07.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
07.01	Define entrepreneurship.
07.02	Describe the importance of entrepreneurship to the American economy.
07.03	List the advantages and disadvantages of business ownership.
07.04	Identify the risks involved in ownership of a business.
07.05	Identify the necessary personal characteristics of a successful entrepreneur.
07.06	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

**Florida Department of Education
Curriculum Framework**

Program Title: Audio Technology
Career Cluster: Arts A/V Technology and Communication

CCC	
CIP Number	0650060209
Program Type	College Credit Certificate (CCC)
Program Length	15 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4011 – Audio and Video Equipment Technicians

Purpose

The purpose of this program is to prepare students for initial employment as a sound technician or recording technician, or to provide supplemental training for persons previously or currently employed in these occupations. The content includes, but is not limited to, set up and configuration of a computer for audio applications, and the operation of basic reproduction, reinforcement and recording audio equipment.

This certificate program is part of the Music Production Technology AS degree program (1650091300).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate set-up and configuration of a computer for audio applications.
- 02.0 Understand the operation of basic reproduction, reinforcement and recording audio equipment.
- 03.0 Demonstrate understanding of requirements for set up and operation of a sound reinforcement system.

Florida Department of Education
Student Performance Standards

Program Title: Audio Technology
CIP Number: 0650060209
Program Length: 15 credit hours
SOC Code(s): 27-4011

This certificate program is part of the Music Production Technology AS degree program (1650091300). At the completion of this program, the student will be able to:

01.0	Demonstrate set-up and configuration of a computer for audio applications – the student will be able to:
01.01	Install and configure software related to audio programs.
01.02	Demonstrate basic knowledge of computer system requirements.
01.03	Install basic peripheral devices related to audio programs.
02.0	Understand the operation of basic reproduction, reinforcement and recording audio equipment – the student will be able to:
02.01	Assess the audio technology needs of a music production (Pre-Production).
02.02	Evaluate available audio resources.
02.03	Select and configure appropriate hardware and software.
02.04	Formulate strategies for producing multi-track recording.
02.05	Evaluate production needs for microphone applications.
02.06	Demonstrate proficiency with multi-track, multi-channeled mixing consoles.
02.07	Formulate strategies for electronic editing.
02.08	Configure audio recording systems for optimal and appropriate use of signal processing equipment.
02.09	Engineer a recording session and prepare appropriate documentation.
02.10	Mix multi-track recording.
02.11	Configure audio equipment for optimal musical mix.

02.12	Create a mixing plan.
02.13	Evaluate the quality of multi-track recording.
02.14	Interpret audio needs for end user.
02.15	Supervise equipment operator.
02.16	Evaluate quality of the final mix to industry standards.
03.0	Demonstrate understanding of requirements for set up and operation of a sound reinforcement system – the student will be able to:
03.01	Demonstrate basic understanding of audio electronics (head room, biasing, distortion, equalization, frequency response, etc.).
03.02	Demonstrate basic understanding of acoustics.
03.03	Demonstrate knowledge of principles of operation of analog/digital devices (block diagram).
03.04	Demonstrate basic understanding of audio signal flow in an analog or digital chain.
03.05	Formulate strategies for audio reinforcement of music productions.
03.06	Evaluate performance needs.
03.07	Evaluate technical needs as appropriate to given spaces.
03.08	Configure a sound reinforcement system to meet performance needs.
03.09	Analyze various audio qualities to achieve proper sound mix.
03.10	Perform transactions with audio suppliers.
03.11	Design a plot for proper microphone and speaker selection and placement.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

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Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Photography
Career Cluster: Arts, A/V Technology and Communication

CCC	
CIP Number	0650060501
Program Type	College Credit Certificate (CCC)
Program Length	22 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4021 – Photographers

Purpose

The purpose of this program is to prepare students for employment as a photographer or to provide supplemental training for persons previously or currently employed in these occupations.

This certificate program is part of the Photographic Technology AS degree program (1650060500).

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills, safe and efficient work practices, use of digital cameras, image editing software, inkjet photographic papers, computer editing practices, photographic equipment, and technical recording and reporting. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Photography industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Perform laboratory skills.
- 02.0 Control exposures (SLR camera).
- 03.0 Take basic photographs (SLR camera and digital camera).
- 04.0 Finish photographs.
- 05.0 Apply lighting techniques.
- 06.0 Take studio photographs.
- 07.0 Reproduce photographic media.
- 08.0 Print color photographs.
- 09.0 Produce media presentations.
- 10.0 Demonstrate competencies required to manage a photographic business.
- 11.0 Take photographs for news media.
- 12.0 Apply quality control.
- 13.0 Demonstrate appropriate communication skills.
- 14.0 Demonstrate appropriate math skills.
- 15.0 Demonstrate appropriate understanding of basic science.
- 16.0 Demonstrate employability skills.
- 17.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Photography
CIP Number: 0650060501
Program Length: 22 credit hours
SOC Code(s): 27-4021

This certificate program is part of the Photographic Technology AS degree program (1650060500). At the completion of this program, the student will be able to:

01.0 Perform laboratory skills – the student will be able to:

01.01 Mix developers and other chemicals.

01.02 Hand-process black and white film and color film.

01.03 Print black and white photographs and color photographs.

01.04 Process black and white paper and color paper.

01.05 Process high contrast film.

01.06 Perform toning skills.

01.07 Produce pan masking.

01.08 Produce black and white print and color print using automated processing.

02.0 Control exposures (SLR camera) – the student will be able to:

02.01 Explain appropriate F-stops and shutter speeds.

02.02 Select appropriate film type.

03.0 Take basic photographs (SLR camera and digital camera) – the student will be able to:

03.01 Apply camera care and maintenance principles.

03.02 Compose photographs.

03.03 Take still photographs.

03.04	Take action photographs.
04.0	Finish photographs – the student will be able to:
04.01	Mount photographs.
04.02	Mat/frame photographs.
04.03	Apply print retouching.
04.04	Apply color lacquer spray.
04.05	Apply photo enhancement.
05.0	Apply lighting techniques – the student will be able to:
05.01	Take photographs with low, medium and high light as well as on bright back lighting.
05.02	Take photographs with electronic strobe.
05.03	Take photographs with photo-flood lighting.
05.04	Take photographs with quartz lighting.
05.05	Take photographs with parabolic lighting.
06.0	Take studio photographs – the student will be able to:
06.01	Take commercial photographs.
06.02	Take portraits.
06.03	Take industrial photographs.
07.0	Reproduce photographic media – the student will be able to:
07.01	Copy prints.
07.02	Copy transparencies.
08.06	Identify and define color separation.
08.0	Print color photographs – the student will be able to:
08.01	Process color paper.

08.02	Print color negatives using color analyzer.
09.0	Produce media presentations – the student will be able to:
09.01	Prepare script for presentation.
09.02	Shoot slides for presentation.
09.03	Produce presentation.
09.04	Prepare storyboard for presentation.
10.0	Demonstrate competencies required to manage a photographic business – the student will be able to:
10.01	Apply communication skills.
10.02	Apply human relations skills.
10.03	Set rates for photographic work.
10.04	Maintain shop records and files.
10.05	Develop effective advertising.
10.06	Create and maintain a presentational portfolio.
10.07	Analyze potential market area.
10.08	Analyze and develop a marketing plan.
10.09	Perform cost analysis.
10.10	Apply accounting techniques.
10.11	Prepare basic media release.
11.0	Take photographs for news media – the student will be able to:
11.01	Identify photographers' legal rights/responsibilities.
11.02	Identify rules/regulations of copyright.
11.03	Take photographs for news media.
11.04	Write captions for photos.

11.05	Identify special camera accessories.
11.06	Identify specialized optics for photojournalism.
12.0	Apply quality control – the student will be able to:
12.01	Run control strips and perform color calibration on monitor.
12.02	Plot control results.
13.0	Demonstrate appropriate communication skills – the student will be able to:
13.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
13.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
13.03	Read and follow written and oral instructions.
13.04	Answer and ask questions coherently and concisely.
13.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
13.06	Demonstrate appropriate telephone/communication skills.
14.0	Demonstrate appropriate math skills – the student will be able to:
14.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
14.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
14.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
14.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
14.05	Demonstrate an understanding of federal, state and local taxes and their computation.
15.0	Demonstrate appropriate understanding of basic science – the student will be able to:
15.01	Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
15.02	Draw conclusions or make inferences from data.
15.03	Identify health related problems which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
15.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.

16.0	Demonstrate employability skills – the student will be able to:
16.01	Conduct a job search.
16.02	Secure information about a job.
16.03	Identify documents which may be required when applying for a job interview.
16.04	Complete a job application form correctly.
16.05	Demonstrate competence in job interview techniques.
16.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
16.07	Identify acceptable work habits.
16.08	Demonstrate knowledge of how to make job changes appropriately.
16.09	Demonstrate acceptable employee health habits.
16.10	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
17.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
17.01	Define entrepreneurship.
17.02	Describe the importance of entrepreneurship to the American economy.
17.03	List the advantages and disadvantages of business ownership.
17.04	Identify the risks involved in ownership of a business.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

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Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Audio Electronics Specialist
Career Cluster: Arts A/V Technology and Communication

CCC	
CIP Number	0650091301
Program Type	College Credit Certificate (CCC)
Program Length	24 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4011 – Audio and Video Equipment Technicians

Purpose

The purpose of this program is to prepare students for initial employment in music production occupations or to provide supplemental professional training for persons previously or currently employed in this field. The content includes, but is not limited to, instruction that prepares individuals for positions such as audio and video equipment technicians, audio assistants, audio technicians, sound designers, sound systems designers and sound engineering technicians and related workers.

This certificate program is part of the Music Production Technology AS degree program (1650091300).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate set-up and configuration of a computer for audio applications.
- 02.0 Understand the operation of basic reproduction, reinforcement and recording audio equipment.
- 03.0 Demonstrate understanding of the requirements for set up and operation of a sound reinforcement system.
- 04.0 Perform transactions with music industry suppliers.
- 05.0 Demonstrate employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Audio Electronics Specialist
 CIP Number: 0650091301
 Program Length: 24 credit hours
 SOC Code(s): 27-4011

This certificate program is part of the Music Production Technology AS degree program (1650091300). At the completion of this program, the student will be able to:

01.0	Demonstrate set-up and configuration of a computer for audio applications – the student will be able to:
01.01	Install and configure software related to audio programs.
01.02	Demonstrate basic knowledge of computer system requirements.
01.03	Install the basic peripheral devices related to audio programs.
02.0	Understand the operation of basic reproduction, reinforcement and recording audio equipment – the student will be able to:
02.01	Assess the audio technology needs of a music production (pre-production).
02.02	Appraise the musical needs of clients (e.g., personnel, hardware, software).
02.03	Evaluate available audio resources.
02.04	Select and configure appropriate hardware and software.
02.05	Develop a production plan to meet client needs.
02.06	Evaluate the final project for quality and appropriateness.
02.07	Formulate strategies for producing a multi-track recording.
02.08	Evaluate production needs for microphone applications.
02.09	Demonstrate proficiency with multi-track, multi-channel mixing consoles.
02.10	Formulate strategies for electronic editing.
02.11	Formulate strategies for multi-track recording to industry standards.

02.12	Configure audio recording systems for the optimal and appropriate use of signal processing equipment.
02.13	Engineer a recording session and prepare the appropriate documentation.
02.14	Mix multi-track recordings.
02.15	Configure audio equipment for optimal musical mix.
02.16	Create a mixing plan.
02.17	Evaluate the quality of multi-track recording.
02.18	Interpret the audio needs of the end user.
02.19	Supervise equipment operators.
02.20	Evaluate the quality of the final mix according to industry standards.
03.0	Demonstrate understanding of the requirements for set up and operation of a sound reinforcement system – the student will be able to:
03.01	Demonstrate basic understanding of audio electronics (e.g., headroom, biasing, distortion, equalization, frequency response).
03.02	Demonstrate basic understanding of acoustics.
03.03	Demonstrate knowledge of the principles of operation of analog/digital devices (block diagram).
03.04	Demonstrate basic understanding of audio signal flow in an analog or digital chain.
03.05	Formulate strategies for audio reinforcement of music productions.
03.06	Evaluate performance needs.
03.07	Evaluate the technical needs appropriate for given spaces.
03.08	Configure a sound reinforcement system to meet performance needs.
03.09	Analyze various audio qualities to achieve the proper sound mix.
03.10	Perform transactions with audio suppliers.
03.11	Design a plot for proper microphone and speaker selection and placement.
04.0	Perform transactions with music industry suppliers – the student will be able to:
04.01	Research the sources for required equipment, supplies and educational materials.
04.02	Differentiate between the levels of quality in the hierarchy of manufacturers, distributors and suppliers.

04.03	Evaluate the technical specifications of audio-related products.
04.04	Execute the purchase of audio equipment, supplies and educational materials.
05.0	Demonstrate employability skills – the student will be able to:
05.01	Create and write a résumé and cover letter.
05.02	Prepare and compile a work portfolio, demo, and/or recording.
05.03	Identify acceptable work habits.
05.04	Demonstrate competence in job interview techniques.
05.05	Formulate a post-graduation strategy.
05.06	Generate a career plan.
05.07	Demonstrate knowledge of the Federal “Right-To-Know” Law as recorded in (29 CFR-1910, 1200).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Digital Music Production
Career Cluster: Arts A/V Technology and Communication

CCC	
CIP Number	0650091302
Program Type	College Credit Certificate (CCC)
Program Length	12 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4099 Media and Communication Equipment Workers

Purpose

The purpose of this program is to prepare students for employment in music production occupations or to provide supplemental professional training for persons previously or currently employed in this field. The content includes, but is not limited to, instruction that prepares individuals for positions such as music production specialists, audio technicians, audio assistants, media and communication equipment workers, music editors, and archivists and related workers.

This certificate program is part of the Music Production Technology AS degree program (1650091300).

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.).

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of basic musical skills.
- 02.0 Demonstrate competence in basic keyboard skills.
- 03.0 Demonstrate the application of control protocols and their relationship to equipment used in the music industry.
- 04.0 Demonstrate set-up and configuration of a computer for audio applications.
- 05.0 Demonstrate employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Digital Music Production
 CIP Number: 0650091301
 Program Length: 12 credit hours
 SOC Code(s): 27-4099

This certificate program is part of the Music Production Technology AS degree program (1650091300). At the completion of this program, the student will be able to:

01.0	Demonstrate knowledge of basic musical skills – the student will be able to:
01.01	Demonstrate knowledge of musical structure.
01.02	Apply listening skills to live and recorded music.
01.03	Identify the performance characteristics of musical instruments.
02.0	Demonstrate competence in basic keyboard skills – the student will be able to:
02.01	Demonstrate basic knowledge of scales and chord progressions.
02.02	Follow basic musical notation.
02.03	Demonstrate basic knowledge of a keyboard.
03.0	Demonstrate the application of control protocols and their relationship to equipment used in the music industry – the student will be able to:
03.01	Demonstrate an understanding of Musical Instrument Digital Interface (MIDI).
03.02	Demonstrate proficiency in using MIDI instruments to record sounds using a digital sampler.
03.03	Utilize a computer and multiple MIDI instruments.
03.04	Record a single sound track; utilize software to add multiple sound tracks and change MIDI voices.
03.05	Demonstrate an understanding of MIDI and other control protocols in the recording studio.
03.06	Troubleshoot MIDI and control communication problems.
04.0	Demonstrate set-up and configuration of a computer for audio applications – the student will be able to:
04.01	Install and configure software related to audio programs.

04.02	Demonstrate basic knowledge of computer system requirements.
04.03	Install the basic peripheral devices related to audio programs.
05.0	Demonstrate employability skills – the student will be able to:
05.01	Create and write a résumé and cover letter.
05.02	Prepare and compile a work portfolio, demo, and/or recording.
05.03	Identify acceptable work habits.
05.04	Demonstrate competence in job interview techniques.
05.05	Formulate a post-graduation strategy.
05.06	Generate a career plan.
05.07	Demonstrate knowledge of the Federal “Right-To-Know” Law as recorded in (29 CFR-1910, 1200).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Fashion Design
Career Cluster: Arts, A/V Technology & Communication

AS

CIP Number	1450040700
Program Type	College Credit
Standard Length	60 credit hours
CTSO	FCCLA
SOC Codes (all applicable)	27-1022: Fashion Designers

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology & Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology & Communication career cluster.

The content includes but is not limited to the following aspects of the fashion design industry: planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 60 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate appropriate basic skills essential to working in design occupations.
- 02.0 Describe the relationship between human factors and design services.
- 03.0 Identify the characteristics and care of textiles.
- 04.0 Select and safely use tools and equipment.
- 05.0 Operate and maintain a conventional and/or commercial/industrial sewing machine.
- 06.0 Select and prepare materials.
- 07.0 Develop a design portfolio.
- 08.0 Demonstrate an understanding of the elements and principles of design.
- 09.0 Demonstrate an understanding of the terminology used in the apparel industry.
- 10.0 Demonstrate skill in the construction of simple garments.
- 11.0 Demonstrate an understanding of the ways eco-fashion decisions impact the environment, consumer health and the working conditions of people in the fashion industry.
- 12.0 Demonstrate an understanding of the uses of technology in the fashion industry.
- 13.0 Create an original pattern for a garment.
- 14.0 Identify and describe the different specialties related to Fashion Technology and Design Services (e.g., Window Display, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, and Stylist).
- 15.0 Finalize a professional portfolio according to industry standards.

Florida Department of Education
Student Performance Standards

Program Title: Fashion Design
CIP Number: 1450040700
Program Length: 60 credit hours
SOC Code(s): 27-1022

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate leadership and organizational skills – the student will be able to:
01.01	Demonstrate cooperation as a group member to achieve organizational goals.
01.02	Demonstrate confidence in leadership roles and organizational responsibilities.
02.0	Demonstrate appropriate basic skills essential to working in design services occupations – the student will be able to:
02.01	Identify the knowledge, skills, and attitudes necessary to perform occupational tasks (e.g., email, phone, conversations with clients).
02.02	Demonstrate the communication competencies required to perform occupational tasks.
03.0	Identify the characteristics and care of textiles – the student will be able to:
03.01	Identify and describe fiber characteristics.
03.02	Identify and describe types of fabric construction (e.g., knitted, woven, tufted).
03.03	Identify and describe types of fabric finishes (e.g., dyed, printed, performance/quality enhancements).
03.04	Identify and describe different types of natural and manufactured textiles; identify the pros/cons, uses, and care of each type.
03.05	Identify the laws and regulations governing the textile industry; include labeling laws and care symbols.
04.0	Select and safely use tools and equipment – the student will be able to:
04.01	Identify the tools and equipment used in design services for sewing, cutting, measuring, fabric marking, and drafting.
04.02	Select the appropriate tools and equipment for assigned projects; explain why the selection is appropriate for the project.
04.03	Demonstrate proper and safe usage of tools and equipment.
04.04	Identify and demonstrate safety procedures for the use of conventional sewing machines and home sergers, and pressing

	equipment.
04.05	Explain the importance of observing Occupational Safety and Health Administration (OSHA) rules and regulations.
04.06	Clean and maintain various types of tools and equipment.
04.07	Keep an inventory record of tools, equipment, supplies, and materials using computer application software or other formatting options (e.g., written records).
04.08	Research innovations in materials and technologies that contribute to safeguards in the tools and equipment used in fashion design services.
04.09	Identify and apply drafting tools and techniques to a specific design services project (e.g., architectural ruler, light box, protractor, floor plans to scale, one-point perspective).
05.0	Operate and maintain a conventional and/or commercial/industrial sewing machine – the student will be able to:
05.01	Identify the parts of a sewing machine.
05.02	Select the needles that appropriate for different fabric types; identify the process and demonstrate needle insertion.
05.03	Identify the steps and demonstrate threading a sewing machine.
05.04	Diagram and demonstrate the ability to wind the bobbin, thread the bobbin case, and insert the bobbin correctly into a sewing machine.
05.05	Demonstrate straight stitching.
05.06	Identify and demonstrate stitch length and width selection.
05.07	Demonstrate utility and decorative stitches.
05.08	Identify the tension and demonstrate tension adjustment.
05.09	Demonstrate cleaning and lubricating the machine following manufacturer's instructions.
06.0	Select and prepare materials – the student will be able to:
06.01	Identify and match pattern pieces.
06.02	Read and interpret instructions and specifications.
06.03	Identify fabric content.
06.04	Prepare fabric.
06.05	Adjust patterns according to pattern/teacher instructions.
06.06	Lay out, pin, cut, and mark fabric according to a pattern or teacher instructions.

06.07	Demonstrate stay stitching and ease stitching.
06.08	Match grain lines and patterns according to a pattern or teacher instructions.
06.09	Mark fabric for assembly according to a pattern or teacher instructions.
06.10	Mark fabric for trims according to a pattern or teacher instructions.
06.11	Match thread with fabric.
06.12	Identify, select, and use content labels according to fabric requirements.
07.0	Develop a design portfolio – the student will be able to:
07.01	Assemble a portfolio; include all work samples.
07.02	Assemble a Technical Sewing Samples binder.
07.03	Construct basic hand-stitching techniques (e.g., running, backstitch, overcast, blanket).
07.04	Demonstrate stay stitching and ease stitching.
07.05	Demonstrate straight seams, clean finish and other seam finishes; include common seam allowances (e.g., 1/4", 5/8").
07.06	Demonstrate hemming techniques (e.g., slip stitch, blind hem stitch).
08.0	Demonstrate an understanding of the elements and principles of design – the student will be able to:
08.01	Identify and explain the elements of design (e.g., texture, pattern, line, form, shape, space, color, light) and how various effects can be achieved.
08.02	Identify and explain the principles of design and how they can be used (e.g., proportion, scale, balance, rhythm, emphasis, and harmony).
08.03	Apply the elements and principles of design to Fashion Technology and Design Services.
08.04	Develop a project applying color and color schemes in a design.
08.05	Use the laws of design to evaluate a design project.
08.06	Create an elements and principles section for a design portfolio.
09.0	Demonstrate an understanding of the terminology used in the apparel industry – the student will be able to:
09.01	Complete a research project dealing with aspects of fashion retail and production; include terminology, labeling, designers, manufacturers and stores used within the apparel industry.
10.0	Demonstrate skill in the construction of simple garments – the student will be able to:

10.01	Identify common ready-to-wear sizes
10.02	Identify and describe the characteristics of a properly fitted garment.
10.03	Take accurate body measurements, select pattern size, and determine figure type.
10.04	Interpret verbal, written, and visual directions.
10.05	Prepare fabric and adjust patterns by following pattern directions.
10.06	Lay out, pin, cut, and mark fabric according to pattern specifications.
10.07	Demonstrate stay stitching and ease stitching.
10.08	Demonstrate stitching darts and tucks.
10.09	Identify and match garment pieces using markings; stitch according to directions.
10.10	Match plaids, stripes and one-way designs.
10.11	Demonstrate correct pressing techniques according to fabric requirements.
10.12	Demonstrate casing and elastic installation.
10.13	Demonstrate machine hemming according to machine manual instructions.
10.14	Identify different types of sergers and their characteristics.
11.0	Demonstrate an understanding of the importance of how eco-fashion decisions impact the environment, consumer health and the working conditions of people in the fashion industry – the student will be able to:
11.01	Demonstrate an understanding of eco-fashion.
11.02	Identify materials that can be used to make eco-friendly fashions and accessories; describe why these materials are eco-friendly.
11.03	Research innovations in materials and technologies that have contributed to safeguards in the tools and equipment used in fashion technology and design services.
11.04	Compare the working conditions of employees when materials are produced following eco-friendly guidelines and when they are not.
11.05	Research methods for using vegetable and plant materials for eco-friendly fashions and replacing these materials into the environment.
11.06	Describe ways to be eco-friendly and the environmental and social responsibilities of eco-friendly methods.
11.07	Design and create an eco-friendly fashion product.
12.0	Demonstrate an understanding of the uses of technology in the fashion industry – the student will be able to:

12.01	Research and list software options available for fashion design services.
12.02	Demonstrate an understanding of how contemporary technologies (CAD, electronic sewing, knitting, embroidery machines, sergers) are used in the creation of fashion products (e.g., fashion profiles, fabrics, garments).
12.03	Analyze how specific technologies are used in the fashion design industry.
12.04	Create a fashion product using two or more technologies appropriately.
12.05	Research innovations in materials and technologies that have contributed to safeguards in tools and equipment.
12.06	Identify the development of tools, equipment and technology used in fashion design services as they relate to particular historical periods.
13.0	Create an original pattern for a garment – the student will be able to:
13.01	Plan and report on a fashion design project using established criteria.
13.02	Using appropriate software, insert body measurements to produce a pattern.
13.03	Draft and produce a paper pattern using personal measurements.
13.04	Create slopers for a bodice, skirt, and pants; construct the slopers using grey goods and create a mood board that includes a title, photographs of the sloper, and the purpose/use of a sloper (include in Professional Portfolio).
13.05	Create a muslin prototype of the pattern.
13.06	Evaluate the prototype for proper fit and adjust as needed.
13.07	Construct a specialty garment according to teacher instructions (the project must include a minimum number of construction skills as designated by the teacher).
14.0	Identify and describe the different specialties related to Fashion Technology and Design Services (e.g., Window Display, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, and Stylist) – the student will be able to:
14.01	Identify future trends in Fashion Technology and Design Services.
14.02	Research, identify, and describe the different job responsibilities of a Window Displayer, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, and Stylist.
14.03	Identify, research, and describe current trends related to careers in the Fashion Technology and Design Services industry (e.g., blogger, museum curator, entertainment).
15.0	Finalize a professional portfolio according to industry standards – the student will be able to:
15.01	Submit a portfolio; include work samples from the Fashion Technology and Design Services program.
15.02	Compile and present a Mastery Project Showcase; include the professional portfolio, the technical sewing samples binder, examples of coursework, evidence of awards/honors, evidence of participation in FCCLA (if applicable), samples of constructed garments and slopers, and the use of technology.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

Florida Family Career and Community Leaders of America (FCCLA) is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Interior Design Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1450040801
Program Type	College Credit
Standard Length	75 credit hours
CTSO	Collegiate DECA
SOC Codes (all applicable)	27-1029 – Designers, All Other

Purpose

The primary purpose of this program is to prepare students for initial employment in the interior design, architecture or construction industry leading to state licensing and registration as an interior designer. Interior designers are required by the Florida Department of Business and Professional Regulation, Board of Architecture and Interior Design to have a combination of six years of education and work experience and National Council for Interior Design Qualification (NCIDQ) Certification. Other occupations relevant to this program include careers as a kitchen designer, bath designer, color consultant, display manager, buyer, merchandise displayer, sales associate, manufacturer sales representative, drafting technician, space planner, and construction/housing specifications writer. This program may also be used to provide supplemental or required training for persons previously or currently employed in these related occupations.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 75 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Identify and apply elements and principles of design to interior spaces.
- 02.0 Describe the interrelationship between humans and their interior environments.
- 03.0 Plan for space utilization and development according to identified functions (programming and diagramming).
- 04.0 Select and arrange furniture, fixtures, fabrics, equipment, and accessories.
- 05.0 Identify the appropriate uses and functions of materials.
- 06.0 Identify, research, and specify interior design materials and resources.
- 07.0 Research and specify appropriate interior lighting options.
- 08.0 Identify interior methods and systems in building construction.
- 09.0 Identify interior building codes, regulations, and legislation pertaining to residential and non-residential spaces.
- 10.0 Communicate design projects through graphic techniques and visual/oral presentation skills.
- 11.0 Demonstrate employability skills and identify job and career opportunities.
- 12.0 Identify professional business organization and development procedures and/or systems.
- 13.0 Recognize, identify, and/or analyze historical, cultural, and societal influences on structures, interiors, and furnishings.
- 14.0 Analyze and apply the concepts of adaptive reuse, renovation, restoration, and/or the historic preservation of existing structures.
- 15.0 Incorporate evaluation, space planning, layout, workflow, and design into a project.
- 16.0 Identify the categories (high, medium, low) involved in the calculation of a budget estimate for an interior design project.
- 17.0 Learn the process of manually and/or electronically preparing a complete set of working construction drawings for a building.
- 18.0 Identify the importance of acoustics to habitable spaces.
- 19.0 Create a Life Safety Plan.
- 20.0 Design safe and universally accessible spaces.
- 21.0 Identify the elements of a basic agreement between the designer and the client; identify services and responsibilities.
- 22.0 Demonstrate knowledge of computer skills.
- 23.0 Identify, research, and design sustainable interiors.
- 24.0 Develop and maintain a professional portfolio.
- 25.0 Participate in an internship.

Florida Department of Education
Student Performance Standards

Program Title: Interior Design Technology
 CIP Number: 1450040801
 Program Length: 75 credit hours
 SOC Code(s): 27-1029

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Identify and apply elements and principles of design to interior spaces – the student will be able to:
01.01	Evaluate aspects of color schemes in relation to interior design.
01.02	Describe the color wheel.
01.03	Explain the psychological effects of color on space and human interaction.
01.04	Demonstrate the primary elements of design (point, line, plane, volume) and the role of these elements in interior design and architecture.
01.05	Describe and demonstrate the function of the visible spectrum and pigmentation as inherent properties of design materials and their impact on color perception.
01.06	Describe and demonstrate knowledge of the three dimensions of color.
01.07	Identify common comprehensive color systems used by designers for the description and specification of color.
01.08	Apply knowledge of the results and effects of color interaction in design.
01.09	Identify and apply the categories of material and surface texture to interior needs and functions; determine how they affect the perception of color in interiors spaces.
01.10	Identify and demonstrate the role of light on perception of surface texture in design projects and how light affects the perception of color in interior spaces.
01.11	Identify, describe, and apply the principles of design and design elements to the function (use of the interior space) and aesthetics of design.
02.0	Describe the interrelationship between humans and their interior environments – the student will be able to:
02.01	Identify personal and group needs that influence the use of each occupied space, including those of persons with special needs.
02.02	Identify, describe, and apply the principles of evidence-based design.
02.03	Demonstrate an understanding of the Americans with Disabilities Act and how it affects the interior environment.

02.04	Demonstrate an understanding of specialized design needs.
02.05	Illustrate the principles of ergonomics and anthropometrics.
02.06	Identify responses to the psychological, physical, and social needs of people using interior spaces (e.g., territoriality, personalization, group interaction).
03.0	Plan for space utilization and development according to identified functions (programming and diagramming) – the student will be able to:
03.01	Identify, describe, and demonstrate the established functional and aesthetic goals and objectives that direct the programming process.
03.02	Demonstrate an understanding of diverse client needs.
03.03	Identify, define, and apply known methods of collecting information.
03.04	Create and interpret a design matrix and other schematic processes.
03.05	Define and/or illustrate bubble diagrams and block planning.
03.06	Describe spatial adjacency, utilization, circulation, light, and function.
03.07	Identify and apply the required adjacency and spatial considerations in interior spaces.
03.08	Identify and apply the requirements of good traffic circulation.
03.09	Verify appropriate allocations of space according to programmatic needs.
03.10	Sketch preliminary layouts.
03.11	Identify the differences between the form and usage of public and private spaces.
04.0	Select and arrange furniture, fixtures, fabrics, equipment, and accessories – the student will be able to:
04.01	Analyze the criteria for the selection and arrangement of furnishings for the client.
04.02	Develop a furniture arrangement and traffic plan.
04.03	Select bathroom and kitchen fixtures.
04.04	Select kitchen and bath cabinets for an interior design plan.
04.05	Identify and compare the different fabrics available and recognize characteristics such as durability, texture, comfort, and end use.
04.06	Identify precedents in the use of furnishings.
05.0	Identify the appropriate uses and functions of materials – the student will be able to:

05.01	Identify and analyze flooring materials and determine the advantages and disadvantages of each type.
05.02	Analyze the characteristics of fibers and the construction of various types of floor coverings and interior fabrics.
05.03	Identify various ceiling treatments.
05.04	Identify and categorize types of wall coverings.
05.05	Identify and describe the types and functions of windows.
05.06	Identify and describe the different types of window coverings.
05.07	Demonstrate the ability to calculate the quantity needed for flooring, window treatments, and wall coverings.
05.08	Consider maintenance and/or recycling requirements when specifying materials.
06.0	Identify, research, and specify interior design materials and resources – the student will be able to:
06.01	Identify manufacturers of lighting, architectural treatments, and accessories.
06.02	Identify resources for recyclable materials.
06.03	Demonstrate an understanding of the differences in quality of design materials.
06.04	Identify and describe aspects of interior materials and installation methods that have the potential to impact the health, safety, and welfare of residential and/or commercial clientele.
06.05	Identify and describe the roles manufacturers' representatives, contractors, and other resource specialists play in assisting the designer and client in the appropriate selection, design, specification, and installation of materials and finishes for design projects.
06.06	Identify and describe the roles testing standards, agencies, and ratings have on the designer's selection and the specification of materials and products to protect the health, safety, and welfare of the client and the public.
07.0	Research and specify appropriate interior lighting – the student will be able to:
07.01	Identify lighting requirements.
07.02	Relate lighting options and the selection of lighting fixtures to interior design.
07.03	Identify appropriate lighting fixtures for efficient and effective performance in residential and/or commercial interior design projects.
07.04	Identify and describe human responses to light contrast.
07.05	Identify and describe the effects of contrast and diffusion on interior spaces.
07.06	Describe the impact (positive and negative) of daylight on interiors.
07.07	Describe the various means of controlling daylight impact on interiors.

07.08	Identify and describe lighting needs for clients with special needs.
07.09	Identify and define the characteristics and sources of man-made light.
07.10	Identify and describe the color characteristics of artificial lighting.
07.11	Identify and apply sustainable/green design concerns and other economic issues related to lighting design (e.g., initial costs, maintenance, replacement).
07.12	Identify, describe, and apply knowledge of both architectural and portable lighting.
07.13	Apply knowledge of appropriate fixture placement and location to interior design projects.
07.14	Identify, describe, and apply the appropriate placement and selection of light switches.
07.15	Identify and describe the codes and regulations that impact lighting design as related to health, safety and welfare requirements.
08.0	Identify interior methods and systems in building construction – the student will be able to:
08.01	Identify methods and techniques of construction.
08.02	Read basic plans.
08.03	Describe the advantages of applying green design considerations to construction decisions.
08.04	Identify the different materials and assemblies employed in the construction of partitions, walls, and ceilings for residential and commercial application.
08.05	Identify the types of millwork, woods, veneers and finishes available.
08.06	Identify and describe the appropriate cuts of lumber and timber for construction or millwork application.
08.07	Identify the appropriate installation systems for wall paneling and acoustical ceilings.
09.0	Identify interior building codes, regulations, and legislation pertaining to residential and non-residential spaces – the student will be able to:
09.01	Identify residential and non-residential local, state, and national building codes.
09.02	Identify legislation regarding barrier-free environment.
09.03	Identify regulations concerning health and safety codes.
09.04	Cite labeling techniques identifying products that meet flammability standards required by fire code.
09.05	Identify the different requirements based on type of occupancy and type of construction.
09.06	Describe the material ratings and resistance of materials to fire.

09.07	Identify ADA requirements relative to the design of interior spaces.
09.08	Identify residential building codes.
10.0	Communicate design concepts through visual and oral presentation skills – the student will be able to:
10.01	Use sketching techniques, drafting equipment, and/or computer programs to communicate interior design projects.
10.02	Demonstrate the use and care of equipment.
10.03	Demonstrate neatness and accuracy.
10.04	Execute line work by hand and/or by CAD.
10.05	Illustrate graphic notations and scale in a hand-drawing or CAD drawing.
10.06	Demonstrate overlapping techniques.
10.07	Explain detail drawings.
10.08	Illustrate shade and shadow from natural light sources by hand-drawing and/or CAD drawing.
10.09	Apply methods and techniques for two-dimensional and three-dimensional illustrations.
10.10	Apply the methods and techniques of one-point perspective drawing and two-point perspective drawing.
10.11	Create, analyze, and evaluate oral and graphic techniques for oral and visual presentations.
10.12	Demonstrate layout techniques for presentations by applying the principles of design.
10.13	Use lettering techniques and font selection for presentations.
10.14	Use graphic design and presentation skills to compile and review a portfolio (printed and/or digital).
11.0	Demonstrate employability skills and identify job and career opportunities – the student will be able to:
11.01	Conduct a job search.
11.02	Secure information concerning a job.
11.03	Identify documents that may be required to apply for a job.
11.04	Demonstrate job interview techniques.
11.05	Identify or demonstrate appropriate responses to criticism from an employer, supervisor, coworker, or customer.

11.06	Identify and/or demonstrate acceptable work habits.
11.07	Demonstrate acceptable employee health habits.
11.08	Demonstrate customer relations skills.
11.09	Evaluate sources of employment information.
11.10	Identify post-A.S. degree options (e.g., 4-year degrees, licensing/NCIDQ, certifications, LEED, CAPS).
11.11	Identify job and career opportunities in the interior design industry.
12.0	Identify professional business organization and development procedures and/or systems – the student will be able to:
12.01	Identify interior design industry-related professional organizations.
12.02	Analyze the business practices and procedures necessary for the operation of an interior design business.
12.03	Recognize the legal and business terms used in the field of interior design.
12.04	Describe the legal considerations and forms necessary to the practice of interior design.
12.05	Describe the procedures used in current interior design work experience.
12.06	Identify considerations for selecting the location of a business.
12.07	Describe the organizational structure of an interior design firm.
12.08	Identify the principles of record keeping (e.g., proposals, invoices, billable hours, markups).
12.09	Identify types of contracts utilized by an interior design firm.
12.10	Cite the licensing requirements needed to operate a business.
12.11	Identify the methods or techniques of supply procurement.
12.12	Demonstrate an understanding of the code of ethics for professional designers as prepared by industry-related professional organizations.
12.13	Demonstrate an understanding of licensing requirements.
12.14	Demonstrate an understanding of the uses of social media as a marketing tool for the interior design field.
13.0	Recognize, identify, and/or analyze historical, cultural, and societal influences on structures, interiors, and furnishings – the student will be able to:
13.01	Identify and analyze the characteristics of historic design in relation to the history of interiors.

13.02	Identify, recognize, compare, and describe different movements and historical periods in the evolution of architecture and interior design (e.g., Roman and Greek influences, styles of Middle Ages, the effects of the Italian Renaissance and the French Renaissance, Spanish and Islamic influences, English/British influences).
13.03	Analyze the work of contemporary architects, interior designers, and furniture designers.
13.04	Apply knowledge and appropriate synthesis of design forms with furnishings, finishes, and materials in interior design projects.
13.05	Describe how architecture, furniture, and decorative arts relate to interior design throughout history.
14.0	Analyze and apply the concepts of adaptive reuse, renovation, restoration, and/or the historic preservation of existing structures – the student will be able to:
14.01	Describe the significant issues and fundamentals of adaptive reuse, renovation, restoration, and historic preservation.
14.02	Compare adaptive reuse, renovation, restoration, and historic preservation options.
14.03	Identify sources for researching historical period data.
15.0	Incorporate evaluation, space planning, layout, workflow, and design into a project – the student will be able to:
15.01	Develop a plan for the implementation of design concepts into a design project.
15.02	Apply design methods and techniques to a project in residential interior design.
15.03	Apply design methods and techniques to a project in nonresidential interior design.
15.04	Understand and apply programming sequences in a design product.
15.05	Demonstrate an understanding of design development stages by completing a design project.
15.06	Identify the purpose and content of a post-occupancy evaluation.
15.07	Define a schedule for installations.
15.08	Research catalog price lists and understand the importance of preparing order forms.
15.09	Prepare furniture, fixtures, and equipment specifications for a project.
15.10	Describe finish schedules/plans.
16.0	Identify the categories (high, medium, low) involved in the calculation of a budget estimate for an interior design project – the student will be able to:
16.01	Describe the categories of materials, furnishings, equipment, overhead, and services to be provided.
16.02	Identify different methods available to estimate the cost of a project.

16.03	Develop and prepare a budget for a project.
17.0	Learn the process of manually and/or electronically preparing a complete set of working construction drawings for a building – the student will be able to:
17.01	Organize a construction package according to content categories.
17.02	Coordinate documents from different parties involved in the process of compiling construction drawings.
17.03	Utilize standard graphics and symbols.
17.04	Specify millwork and special features.
18.0	Identify the importance of acoustics on habitable spaces – the student will be able to:
18.01	Identify, describe, and/or apply the basic principles, concepts, and qualities of sound as they affect human perception.
18.02	Demonstrate an understanding of sound transmission and levels.
18.03	Identify and/or apply the fundamentals of sound absorption to evaluate the means that might be employed to control the acoustic quality of a space.
18.04	Demonstrate an understanding of and/or apply the knowledge of spatial organization and surface treatments for walls, ceilings, and finishes to achieve desired results in sound balance and comfort in an interior.
19.0	Create a Life Safety Plan – the student will be able to:
19.01	Calculate the occupancy load of a space and the required number of exits.
19.02	Describe the appropriate exit sizes, travel distances, and location of exits within a room or corridor.
19.03	Choose appropriate door types for access and egress.
19.04	Locate stairways to meet fire-safety requirements.
19.05	Identify the differences between residential and commercial access and egress requirements.
20.0	Design safe and universally accessible spaces – the student will be able to:
20.01	Identify the use of ramps and automated systems designed to accommodate persons with disabilities.
20.02	Demonstrate an understanding of the anthropometrics and ergonomics of a disabled person to aid in the selection of fixtures, floor surfaces, and bathroom layouts.
20.03	Implement the principles of Uniform Standards for Universal Design.
20.04	Describe and implement Aging in Place methodology.
21.0	Identify the elements of a basic agreement between the designer and the client; identify services and responsibilities – the student will be able to:

21.01	Describe the scope of basic interior design services.
21.02	Outline the mutual responsibilities of the owner and the designer.
22.0	Demonstrate knowledge of computer skills – the student will be able to:
22.01	Demonstrate knowledge of CAD and/or other comparable programs utilized in the industry.
22.02	Demonstrate knowledge of 2D and 3D computer drawing and graphics software.
22.03	Identify and research interior design sources on the Internet.
22.04	Demonstrate proficiency in printing and/or drawing to scale.
22.05	Input, manipulate, and export computer images using a variety of software programs and/or Internet resources.
22.06	Demonstrate design solutions and support information using various software programs.
23.0	Identify, research, and design sustainable interiors – the student will be able to:
23.01	Recognize, define, and understand the concepts and terminology of green/sustainable design and energy and water conservation.
23.02	Describe the differences between sustainable and green design.
23.03	Describe and apply the practice of Environmentally Responsible Interior Design (ERID).
23.04	Demonstrate the ability to identify, research, and use sustainable materials in interior design.
23.05	Identify the governing organizations associated with sustainable design.
23.06	Evaluate the cost of green/sustainable design; consider initial and long-term costs.
23.07	Recognize the concepts associated with sustainable design.
23.08	Define the terminology associated with sustainable design.
23.09	Identify appropriate sustainable design resources.
23.10	Identify the costs and requirements of sustainable design.
23.11	Identify the principles of sustainable lighting, acoustics, thermal comfort, and indoor air quality to enhance the health, safety, welfare, and performance of occupants.
23.12	Demonstrate an understanding of the concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants.
23.13	Identify sustainable interior construction and building systems.

23.14	Demonstrate an understanding of daylight, energy efficient luminaries, and alternative energy sources.
24.0	Develop and maintain a professional portfolio – the student will be able to:
24.01	Develop a professional portfolio (traditional and digital) that contains samples of work; maintain the portfolio.
25.02	Create a résumé and include in the portfolio.
26.0	Participate in an internship – the student will be able to:
26.01	Establish achievable goals related to an internship.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

Collegiate DECA - Delta Epsilon Chi is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Kitchen and Bath Specialization (0450040805) - 39 credit hours
- Home Staging Specialist (0450040807) - 12 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: New Media Communication
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1609049901
Program Type	College Credit
Standard Length	60 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-3099 – Media and Communication Workers, All Other

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content of this program includes, but is not limited to, the theoretical and technical processes of large and small scale communication, storytelling, journalism, and electronic content design and delivery. In particular, this program immerses the student in an examination of how to navigate new media communication platforms. Students also develop the appropriate business acumen and ethical sense to succeed amid the changing communication/media landscape. This program focuses on the application of emergent electronic and digital media platforms, addresses cultural changes affecting content creation and reception, and teaches effective digital storytelling techniques.

The purpose of this program is to prepare students for employment in traditional and new media fields (e.g., new media coordinators, communication specialists, copywriters, bloggers, digital journalists, editors, online news writers, social media coordinators, online newsroom managers, communication coordinators, entry level production or media staff, content developers, production specialists, other related new media careers).

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 60 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate effective professional, interpersonal, and intercultural communication skills.
- 02.0 Demonstrate the fundamental skills of the writing process for varied mass and new media communication platforms.
- 03.0 Demonstrate appropriate technical, analytical, and evaluative skills for new media content creation, delivery, and social impact.
- 04.0 Utilize a variety of digital applications for the production and distribution of new media projects.
- 05.0 Demonstrate understanding of new media communication web-based user-generated content, usability, and interoperability.
- 06.0 Demonstrate employability skills and participate in learning experiences relative to new media communication.
- 07.0 Demonstrate an understanding of the technical and industrial competencies relative to new media communication.
- 08.0 Demonstrate an understanding of research methods impacting new media communication content design and delivery.

Florida Department of Education
Student Performance Standards

Program Title: New Media Communication
 CIP Number: 1609049901
 Program Length: 60 credit hours
 SOC Code(s): 27-3099

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate effective professional, interpersonal, and intercultural communication skills – the student will be able to:
01.01	Demonstrate an understanding of varied communication theories.
01.02	Demonstrate effective oral communication and presentation skills.
01.03	Demonstrate understanding and appropriately apply modes of expression in written, visual, oral, and new media communication.
01.04	Demonstrate capacity to search for, synthesize, and disseminate information.
01.05	Participate effectively in group settings with emphasis on listening, persuasion, critical and reflective thinking, and responding.
01.06	Demonstrate understanding of cultural awareness and cultural “otherness.”
01.07	Demonstrate understanding of how culture and cultural differences affect new media communication design and delivery.
01.08	Demonstrate the skills required to interactively and critically participate in new media environments and platforms.
01.09	Identify the role of language in communication and new media contexts.
01.10	Analyze and evaluate the impact of language on cognition, communities, cultures, and organizations.
01.11	Demonstrate understanding of electronic or digital discourse and its impact on human interaction and new media communication.
01.12	Prepare and verbally deliver factual material in a direct and logical manner.
01.13	Demonstrate scholarly research skills.
01.14	Demonstrate the effective use of visual aids, technical equipment, and projected images appropriate for new media.
01.15	Demonstrate professional interviewing skills and general interpersonal communications.
01.16	Produce a body of work that demonstrates proficiency in language, spelling, mechanics, and grammar.

	01.17 Increase listening skills and the retention of information.
	01.18 Demonstrate understanding of effective methods of organizational change and leadership.
02.0	Demonstrate the fundamental skills of the writing process for varied mass and new media communication platforms – the student will be able to:
	02.01 Understand the nature of good writing and explain how writing for mass and/or new media communication differs from other formal writing forms.
	02.02 Recognize and compose grammatically correct writing.
	02.03 Demonstrate mastery of English grammar, syntax, and punctuation.
	02.04 Detail the elements of style that characterize the AP stylebook.
	02.05 Compose written media using established web-based technologies and software applications.
	02.06 Utilize the AP stylebook in print and/or digital form to answer queries and verify appropriate usage.
	02.07 Demonstrate proficiency in writing clear, informative captions to accompany images.
	02.08 Demonstrate understanding of visual media/images and the impact of these images on composition.
	02.09 Utilize spreadsheet software to organize and analyze data, perform calculations, and draft executive summaries for publication.
	02.10 Interpret, transcribe, and communicate information, data, and observations in a variety of new media formats.
	02.11 Prepare well-written professional communications/articles and reports using publishing applications and software for new media.
03.0	Demonstrate appropriate technical, analytical, and evaluative skills for new media content creation, delivery, and social impact – the student will be able to:
	03.01 Demonstrate understanding of media content at a literal level (e.g., capture others' ideas published on varied media platforms).
	03.02 Successfully interpret the meaning of new/emergent short content forms.
	03.03 Demonstrate the ability to utilize new media, digital publishing, and digital imaging software.
	03.04 Demonstrate the ability to interpret and construct dynamic models (simulation) and navigate information across various modalities.
	03.05 Demonstrate understanding of media authorship, format, and audience.
	03.06 Demonstrate understanding of the construction of media as a subjective and social process.
	03.07 Demonstrate understanding of new media content creation processes and delivery.
	03.08 Demonstrate understanding of co-creation and sharing relative to new media content creation.

03.09	Demonstrate understanding of and the ability to evaluate embedded values and ideologies in media/new media content.
03.10	Demonstrate understanding of the active/reactive or responsive nature of new media.
03.11	Demonstrate knowledge of content analytics and its methods of evaluation.
04.0	Utilize a variety of digital applications for the production and distribution of new media projects – the student will be able to:
04.01	Demonstrate proficiency in the use of appropriate new media, digital publishing, and digital imaging software applications.
04.02	Perform pre-production and post-production routines with new media-related hardware and software.
04.03	Understand compression techniques; demonstrate appropriate audio and video production and editing techniques.
04.04	Demonstrate the ability to establish web-based communicative content and accounts.
04.05	Demonstrate understanding of the relationship between psychology and user interface design and interaction design (IxD).
04.06	Demonstrate knowledge of various instructional and design methods for delivery of new media content on the Internet.
04.07	Identify a variety of web page design programs and programming standards; create web-based media content.
04.08	Utilize text editors for coding HTML.
04.09	Apply graphic design principles for the creation of web-based media content.
04.10	Demonstrate knowledge of project planning and production for new media content and delivery.
04.11	Complete web-based new media projects as defined by current industry needs.
04.12	Demonstrate proficient knowledge and use of Cascading Style Sheets (CSS), HTML5, Flash, search engine optimization (SEO), and content management systems (CMS).
05.0	Demonstrate understanding of new media communication web-based user-generated content, usability, and interoperability – the student will be able to:
05.01	Understand and demonstrate the use of metadata and design methods to enhance visibility and response rate.
05.02	Understand and demonstrate the use of appropriate assessment models for the efficacy of new media content delivery.
05.03	Demonstrate understanding of the elements of aesthetics in new media content creation and use.
05.04	Demonstrate understanding of how to create a user testing system to evaluate the efficacy of new media content delivery.
05.05	Demonstrate the ability to integrate information from a database within a new media or web-based structure.
05.06	Demonstrate understanding of user-generated content and interoperability in new media communication processes and platforms.

05.07	Demonstrate understanding of the impact of social networking on new media content delivery.
05.08	Utilize appropriate digital content tools to create new media projects emphasizing personal expression and storytelling.
05.09	Create and maintain various new media platforms and utilize content analytics.
05.10	Demonstrate understanding of the process of combining computer-generated imagery (CGI) with video/film elements.
06.0	Demonstrate employability skills and participate in learning experiences relative to new media communication – the student will be able to:
06.01	Demonstrate appropriate professional writing skills for producing and sharing media files, documents, and other forms of communication.
06.02	Utilize software applications to organize and analyze data, perform calculations and draft executive summaries for publication.
06.03	Examine and evaluate the business practices vital to the success of new media content creation and delivery.
06.04	Demonstrate understanding of organization and business communication practices.
06.05	Identify barriers to accurate and appropriate communication and demonstrate the ability to effect organizational changes.
06.06	Demonstrate understanding of the basic principles of finance, accounting, management, and marketing for new media communication.
06.07	Demonstrate knowledge of intellectual property, copyright, trademark, and basic contract law.
06.08	Demonstrate knowledge of appropriate ethical conduct.
06.09	Demonstrate knowledge of corporate social responsibility (CSR) standards for public relations and new media.
06.10	Acquire appropriate cultural capital and global citizenship skills necessary for success in a professional work environment.
06.11	Adapt learned skills and generate new approaches to solve specific production problems.
07.0	Demonstrate an understanding of the technical and industrial competencies relative to new media communication – the student will be able to:
07.01	Demonstrate proficiency in new media software applications.
07.02	Design and implement navigational structures for interactive new media environments/platforms.
07.03	Demonstrate the ability to synthesize the component elements of available new media technologies into a unified project.
07.04	Demonstrate the ability to engage in bilateral interaction to create new media content.
07.05	Demonstrate understanding of the differences between Web 1.0 and Web 2.0 and the latter's impact on new media communication.
07.06	Demonstrate understanding of the technical hardware/software utilized for the coordination and production of content.

07.07	Demonstrate the ability to use electronic reference materials for the assimilation and analysis of information and the production of content.
07.08	Demonstrate the ability to discern the quality and value of information collected via digital technologies; recognize bias.
07.09	Access, analyze, and implement appropriate and relevant quality assurance standards of practice.
07.10	Use a variety of computer platforms to demonstrate knowledge of storyboarding, interactivity, and scripting.
08.0	Demonstrate an understanding of research methods impacting new media communication content design and delivery – the student will be able to:
08.01	Identify and analyze essential ideas in research design, instrumentation, data collection, and analysis for new media communication.
08.02	Demonstrate foundational understanding of quantitative and qualitative research design processes for new media communication.
08.03	Conceptualize and develop a research proposal using quasi-experimental design methods.
08.04	Demonstrate basic understanding of how to build a framework for the use of statistics in communication processes.
08.05	Demonstrate understanding of conditions for internal and external validity.
08.06	Demonstrate understanding of the challenges in communication research that arise from differences in culture.
08.07	Demonstrate intercultural sensitivity and identify the impact of globalization on new media communication and research.
08.08	Demonstrate understand and use of research software for new media communication.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

Communication Leadership (0609049902) – 18 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

**Florida Department of Education
Curriculum Framework**

Program Title: Digital Television and Media Production
Career Cluster: Arts A/V Technology and Communication

AS	
CIP Number	1609070213
Program Type	College Credit
Standard Length	60 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4099 – Media and Communication Equipment Workers, All Other

Purpose

The purpose of this program is to prepare students for employment as television and video production personnel. Job titles include independent video producer, camera operator, floor director, technical producer, videographer, video editor, location/studio sound operator, broadcast graphics designer and webcast producer/director.

The content includes, but is not limited to, television, broadcast, video, design and Internet media training. This program focuses on broad transferable skills and stresses understanding and demonstration of the following elements of the television video and Internet/webcast industries: lighting, photography, design, camera operation, floor and television direction, post-production, editing and webcast production. Also included are skills relating to professionalism, employability, communication and management. Programs may include the following specialization areas: Broadcast Television, Video Production or Internet/Webcast Production.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 60 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate effective communication skills.
- 02.0 Demonstrate the ability to collaborate with others.
- 03.0 Demonstrate safe and efficient work practices.
- 04.0 Demonstrate knowledge of appropriate industry laws, regulations, trade terminology and ethical practices.
- 05.0 Develop a project proposal and script.
- 06.0 Generate a production schedule.
- 07.0 Plan a production set.
- 08.0 Acquire appropriate production resources.
- 09.0 Create appropriate lighting for location and/or set productions.
- 10.0 Operate studio and field video cameras.
- 11.0 Record, mix and edit audio resources.
- 12.0 Demonstrate knowledge of and skills related to streaming media.
- 13.0 Operate control room equipment.
- 14.0 Organize and edit video resources.
- 15.0 Design and generate graphic elements.
- 16.0 Direct a TV/video production or webcast.
- 17.0 Plan, coordinate, and manage a TV or video based production.
- 18.0 Create a marketing and distribution plan.
- 19.0 Demonstrate appropriate writing skills.
- 20.0 Demonstrate employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Digital Television and Media Production
 CIP Numbers: 1609070213
 Program Length: 60 credit hours
 SOC Code(s): 27-4099

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0 Demonstrate effective communication skills – the student will be able to:

01.01 Demonstrate presentation skills.

01.02 Prepare written correspondence.

01.03 Demonstrate effective oral communication skills.

01.04 Read and interpret written and oral directions.

02.0 Demonstrate the ability to collaborate with others – the student will be able to:

02.01 Demonstrate management and leadership abilities.

02.02 Demonstrate the ability to work as part of a team.

03.0 Demonstrate safe and efficient work practices – the student will be able to:

03.01 Follow industry safety rules, regulations and policies.

03.02 Demonstrate proper handling of hazardous materials.

03.03 Demonstrate awareness of appropriate ergonomics.

03.04 Demonstrate the proper care and use of equipment.

04.0 Demonstrate knowledge of appropriate industry laws, regulations, terminology and ethical practices – the student will be able to:

04.01 Define Federal Communications Commission (FCC) regulations pertaining to broadcasting and industry distribution methods.

04.02 Define the laws and regulations pertaining to the ownership and control of media assets, license allocation, measurement and records, political broadcasts and lottery laws.

04.03	Utilize trade terminology appropriately.
04.04	Utilize trade abbreviations and acronyms as appropriate.
04.05	Define the laws and practices underlying rights, releases and permits.
04.06	Define the laws and practices underlying slander, libel, free speech and “truth in advertising” issues and privacy rights.
04.07	Define the laws and practices underlying indecent programming, obscenity and censorship issues.
04.08	Define the laws and practices underlying contract, labor, copyright and insurance/liability issues.
05.0	Develop a project proposal and script – the student will be able to:
05.01	Identify a project goal.
05.02	Create a project budget.
05.03	Write a production script.
05.04	Develop a storyboard from a script.
05.05	Develop and/or respond appropriately to a request for proposal (RFP).
06.0	Generate a production schedule – the student will be able to:
06.01	Define the segment or program type.
06.02	Identify and acquire the necessary production resources.
06.03	Establish viable production time frame targets.
07.0	Plan a production set – the student will be able to:
07.01	Define the set requirements for a specific program type.
07.02	Develop and supervise set assembly and contract work.
07.03	Determine the required props, costumes, and other resources.
07.04	Acquire appropriate locations for segment type.
08.0	Acquire appropriate production resources – the student will be able to:
08.01	Identify project funding sources.

08.02	Acquire rights, releases and permits.
08.03	Cast talent.
08.04	Define personnel needs for production crew positions.
08.05	Define the tasks for contract professionals.
09.0	Create appropriate lighting for location and/or set productions – the student will be able to:
09.01	Determine appropriate lighting needs for production settings.
09.02	Identify locations and studio lighting types, methods of use and application.
09.03	Use lighting equipment according to industry safety standards.
09.04	Define light quality in terms of intensity, color, direction and characteristics.
09.05	Light a location set with ambient/available and supplemental lighting.
09.06	Use lighting for effect to control mood and impact in production settings.
09.07	Use studio lighting master control equipment.
10.0	Operate studio and field video cameras – the student will be able to:
10.01	Use current industry standard video production equipment.
10.02	Operate a camera in studio and location (field) production environments.
10.03	Plan a shot to obtain the required action/footage.
10.04	Demonstrate appropriate shot sequences, transitions, and post-production (editing) effects.
10.05	Control camera movement to obtain the required effects.
10.06	Control lens, focal length, aperture and exposure to obtain the required effects.
10.07	Set up the camera and recording equipment sequence.
10.08	Perform appropriate pre-production checks of equipment function.
10.09	Perform basic routine, preventative and repair maintenance on video equipment.
10.10	Define the various recording formats and media.

10.11	Define appropriate digital compression and signal (file) types.
11.0	Record, mix and edit audio resources – the student will be able to:
11.01	Identify and select microphones for production needs.
11.02	Determine optimal microphone placement.
11.03	Set up audio recording equipment.
11.04	Establish appropriate recording conditions.
11.05	Perform appropriate pre-production checks of production equipment.
11.06	Set up the audio mixing console and control equipment.
11.07	Acquire library and archive sound assets.
11.08	Perform sound edits and enhancements.
11.09	Perform sound dubs and overdubs.
11.10	Record location sound.
11.11	Record studio live sound.
11.12	Prepare recorded files for production use.
11.13	Record voice-over (VO) and soundtrack.
11.14	Perform routine, preventative and basic repair maintenance on audio equipment.
12.0	Demonstrate knowledge of and skills related to streaming media – the student will be able to:
12.01	Identify the technology to use for streaming media.
12.02	Operate the technology for steaming media.
12.03	Update, post and utilize Internet resources for audio and video.
12.04	Stream various media; include webcasting.
12.05	Post audio and video on database-driven and web-hosted sites for downloading and/or streaming.
13.0	Operate control room equipment – the student will be able to:

13.01	Define control room functions in a production.
13.02	Operate the audio console (mixer) in a production.
13.03	Operate visual control equipment.
13.04	Operate a production switcher.
13.05	Operate the routing switcher according to production requirements.
13.06	Follow legal standards for broadcast audio/video signal and levels.
13.07	Maintain production values and continuity.
13.08	Operate the Camera Control Unit (CCU).
14.0	Organize and edit video resources – the student will be able to:
14.01	Log and organize video resources.
14.02	Operate editing hardware and software.
14.03	Digitize video resources into post-production equipment and workflow.
14.04	Edit video, graphic elements, and audio.
14.05	Maintain continuity and production values.
14.06	Apply color correction to video footage.
14.07	Transfer the finished edit to appropriate media for streaming, distribution, or archiving.
15.0	Design and generate graphic elements – the student will be able to:
15.01	Determine the graphic requirements for a production.
15.02	Operate graphic production software.
15.03	Produce broadcast graphic elements for titling, credits, and graphic transitions.
15.04	Set up and operate character generator equipment and software.
15.05	Generate appropriate special effects for a production.
15.06	Demonstrate an understanding of graphic image types and files.

15.07	Use image-editing software.
15.08	Demonstrate the ability to use type, color, composition and graphic elements for specific production effects.
16.0	Direct a TV/Video production or webcast – the student will be able to:
16.01	List and explain crew functions that come under the director’s control.
16.02	Direct on-camera talent.
16.03	Direct the crew during production.
16.04	Direct camera operation, lighting and sound recording functions.
16.05	Direct set, property, and craft services.
16.06	Oversee continuity and production values.
17.0	Plan, coordinate, and manage a TV or video-based production – the student will be able to:
17.01	Define the program/segment format and market.
17.02	Present a project proposal and script for approval.
17.03	Develop a production schedule.
17.04	Create a plan to acquire all required production resources and talent.
17.05	Manage crew and staff during pre-planning and production.
17.06	Determine post-production requirements.
17.07	Coordinate post-production activities.
17.08	Conduct project evaluations.
17.09	Direct final production values.
17.10	Archive and manage finished assets and originals.
17.11	Oversee broadcast/distribution to market.
17.12	Explain various techniques for program or segments promotion.
17.13	Explain the techniques and procedures of web hosts, portals, television broadcast and cable networks, syndication and public broadcasters.

18.0	Create a marketing and distribution plan – the student will be able to:
18.01	Identify potential markets.
18.02	Identify clients.
18.03	Prepare bids and proposals.
18.04	Determine distribution method and format.
18.05	Define distribution logistics and technical requirements.
18.06	Determine the user interface for interactive elements.
18.07	Develop the delivery schedule.
18.08	Manage duplication/replication and distribution activities.
18.09	Develop revenue and payment projections.
19.0	Demonstrate appropriate writing skills – the student will be able to:
19.01	Write audio and video scripts for narrative, documentary, news, and related script styles.
19.02	Demonstrate appropriate use of formats for various script styles.
19.03	Write copy for TV, radio, and web-based delivery.
19.04	Demonstrate correct use of English language and grammar in written reports about technology, planning, justifications and related industry job requirements.
20.0	Demonstrate employability skills – the student will be able to:
20.01	Create and write a résumé and cover letter.
20.02	Prepare and develop a portfolio to present in the appropriate format for the chosen medium.
20.03	Secure information about a job position.
20.04	Identify documents that may be required when applying for a job interview.
20.05	Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other employees.
20.06	Identify acceptable work habits.
20.07	Demonstrate knowledge of the Federal Hazard Communication regulation (29 CFR 1910.1200).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Television Studio Production (0610010513) - 12 credit hours
- Digital Video Fundamentals (0610030414) - 12 credit hours
- Webcast Media (0650010215) - 12 credit hours
- Broadcast Production (0610020216) - 24 credit hours
- Video Editing and Post Production (0609040217) - 24 credit hours
- Webcast Technology (0650010218) - 24 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Interactive Media Production Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1610020101
Program Type	College Credit
Standard Length	65 credit hours
CTSO	Skills USA
SOC Codes (all applicable)	27-1014 – Media Artist and Animators 27-2012 – Producers and Directors 27-3099 – Media and Communication Workers, All Other

Purpose

The purpose of this program is to prepare students for employment as media, multimedia, and interactive media editors and producers. In the program, students will combine skills in critical thinking, writing, photography, video, audio, social media, web creation/design and analytics to produce both traditional and multimedia interactive media productions.

The course includes the following: basic and creative writing, reportage, digital still photography, still photography post-production, videography, video post-production, sound integration and mixing, drawing, design, typography, website creation and design, statistics and analytics.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the media production industry; audience analysis and estimation, media literacy, interpersonal and business communications, employability skills, portfolio development, community and multicultural sensitivity and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 65 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Evaluate audience feedback and analytics of multi-media projects.
- 02.0 During the planning process for elements of multi-media projects, critically evaluate relevant information and assets for target audiences.
- 03.0 Demonstrate competency in still photography and still photography post-production.
- 04.0 Demonstrate competency in videography, lighting for videography and video post-production.
- 05.0 Demonstrate competency in audio recording and audio post production.
- 06.0 Demonstrate competency in design and layout.
- 07.0 Demonstrate competency in web creation and delivery.
- 08.0 Demonstrate competency in writing and reportage.
- 09.0 Demonstrate professional interpersonal and business communication skills in a diverse environment.
- 10.0 Create finished multi-media project incorporating still photography, video, audio, web creation, design, analytics, writing and reportage.

Florida Department of Education
Student Performance Standards

Program Title: Interactive Media Production Technology
CIP Number: 0610020101
Program Length: 65 credit hours
SOC Code(s): 27-1014; 27-2012; 27-3099

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Evaluate audience feedback and analytics of multi-media projects – the student will be able to:
01.01	Apply effective user-interface design across platforms.
01.02	Critically analyze the historical dimensions of past and present communications and communication trends.
01.03	Select the appropriate platforms for disseminating media to target audiences.
01.04	Select, combine and utilize the appropriate media for various audiences.
02.0	During the planning process for elements of multi-media projects, critically evaluate relevant information and assets for target audiences – the student will be able to:
02.01	Demonstrate the ability to compare and contrast traditional and current production techniques and emerging technologies in the changing media landscape
02.02	Demonstrate competency in the selection of various media for multi/interactive media productions
02.03	Analyze metrics for incorporation into the determination of multi/interactive media productions.
02.04	Discuss ethical and legal issues as they relate to the media industry.
03.0	Demonstrate competency in still photography and still photography post-production – the student will be able to:
03.01	Demonstrate proficient camera and light meter operation.
03.02	Control image depth of field and critical focus by effectively using different focal length lenses.
03.03	Demonstrate competency in navigating image-editing and workflow software.
03.04	Capture raw and jpeg images, and process these images.
03.05	Scan film and prints using scanners.

03.06	Produce edited images for presentation.
03.07	Produce digital photographs with appropriate contrast, density and tonality.
03.08	Use composition, cropping and point-of-view to create effective image design.
04.0	Demonstrate competency in videography, lighting for videography and video post-production – the student will be able to:
04.01	Create appropriate lighting for studio and locations.
04.02	Operate a video camera in studio and in field.
04.03	Capture studio and field footage.
04.04	Operate control room equipment.
04.05	Review and organize video and audio in preparation for editing.
05.0	Demonstrate competency in audio recording and audio post production – the student will be able to:
05.01	Select and utilize essential equipment, including microphones, recorders, preamplifiers, and accessories in the capture of dialog and other audio in both field and studio settings.
05.02	Demonstrate competency in gain-staging the analog output of a microphone to the point of digital conversion and capture.
05.03	Demonstrate competency with the main functions of an industry-standard digital audio workstation, such as mixing multiple signals, importing and exporting audio, and editing audio clips.
05.04	Demonstrate an understanding of room acoustics and the impact this has on audio recording within any given space.
05.05	Demonstrate competency with amplitude and spectrum effects such as compression, equalization, noise reduction, expanders, and gates.
05.06	Demonstrate competency with synchronization between various pieces of professional audio and video equipment.
05.07	Demonstrate an understanding and application of modern standards for broadcast audio, such as the International Telecommunications Union's BS.1770.
06.0	Demonstrate competency in design and layout – the student will be able to:
06.01	Describe the individual art elements used in design.
06.02	Demonstrate basic principles of design.
06.03	Demonstrate a competency of design tools and materials.
06.04	Define the various job categories that make up the design industry.
06.05	Define basic terminology used in the design industry and its related fields.

06.06	Define visual communication and related components.
06.07	Demonstrate proper usage of design tools, equipment and materials.
06.08	Demonstrate methods for conceptualizing and visualizing ideas.
06.09	Demonstrate knowledge of composition and layout including aesthetic arrangement, placement and relationship of elements.
06.10	Demonstrate the design process as used in the graphic design industry.
06.11	Demonstrate knowledge of basic typography.
06.12	Demonstrate knowledge of measurement systems used in the graphic design industry.
07.0	Demonstrate competency in web creation and delivery – the student will be able to:
07.01	Create web home page and sites.
07.02	Identify the terms, concepts, and components used in the internet and web environment.
07.03	Create publications for the internet incorporating graphics.
07.04	Utilize digital media computer software toward the creation of interactive web publishing.
07.05	Create websites that incorporate hyper media/text elements.
07.06	Demonstrate methods for conceptualizing and visualizing ideas.
07.07	Design and create tables.
07.08	Create hyperlinked images.
07.09	Create framed documents.
07.10	Produce flow chart to solve communication, navigation and technical challenges in the web environment
07.11	Develop and produce single and multi-frame layouts from templates.
07.12	Demonstrate skills in extending site functionality/interactivity.
08.0	Demonstrate competency in writing and reportage – the student will be able to:
08.01	Recognize the difference between facts and opinions.
08.02	Identify legal and ethical implications, as well as restrictions on the media, and apply them to writing assignments.

08.03	Know and employ style, terms and jargon associated with media platforms.
08.04	Arrange and conduct interviews and build sources in story development.
09.0	Demonstrate professional interpersonal and business communication skills in a diverse environment – the student will be able to:
09.01	Prepare and verbally deliver factual material in a direct and logical manner.
09.02	Demonstrate scholarly research skills.
09.03	Demonstrate persuasive techniques.
09.04	Demonstrate the effective use of visual aids, technical equipment and projected images.
09.05	Demonstrate professional interviewing skills and general interpersonal skills in diverse populations.
09.06	Demonstrate competency in language, spelling, mechanics and grammar.
09.07	Demonstrate active listening skills for retention of information.
10.0	Create finished multi-media project incorporating still photography, video, audio, web creation, design, analytics, writing and reportage – the student will be able to:
10.01	Demonstrate team skills in the production of multi-media projects.
10.02	Model safe and efficient work practices.
10.03	Select and utilize visuals for multi/interactive media productions.
10.04	Select and utilize audio resources for multi/interactive media productions.
10.05	Combine audio and video sources for multi/interactive media productions.
10.06	Utilize web elements to disseminate multi/interactive media productions.
10.07	Track effectiveness and dissemination of interactive media productions with analytic data.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Radio and Television Broadcast Programming
Career Cluster: Arts A/V Technology and Communication

AS

CIP Number	1610020202
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4032 – Film and Video Editors

Purpose

The purpose of this program is to prepare the student for employment as a broadcast director.

The content includes but is not limited to: commercial or industrial TV and radio/studio assisting, camera operating, technical directing, producing video tape or film chain operating, audio controlling, gaffing, grip, or script writing. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Radio and Television industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of the television production technology program instructional system, safety procedures and trade terminology.
- 02.0 Plan a set for television production.
- 03.0 Perform lighting activities for a planned production.
- 04.0 Operate studio color television camera.
- 05.0 Perform video tape recording and editing operations.
- 06.0 Perform television production and programming activities.
- 07.0 Perform character generator and special effects generator functions.
- 08.0 Operate television studio audio control system.
- 09.0 Perform Electronic News Gathering (ENG) and Electronic Field Production (EFP) equipment functions.
- 10.0 Perform basic film operations.
- 11.0 Perform routine operator preventative maintenance operations.
- 12.0 Demonstrate appropriate communication skills.
- 13.0 Demonstrate appropriate math skills.
- 14.0 Demonstrate appropriate understanding of basic science.
- 15.0 Demonstrate employability skills.
- 16.0 Demonstrate appropriate broadcast speaking manner.
- 17.0 Operate control room equipment.
- 18.0 Demonstrate radio broadcasting skills.
- 19.0 Explain and demonstrate news broadcasting.
- 20.0 Write broadcast news.
- 21.0 Explain and demonstrate ability to properly control radio traffic.
- 22.0 Write commercial copy.
- 23.0 Explain programming concepts.
- 24.0 Describe business aspects of broadcasting.
- 25.0 Explain surveys and demographics.
- 26.0 Explain rules and regulations governing radio broadcasts.
- 27.0 Perform radio broadcasting functions.
- 28.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Radio and Television Broadcast Programming
CIP Number: 1610020202
Program Length: 64 credit hours
SOC Code(s): 27-4032

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate knowledge of the television production technology program instructional system, safety procedures and trade terminology – the student will be able to:
01.01	Describe the operating system of the vocational program.
01.02	State and apply general safety rules for operation of equipment and learning activities in the lab.
01.03	Utilize trade terminology in the television production lab.
01.04	Utilize trade abbreviations and acronyms as appropriate.
01.05	Transport equipment safely and securely.
01.06	Store equipment in appropriate locations.
02.0	Plan a set for television production – the student will be able to:
02.01	Prepare television set for a planned production.
02.02	Draw and design a set plan to scale.
02.03	Select and arrange stage props.
02.04	Utilize hand tools to construct scene components.
02.05	Inspect and repair scenery as needed.
03.0	Perform lighting activities for a planned production – the student will be able to:
03.01	Describe types of lighting fixtures.
03.02	Identify parts of lighting fixtures.

03.03	Perform special-effects lighting.
03.04	Set-up appropriate lighting for a production.
03.05	Describe functions of master lighting panel and dimmer board.
03.06	Operate master lighting panel to dimmer board.
03.07	Analyze lighting needs for production.
03.08	Describe dangers of high intensity studio lighting.
03.09	Understand lighting theory.
04.0	Operate studio color television camera – the student will be able to:
04.01	Describe major parts of a studio camera.
04.02	Align camera for a studio production.
04.03	Perform appropriate camera movements.
04.04	Operate camera for commercial recording.
04.05	Operate camera for studio production.
04.06	Perform floor director's functions.
04.07	Understand CCU Camera Control Unit.
05.0	Perform video tape recording and editing operations – the student will be able to:
05.01	Identify and describe different video tape machines.
05.02	Describe operational parts of a video tape machine.
05.03	Operate video tape machine to record and playback.
05.04	Describe operational parts of a video cassette editor.
05.05	Perform assemble edits.
05.06	Perform insert edits.
05.07	Set up video tape machines.

05.08	Set up video cassette editor.
05.09	Recognize different video tape formats.
06.0	Perform television production and programming activities – the student will be able to:
06.01	Operate master switcher.
06.02	Operate routing switcher for production and tape dubs.
06.03	Set up machines and tuner for in-house playback.
06.04	Develop script for a program.
06.05	Draw story board for a planned production.
06.06	Direct participants in production of a program.
06.07	Perform on-camera.
06.08	Act as producer to get program from idea to air.
06.09	Operate through the lens teleprompter.
07.0	Perform character generator and special effects generator functions – the student will be able to:
07.01	Describe operational parts of character generator.
07.02	Set up character generator.
07.03	Describe inputs of special effects generator.
07.04	Operate special effects generator during production.
07.05	Operate character generator during production.
07.06	Demonstrate basic computer literacy.
07.07	Demonstrate knowledge of computer generated video graphics.
08.0	Operate television studio audio control system – the student will be able to:
08.01	Identify and select microphones for production.
08.02	Place microphones for maximum effect.

08.03	Describe parts of cartridge machine.
08.04	Set up cartridge machine for production.
08.05	Operate cartridge machine during recording and playback.
08.06	Describe parts of reel-to-reel tape machine.
08.07	Set up reel-to-reel tape and cassette tape machines for production.
08.08	Operate reel-to-reel tape and cassette tape machines for production.
08.09	Describe parts of a turntable.
08.10	Operate turntable for production.
08.11	Describe parts of audio mixing console.
08.12	Operate audio mixing console.
08.13	Operate cassette with search for production.
08.14	Operate compact disc sound source during production.
09.0	Perform Electronic News Gathering (ENG) and Electronic Field Production (EFP) equipment functions – the student will be able to:
09.01	Describe ENG and EFP port-a-PAC components.
09.02	Set up port-a-PAC for field production.
09.03	Operate port-a-PAC during production segments.
09.04	Complete a field production from writing to shooting to VCR electronic editing.
10.0	Perform basic film operations – the student will be able to:
10.01	Operate film editor.
10.02	Edit film for time slot.
10.03	Describe parts of Film Island.
10.04	Set-up Film Island for production.
10.05	Demonstrate skill in both cut and paste editing and transfer to tape electronic editing.

11.0	Perform routine operator preventative maintenance operations – the student will be able to:
11.01	Describe types of video connectors.
11.02	Describe types of audio connectors.
11.03	Assemble audio and video cables.
11.04	Clean tape heads on audio recording equipment.
11.05	Clean tape heads on video recording equipment.
11.06	Replace broken knobs.
11.07	Replace sliders and potentiometers.
11.08	Replace head shell/cartridge and balance tone arm.
11.09	Replace bulb in light fixture.
12.0	Demonstrate appropriate communication skills – the student will be able to:
12.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
12.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
12.03	Read and follow written and oral instructions.
12.04	Answer and ask questions coherently and concisely.
12.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
12.06	Demonstrate appropriate telephone/communication skills.
13.0	Demonstrate appropriate math skills – the student will be able to:
13.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
13.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
13.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
13.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
13.05	Demonstrate an understanding of federal, state and local taxes and their computation.

14.0	Demonstrate appropriate understanding of basic science – the student will be able to:
14.01	Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
14.02	Draw conclusions or make inferences from data.
14.03	Identify health related problems which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
14.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.
15.0	Demonstrate employability skills – the student will be able to:
15.01	Conduct a job search.
15.02	Secure information about a job.
15.03	Identify documents which may be required when applying for a job interview.
15.04	Complete a job application form correctly.
15.05	Demonstrate competence in job interview techniques.
15.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
15.07	Identify acceptable work habits.
15.08	Demonstrate knowledge of how to make job changes appropriately.
15.09	Demonstrate acceptable employee health habits.
15.10	Prepare a resume.
15.11	Prepare an audio audition tape (required).
15.12	Prepare a video audition tape (optional).
15.13	Write a letter of introduction.
15.14	Demonstrate knowledge of Radio/TV career patterns.
15.15	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
16.0	Demonstrate appropriate broadcast speaking manner – the student will be able to:
16.01	Identify and correct own vocal deficiencies.

16.02	Demonstrate his ability to breathe properly, project and control loudness, resonate his voice and vary tone, pitch and pace.
16.03	Articulate and pronounce words according to accepted standards.
16.04	Understand the basic elements of good speech.
16.05	Express feelings with voice.
16.06	Interpret copy for dramatic content.
17.0	Operate control room equipment – the student will be able to:
17.01	Demonstrate a working familiarity and understanding of the functions of an audio console (mixer).
17.02	State the characteristics of various microphone types and demonstrate the ability to use them.
17.03	Demonstrate knowledge of and ability to operate turntables, tape recorders, cart recorders and playbacks.
17.04	Handle remote sources through the console.
17.05	Demonstrate how to handle an audio portion of a deejay show and news program, putting together all the elements of audio control in radio.
17.06	Demonstrate ability to work as an audio control operator in TV or radio studio production.
17.07	Understand the ad-lib format and show proficiency in that style of broadcast.
18.0	Demonstrate radio broadcasting skills – the student will be able to:
18.01	Outline the qualifications and requirements of a radio announcer.
18.02	Demonstrate development of the skills of announcing, the various techniques of delivery and procedures according to accepted standards.
18.03	Demonstrate the ability to perform to standards before a TV camera, visually and orally.
18.04	Perform the various assignments in a professional manner, for both radio and TV, according to industry standards.
19.0	Explain and demonstrate news broadcasting – the student will be able to:
19.01	Differentiate between news, commentary, and editorials.
19.02	Demonstrate ability to mark, edit, and present news in an acceptable manner.
19.03	Demonstrate ability to use the various equipment of a newsroom.
19.04	Identify the various sources of news and how they are used.

19.05	Demonstrate ability to ad-lib from the scene, interview guests, and type news stories.
19.06	Understand and interpret criticism of broadcast news.
20.0	Write broadcast news – the student will be able to:
20.01	List the elements that constitute news materials and evaluate them.
20.02	Demonstrate ability to write news stories in broadcast style.
20.03	Be able to use the broadcast style page format.
20.04	Understand the technique of using present of past perfect tense in writing broadcast news.
21.0	Explain and demonstrate ability to properly control radio traffic – the student will be able to:
21.01	State the duties of the traffic department.
21.02	List the elements and procedures of log-keeping.
21.03	Demonstrate a working knowledge of the rules and regulations pertaining to traffic control and standards of performance.
21.04	Demonstrate the ability to create a program log.
22.0	Write commercial copy – the student will be able to:
22.01	Explain the job of a copy writer and outline the elements of good copy.
22.02	Demonstrate ability to write commercial continuity in its various forms.
22.03	Demonstrate ability to select and utilize music and sound effects in the production of recorded copy.
22.04	Demonstrate ability to edit, splice, dub, overlap sound or otherwise utilize various production techniques.
23.0	Explain programming concepts – the student will be able to:
23.01	List and explain the various functions under the control of the program director.
23.02	Differentiate between formats used in large and small markets.
23.03	Explain various methods of station promotion, including procedures and rules.
23.04	Explain the techniques and procedures of networks, syndication, news, talk, sports, special events, public service and music programs.
23.05	Identify the various music formats used in contemporary radio.

23.06	Understand FCC rules dealing with indecent programming and obscenity.
24.0	Explain business aspects of broadcasting – the student will be able to:
24.01	Explain the determination of cost and expense involved in station operation, the financial structure, the evaluation of time to the station and its clients.
24.02	List procedures and techniques of radio sales and demonstrate the ability to use maps, rate cards, contracts, etc., in accordance with station practice.
24.03	Explain the requirements and regulations of station ownership.
24.04	Describe the development of media advertising and explain the various forms utilized in the industry today.
25.0	Explain surveys and demographics – the student will be able to:
25.01	Explain the methods of measurement used by broadcasters and evaluate their function in the overall operation of a station.
25.02	Outline the methodology of pulse, ARB, and explain the use of the SRDS.
26.0	Explain rules and regulations governing radio broadcasts – the student will be able:
26.01	Demonstrate an understanding of rules and regulations governing licenses, measurement and records, political broadcasts, and lottery laws.
26.02	Will show an understanding of the features in broadcasting magazine including the update on all broadcasting litigation and lawmaking.
27.0	Perform radio broadcasting functions – the student will be able to:
27.01	Perform to high standards in the role of audio operator, announcer, deejay, newsman, interviewer and commercial production, in varied format situations.
28.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
28.01	Define entrepreneurship.
28.02	Describe the importance of entrepreneurship to the American economy.
28.03	List the advantages and disadvantages of business ownership.
28.04	Identify the risk involved in owning a business.
28.05	Identify the personal characteristics of a successful entrepreneur.
28.06	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Animation and Game Art
Career Cluster: Arts A/V Technology and Communication

AS

CIP Number	1610030400
Program Type	College Credit
Standard Length	60 credit hours
CTSO	PBL
SOC Codes (all applicable)	27-1011 - Art Directors 27-1014 - Multi-Media Artists and Animators 27-1024 - Graphic Designers 27-2012 - Producers and Directors 27-3099 - Media and Communication Workers, All Other

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

The purpose of this program is to teach students the fundamentals of Animation and Game Art as a viable career option. The program will also give students an opportunity to evaluate their potential as animators and game designers. Coursework covers all aspects of animation, character design, motion capture, production & editing, and various multi-media skills needed for success.

The content includes but is not limited to The content includes but is not limited to practical experiences in modeling and simulation conceptualization, design, storyboarding, development methodologies, essential programming techniques, prototype development, production processes and implementation challenges. Science, Computer Programming, Math, 2D and 3D Art are embedded throughout the program to emphasize the relationship between these areas and the field of Modeling and Simulation.

The content includes but is not limited to rendering three-dimensional forms into two-dimensional drawings, digital art and design, narrative storytelling, storyboarding, basic computer animation skills, 3D animation modeling, rendering and character animation, character design,

development, rigging and animation, motion graphics, designing and implementing computer animation projects, and producing a 3D animated short film, Gaming and Animation, Robotics and/or Geospatial/Geographic Information Systems Technology.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 60 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Render three-dimensional forms into two-dimensional drawings.
- 02.0 Demonstrate proficiency in digital art and design.
- 03.0 Demonstrate proficiency in narrative storytelling.
- 04.0 Demonstrate proficiency in storyboarding.
- 05.0 Demonstrate proficiency in basic computer animation skills.
- 06.0 Demonstrate proficiency in 3D animation modeling, rendering and character animation.
- 07.0 Demonstrate proficiency in character design, development, rigging and animation.
- 08.0 Demonstrate proficiency in motion graphics.
- 09.0 Demonstrate proficiency in designing and implementing computer animation projects.
- 10.0 Produce a 3D animated short film.

Florida Department of Education
Student Performance Standards

Program Title: Animation and Game Art
 CIP Number: 1610030400
 Program Length: 60 credit hours
 SOC Code(s): 27-1011, 27-1014, 27-1024, 27-2012 and 27-3099

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Render three-dimensional forms into two-dimensional drawings – the student will be able to:
01.01	Define the elements of art as they relate to drawings.
01.02	Create solutions to assigned drawings problems directed to specific elements.
01.03	Describe the effects of specific drawings in critique discussion.
01.04	Define the principles of design related to drawing.
01.05	Identify and describe the key principles of scene composition.
01.06	Create solutions to assigned drawing problems as they relate to composition.
01.07	Observe and translating of three-dimensional live models into two-dimensional gesture drawings as quick and direct impressions of the subject.
01.08	Construct the figure starting from simple shapes to complex organic forms.
01.09	Draw parts of the figure in correct proportion.
01.10	Apply knowledge of skeletal, muscular, and surface anatomy.
01.11	Draw the figures in relation to mass and plane by using value and/or line.
01.12	Draw parts of the figure in relation to foreshortening and overlapping shapes.
01.13	Draw the figure as a three dimensional rendering through light and shadow in developing value scale
01.14	Design characters and objects for animation based on the building blocks of drawing and design.
01.15	Explore historical and contemporary design styles and techniques.

01.16	Develop a wide range of character types, traits, mood, personalities, and attitudes for visually realizing an animated character.
01.17	Create model sheets.
02.0	Demonstrate proficiency in digital art and design – the student will be able to:
02.01	Define perspective in a composed scene.
02.02	Create a one, two, and three point perspective in a composition.
02.03	Create drawings that employ basic compositional devices, including focal point, balance, unity, scale, proportion, contrast, movement, variety, and dominance.
02.04	Acquire digital images utilizing hardware and software related to digital image acquisition.
02.05	Edit and recreate images.
02.06	Apply color management basics to enhance images.
02.07	Work with available tools like masking, layering, retouching, scanning to recreate, edit, or enhance acquired images.
02.08	Output the final image.
02.09	Identify design and color terminology, traditional and electronic.
02.10	Discuss the application of color theory to the graphic environment.
02.11	Analyze target audience preferences and cultural influences as they impact design decisions (e.g., various color responses based on gender, age, education, earning levels and culture).
02.12	Use software tools to express visual ideas digitally.
02.13	Create digital media from existing images and elements.
02.14	Create a digital image based on a descriptive narrative.
02.15	Utilize perspective as a tool to depict the illusion of three-dimensional space on a two-dimensional surface.
02.16	Translate and apply hand skill techniques into a digital environment.
02.17	Create a finished digital environment that exhibits sound composition and design principles.
03.0	Demonstrate proficiency in developing and writing a story – the student will be able to:
03.01	Define the 12 basic principles of animation.
03.02	Describe real-world movements and how to adapt them to the animation medium.

03.03	Define the timing and length of a movement or sequence.
03.04	Identify and discuss the key dynamic elements of storytelling in film, television and animation media.
03.05	Develop stories and write scripts for multi-media platform.
03.06	Create a screenplay in which structure, character development, dialogue, tone, and theme are incorporated and clearly demonstrated.
03.07	Compare and contrast the historical perspective of both traditional and computer animation.
03.08	Create and produce an animated sequence of events/movements.
03.09	Produce a breakdown dialogue and/or audio.
03.10	Animate interactions between characters and objects.
03.11	Develop a character, its physical attributes and environments and apply them onto moving or still backgrounds.
03.12	Animate images utilizing the concept of in betweening and including: charts and breakdown drawings, slowing in and slowing out, thirds, key points, superimposition, arcs, and tracebacks.
03.13	Characterize head turns and eye movements.
03.14	Create walks and runs to include: passing position, walk cycles, background pans, front on walks, animated and still backgrounds, adding arms and legs and feet, introducing personality, double bounces walk timing, anticipation, and exaggerated action.
03.15	Add realistic touch to include: weight in movement, anticipation and weight, flexibility, overlapping action, animated effects, such as wind, water, fire, and solid objects.
03.16	Create and design camera movements, pans and zooms.
03.17	Write and create all digital elements of an original story.
03.18	Insert audio, music and sound effects.
03.19	Perform final edit to include color correction, and adding titles and credits.
03.20	Render the final product.
04.0	Demonstrate proficiency in storyboarding – the student will be able to:
04.01	Translate gestures and emotions into still digital images.
04.02	Create logical sequences to portray a character’s emotional state.
04.03	Create logical sequencing to portray continuity.
04.04	Add character, object and background, and movement indicators to specify actions.

04.05	Portray different camera angles.
04.06	Indicate movement of the camera throughout the sequences.
04.07	Indicate camera cuts and scene transitions.
04.08	Pair dialogue with digital images.
04.09	Write the actions of each board to complement the digital images.
04.10	Indicate placement of sound effects and original music.
05.0	Demonstrate proficiency in basic computer animation skills – the student will be able to:
05.01	Create geometric utilizing points, vectors and polygons and curves.
05.02	Discuss the application of Open GL and how pixels, light and RGB colors are displayed on a computer screen.
05.03	Manipulate objects quickly in perspective, top, side and front views simultaneously.
05.04	Utilize primitive shapes to model 3D forms.
05.05	Describe the difference between non-uniform rational B splines (NURBS), polygons and sub division surfaces and apply these techniques to create 3D forms.
05.06	Use a 3D polygonal modeling toolset (extrude, lattices etc.) to create 3D forms.
05.07	Manipulate points, vertices, edges and faces to create 3D forms.
05.08	Create and use loft, planar, lathe and other NURBS surface tools.
05.09	Create complex geometric forms from curves.
05.10	Convert curves into polygons and a variety of other objects.
05.11	Create a digital 3D object from a sketch.
05.12	Discuss different types of techniques available to apply textures to geometry and how light interplays with a computer surface.
05.13	Describe how Open GL (high performance graphics) displays works with texture mapping and gaming.
05.14	Describe the differences between various rendering engines (e.g., Mental Ray, Renderman and VRay).
05.15	Create 3D cameras to produce depth of field, motion blur and exposure effects.
06.0	Demonstrate proficiency in 3D animation modeling, rendering and character animation – the student will be able to:

06.01	Model geometry and create objects in a 3D environment, based on a 2D render.
06.02	Utilize Mesh Topology at different mesh resolutions.
06.03	Distinguish between visimes, animation keys, and graph.
06.04	Use visimes, animation keys and graph editors to create realistic lip-synced animations.
06.05	Create blend shapes.
06.06	Add voice and sounds to animated characters.
06.07	Interpolate the finished model into a 3D software application.
06.08	Create a working character rig for animation.
06.09	Outline the process of binding objects using smooth and rigid binding tools.
06.10	Create the skeleton rig to work with mesh deformers.
06.11	Bind the skeleton through the process of painting weights to influence geometry.
06.12	Use lighting setups to convey mood, story, and feeling.
06.13	Apply techniques of global illumination and ambient occlusion to light the scene.
06.14	Work with distributed renderings and render passes.
07.0	Demonstrate proficiency in character design, modeling, rigging and animation – the student will be able to:
07.01	Plan the work flow and troubleshoot challenges and issues with the software.
07.02	Present concepts of work and character model sheets in a professional manner.
07.03	Model a highly detailed character in ZBrush.
07.04	Create and modeling a highly detailed environment.
07.05	Create highly realistic texture maps (hair, fur).
07.06	Rig the character using Maya muscle and cloth dynamic caches.
07.07	Match realistic lighting and 3D lighting.
07.08	Work with motion control cameras to recreate camera moves with live action actor/actress.

07.09	Work in teams to perfect live action shots.
07.10	Utilize Maya live and Apply 3D points to track and recreate 3D camera moves.
07.11	Submit jobs to the render farm and playing the role of render wrangler.
07.12	Work with different render passes and layers for color correction.
07.13	Composite a green screen scene and CGI elements together.
08.0	Demonstrate proficiency in motion graphics – the student will be able to:
08.01	Create new compositions.
08.02	Work with layers in a project.
08.03	Animate elements through the use of keyframes.
08.04	Utilize default effects available with the software.
08.05	Move objects and elements in 3D space.
08.06	Import footage into compositions.
08.07	Pre-compose composition elements in one composition.
08.08	Re-link missing footage.
08.09	Import Photoshop documents and Illustrator files.
08.10	Create timesteps and fonts.
08.11	Create layer solids and shapes with masks.
08.12	Build shape layers.
08.13	Utilize switches and blend modes to alter output.
08.14	Craft custom shapes and masks.
08.15	Create variable-width feathered masks.
08.16	Rotoscope and refine with the roto brush.
08.17	Control animation with parenting and the pick whip.

08.18	Create animation paths.
08.19	Time animation to audio.
08.20	Trim and sliding edits.
08.21	Swap images in the timeline.
08.22	Layer multiple effects.
08.23	Generate graphic effects with adjustment layers.
08.24	Build backgrounds with effects.
09.0	Demonstrate proficiency in designing and implementing computer animation projects – the student will be able to:
09.01	Explain the components that compose the story.
09.02	Define the storytelling structure and character styles.
09.03	Create a theme that balances realism with imagination.
09.04	Choose an industry genre.
09.05	Create structure and pacing.
09.06	Develop a consistent character for the story.
09.07	Correlate the appropriate style and story.
09.08	Create and develop moods.
09.09	Create character and background connections.
09.10	Construct and planning scenes.
09.11	Use the mechanics of storyboarding.
09.12	Incorporate diagram panels and numbering.
09.13	Create a production pipeline and analyze a budget.
09.14	Schedule the project production.
09.15	Organize assets.

09.16	Write and record vocal tracks.
09.17	Create exposure sheets.
09.18	Create 2D animatics.
09.19	Assemble scene shots.
10.0	Produce a short 3D animated film – the student will be able to:
10.01	Build a 3D animatic.
10.02	Set up the stage.
10.03	Create object and character movement.
10.04	Manipulate camera direction.
10.05	Compile reference material.
10.06	Create Draws and sculptures.
10.07	Choose modeling techniques.
10.08	Create necessary blend shapes.
10.09	Assign materials to geometry.
10.10	Choose material types.
10.11	Create original textures.
10.12	Create background plates.
10.13	Rig the character.
10.14	Bind the character.
10.15	Create facial systems for the character.
10.16	Set up secondary characters and secondary objects.
10.17	Define and choosing animation styles.
10.18	Block the scenes to be animated.

10.19	Create dope sheets for the project.
10.20	Animate a character.
10.21	Apply forward kinematics and inverse kinematics.
10.22	Animate facial expressions.
10.23	Choose appropriate lighting attributes for the scene.
10.24	Choose natural versus artificial lighting.
10.25	Apply shadows to characters and objects.
10.26	Choose from available lighting techniques.
10.27	Render the scenes.
10.28	Create a lighting and rendering production workflow.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

Phi Beta Lambda (PBL) is the intercurricular career and technical student organization providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

**Florida Department of Education
Curriculum Framework**

Program Title: Digital Media/Multimedia Technology
Career Cluster: Arts A/V Technology and Communication

AS

CIP Number	1611080103
Program Type	College Credit
Standard Length	60 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	15-1134 – Web Developers 27-4011 – Audio and Video Equipment Technicians

Purpose

The purpose of this program is to prepare students for initial employment in the following professions: digital media/multimedia programmer, digital media/multimedia project manager, web designer/web developer/web production artist, audio visual technician/audio technician, lighting technician, graphic animator, graphic designer, videographer/editor, video engineer, digital media/multimedia producer, technical director, instructional designer or interface designer. This program may also be used to provide supplemental training for persons previously or currently employed in these occupations.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

The content should include, but not be limited to, the learning of management skills permitting the graduate to oversee the operation of institutional and industrial multiple media operations. Instruction includes: use of multimedia hardware and software, production analysis, the design and production of digital media/multimedia projects, digital media/multimedia management and the application of production skills to solving the problems relating to the integration of multiple media. Also included are skills relating to professionalism, employability, communication, and management.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Digital Media/Multimedia industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 60 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Use industry standard digital media/multimedia hardware and software.
- 02.0 Create, alter and/or adjust presentations utilizing a variety of digital media/multimedia technologies.
- 03.0 Design and generate still imagery/graphics.
- 04.0 Design and generate video and/or animations in a multimedia project.
- 05.0 Design and execute audio technology for a digital media/multimedia project.
- 06.0 Use computer applications for digital media/multimedia projects.
- 07.0 Produce digital media/multimedia projects.
- 08.0 Demonstrate appropriate communication skills.
- 09.0 Demonstrate appropriate math skills.
- 10.0 Demonstrate employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Digital Media/Multimedia Technology
 CIP Numbers: 1611080102
 Program Length: 60 credit hours
 SOC Code(s): 27-4011

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Use industry standard digital media/multimedia hardware and software – the student will be able to:
01.01	Demonstrate the proper care and handling of equipment used in digital media/multimedia.
01.02	Perform pre- and post-production routines with digital media/multimedia hardware and software.
01.03	Analyze equipment performance to meet industry standards.
02.0	Create, alter and/or adjust presentations utilizing a variety of digital media/multimedia technologies – the student will be able to:
02.01	Analyze the strengths and weaknesses of presentational media.
02.02	Demonstrate the ability to locate appropriate production resources.
02.03	Utilize production techniques to create production outcomes.
02.04	Adapt learned skills and generate new approaches in order to solve unique production problems.
03.0	Design and generate still imagery/graphics – the student will be able to:
03.01	Capture, manipulate and apply a still imagery/graphics in a digital media/multimedia project.
03.02	Differentiate and optimize still image formats.
03.03	Apply elements of design, principles of composition and qualities of light to still images/graphics in a digital media/multimedia project.
03.04	Understand the properties of light and how to measure its intensity and color.
03.05	Integrate the use of photographic special effects for a digital media/multimedia production.
03.06	Evaluate photographic quality using appropriate application.

04.0	Design and generate video and/or animations in a multimedia project – the student will be able to:
04.01	Capture, manipulate and apply a video and/or animation image in a digital media/multimedia project.
04.02	Differentiate and optimize video and/or animation formats.
04.03	Apply elements of design, principles of composition and qualities of light to video and/or animation in a digital media/multimedia project.
04.04	Integrate the use of video special effects into digital media/multimedia project.
04.05	Evaluate moving image quality using appropriate application standards.
04.06	Shoot and edit video or create animation to production specifications.
04.07	Understand the properties of light and how to measure its intensity and color.
05.0	Design and execute audio technology for a digital media/multimedia project – the student will be able to:
05.01	Capture, manipulate and apply audio and sound in a digital media/multimedia project.
05.02	Differentiate and optimize formats for audio and sound.
05.03	Evaluate production needs for microphone applications.
05.04	Demonstrate proficiency with a multi-channel audio mixer.
05.05	Generate strategies for electronic editing.
05.06	Generate strategies for multi-track recording to industry standards.
05.07	Interpret the applications of copyright laws as they apply to prerecorded materials.
06.0	Use computer applications for digital media/multimedia projects – the student will be able to:
06.01	Demonstrate a basic proficiency with digital media/multimedia software packages.
06.02	Design and produce digital media/multimedia content.
06.03	Test, edit and de-bug digital media/multimedia content.
06.04	Present digital media/multimedia content.
07.0	Produce digital media/multimedia projects – the student will be able to:
07.01	Assess the needs of the end user or client.

07.02	Analyze available resources.
07.03	Select and apply appropriate media.
07.04	Create the written form of a story appropriate to the media selected.
07.05	Create and prepare a storyboard appropriate to the media selected.
07.06	Design navigational structure for interactive environments.
07.07	Organize resources and personnel to implement production.
07.08	Synthesize component elements of available digital media/multimedia technologies into a unified project.
07.09	Appraise the quality and end user application of finished project.
07.10	Create computer code appropriate for interactive media projects.
08.0	Demonstrate appropriate communication skills – the student will be able to:
08.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
08.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
08.03	Read and follow written and oral instructions.
08.04	Answer and ask questions coherently and concisely.
08.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
08.06	Demonstrate appropriate communication skills.
09.0	Demonstrate appropriate math skills – the student will be able to:
09.01	Solve problems for volume, weight, area, circumference, proportions, and perimeter measurements for rectangles, squares, and cylinders.
09.02	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
09.03	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
10.0	Demonstrate employability skills – the student will be able to:
10.01	Create and write a résumé and cover letter.
10.02	Prepare and develop a portfolio, to be presented in appropriate format for medium.

10.03 Identify acceptable work habits.

10.04 Demonstrate competence in job interview techniques.

10.05 Formulate strategy for job search, employment and career after graduation.

10.06 Demonstrate knowledge of the Federal Hazard Communication regulation (29 CFR 1910.1200).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercultural career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Digital Media/Multimedia Authoring (0609070209) - 12 credit hours
- Digital Media/Multimedia Instructional Technology (0609070211) - 15 credit hours
- Digital Media/Multimedia Production (0610010507) - 15 credit hours
- Digital Media/Multimedia Video Production (0609070210) - 12 credit hours
- Digital Media/Multimedia Presentation (0609070219) - 17 credit hours
- Digital Media/Multimedia Web Production (0650010208) - 15 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

**Florida Department of Education
Curriculum Framework**

Program Title: Graphics Technology
Career Cluster: Arts, A/V Technology and Communications

AS	
CIP Number	1611080300
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1024 – Graphic Designers

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and such careers as Broadcast Designer, Production Artist, Illustrator, Publication Designer, Graphic Designer, Production Manager, Presentation Specialist, User Interface Designer, User Experience Designer, Information Architect, or Web Designer in the Arts, A/V Technology and Communications career cluster; provides technical skill proficiency; includes competency-based applied learning that contributes to academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communications career cluster.

The content includes, but is not limited to, communication skills, team skills, human relations and employability skills, safe and efficient work practices, illustration, front-end web development, concept formulation, design, drawing, design display/exhibit, layout, production skills, printing processes, use of industry tools and equipment, use and care of materials, use of current industry standards/practices/techniques, typography, photographic procedures, color theories, marketing/advertising concepts, TV graphics, web design, user interface design, information architecture, electronic content, and portfolio development.

Programs may include specialization in animation, interactive/multimedia design, graphic arts, graphic design, web design, user interface design, information architecture, environmental graphics, motion graphics, or 3-D design.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate effective interpersonal communication skills.
- 02.0 Demonstrate the ability to collaborate with others.
- 03.0 Demonstrate safe and efficient work practices.
- 04.0 Create raster-based and vector-based visual solutions.
- 05.0 Formulate concepts/theories.
- 06.0 Apply design and color theories.
- 07.0 Demonstrate drawing techniques.
- 08.0 Demonstrate technical and creative uses of typography.
- 09.0 Create advertising design solutions.
- 10.0 Demonstrate production skills in web and print design.
- 11.0 Interpret printing processes.
- 12.0 Demonstrate knowledge of current industry standards, practices, and techniques.
- 13.0 Apply marketing/advertising principles for effective visual communication.
- 14.0 Demonstrate industry-level presentation techniques.
- 15.0 Utilize computer hardware, software, networks and peripherals for the production of electronic content.
- 16.0 Create electronic interfaces.
- 17.0 Demonstrate appropriate math skills.
- 18.0 Demonstrate appropriate understanding of basic science and logic.
- 19.0 Demonstrate employability skills.
- 20.0 Demonstrate an understanding of entrepreneurship.
- 21.0 Demonstrate appropriate usage of electronic media for self-promotion.

Florida Department of Education
Student Performance Standards

Program Title: Graphics Technology
 CIP Numbers: 1611080300
 Program Length: 64 credit hours
 SOC Code(s): 27-1024

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate effective interpersonal communication skills – the student will be able to:
01.01	Read and interpret written and oral instructions.
01.02	Prepare written correspondence.
01.03	Demonstrate effective oral communication and presentation skills.
01.04	Present work to an audience.
02.0	Demonstrate the ability to collaborate with others – the student will be able to:
02.01	Demonstrate project management abilities.
02.02	Demonstrate the ability to work as part of a team.
03.0	Demonstrate safe and efficient work practices – the student will be able to:
03.01	Follow industry rules, safety procedures and policies.
03.02	Demonstrate proper handling and use of toxic materials.
03.03	Demonstrate awareness of appropriate ergonomics.
03.04	Demonstrate proper care of equipment.
03.05	Perform typical workplace tasks in a timely manner.
04.0	Create raster-based and vector-based visual solutions – the student will be able to:
04.01	Demonstrate versatile styles and techniques to solve visual problems.
04.02	Demonstrate knowledge of methods and materials.

04.03	Recognize and recommend appropriate raster-based and vector-based styles and techniques.
04.04	Apply design fundamentals to raster-based and vector-based solutions to effectively achieve a visual communication goal.
04.05	Execute raster and vector solutions in accordance with industry technical requirements for print and/or digital formats.
05.0	Formulate concepts/theories – the student will be able to:
05.01	Solve problems by selecting the appropriate styles or techniques.
05.02	Display creative talent and ingenuity.
05.03	Apply principles of design.
05.04	Demonstrate the design process.
06.0	Apply design and color theories – the student will be able to:
06.01	Create a design utilizing the appropriate technical color application for the intended output.
06.02	Create mockups, dummies, and comprehensive layouts in a variety of formats.
06.03	Evaluate the use of design principles for a variety of graphic design applications.
06.04	Select and apply appropriate design principles for effective visual communication.
06.05	Apply knowledge of color theory to design solutions.
06.06	Develop solutions for interactive media that demonstrate awareness of the user experience.
07.0	Demonstrate drawing techniques – the student will be able to:
07.01	Draw three-dimensional shapes.
07.02	Draw still life.
07.03	Draw figures.
07.04	Demonstrate the use of perspective.
07.05	Identify artwork and artists of historical significance.
08.0	Demonstrate technical and creative uses of typography – the student will be able to:
08.01	Develop and demonstrate appropriate use of type styles and letter forms.

08.02	Demonstrate application of typographical specifications.
08.03	Apply type construction design.
08.04	Apply correct lettering and line spacing for typesetting.
08.05	Develop a working knowledge of type spacing.
08.06	Demonstrate the principles of typography in a design project.
08.07	Utilize a desktop computer and industry standard software for type production.
08.08	Develop and properly utilize a typographic grid.
09.0	Create advertising design solutions – the student will be able to:
09.01	Identify advertising needs and develop appropriate solutions.
09.02	Produce comprehensive layouts for advertising in a variety of print, packaging, outdoor, and electronic formats.
10.0	Demonstrate production skills in web and print design – the student will be able to:
10.01	Size photographs and illustrations.
10.02	Demonstrate correct preparation of electronic files for various printed and electronic outputs.
10.03	Utilize appropriate industry-standard software to execute design solutions.
11.0	Interpret printing processes – the student will be able to:
11.01	Determine methods of printing; include specialized printing methods.
11.02	Select appropriate substrates and inks for projects.
11.03	Explain color separation processes.
11.04	Identify and specify half-tone and line negatives.
11.05	Interpret signature and imposition procedures.
11.06	Analyze and identify methods of proofing.
11.07	Explain basic print processes.
11.08	Understand how various printing processes require different electronic pre-press techniques.

12.0	Demonstrate knowledge of current industry standards, practices, and techniques – the student will be able to:
12.01	Explain copyright procedures.
12.02	Use industry terminology.
12.03	Identify industry practices and procedures.
12.04	Explain the importance of meeting deadlines.
12.05	Acquire and utilize up-to-date in-field technology.
12.06	Learn how to cope with stress.
12.07	Demonstrate the ability to adjust to work conditions.
12.08	Understand the importance of the efficient and timely execution of processes.
12.09	Apply usability and accessibility standards to digital content.
13.0	Apply marketing/advertising principles for effective visual communication – the student will be able to:
13.01	Apply marketing/advertising principles.
13.02	Identify customer needs.
13.03	Identify the target audience.
13.04	Develop solutions that demonstrate cost-awareness.
13.05	Analyze marketing potential.
13.06	Recognize the appropriate use of specialty services (supplies, specialties).
13.07	Identify the client's marketing objective(s).
13.08	Identify the client's advertising objective(s).
13.09	Understand an advertising agency's structure and procedures.
13.10	Develop visual solutions that focus on the communication goals of the client and/or target audience.
14.0	Demonstrate industry-level presentation techniques – the student will be able to:
14.01	Demonstrate mounting and matting procedures.

14.02	Demonstrate industry presentation procedures and techniques.
14.03	Prepare an industry-level professional portfolio appropriate for the type of work created.
14.04	Prepare print-based and electronic presentations appropriate to the output of the work.
14.05	Prepare industry-level self-promotion materials.
15.0	Utilize computer hardware, software, networks, and peripherals for the production of electronic content – the student will be able to:
15.01	Demonstrate an understanding of platforms, operating systems, coding languages, hardware, software, peripherals, network issues, and compatibility.
15.02	Demonstrate knowledge of industry-standard front-end coding languages.
15.03	Select and apply the appropriate coding language(s) to execute electronically published design solutions.
15.04	Develop electronic content with cross-browser capability.
15.05	Implement solutions with regard to search engine optimization (SEO).
16.0	Create electronic interfaces – the student will be able to:
16.01	Create vector-based or raster-based layouts that appropriately translate to a variety of electronic formats.
16.02	Create interactive content for websites.
16.03	Utilize industry-related software and coding languages to build electronic content.
16.04	Apply information architecture, user interface, and user experience principles to create visual solutions for electronic formats.
17.0	Demonstrate appropriate math skills – the student will be able to:
17.01	Measure using millimeters, centimeters, feet, inches, points, picas, pixels, and ems.
17.02	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
17.03	Determine the correct purchase price, to include sales tax, for a materials list containing a minimum of six items.
17.04	Understand and demonstrate the ability to compute federal, state and local taxes.
17.05	Convert fractions to decimals.
17.06	Understand and apply ratio concepts to work that must be translated into multiple formats/sizes.
17.07	Establish x and y positions.

17.08	Solve geometric problems for three-dimensional (3D) work.
17.09	Apply a basic understanding of percentages for scaling artwork and executing layouts for responsive electronic content.
18.0	Demonstrate appropriate understanding of basic science and logic – the student will be able to:
18.01	Understand the effects of temperature extremes, chemical reactions, and moisture content on industry-related materials.
18.02	Draw conclusions or make inferences from data.
18.03	Identify health-related problems that may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
18.04	Apply basic programming concepts for front-end web development.
18.05	Demonstrate knowledge of the operators, variables, data types, objects, properties, and methods.
18.06	Demonstrate familiarity with control structures (e.g., objects, functions, conditional statements, arrays, loops, expressions) for front-end web development.
18.07	Understand forms and regular expression validation and data submission for front-end web development.
18.08	Demonstrate knowledge of how to apply logical operators and conditional statements (if/then, if/else) for front-end web development.
18.09	Demonstrate a basic ability to measure the effectiveness of solutions and outcomes.
19.0	Demonstrate employability skills – the student will be able to:
19.01	Create a résumé.
19.02	Conduct a job search.
19.03	Secure information about a job.
19.04	Identify documents that may be required when applying for a job interview.
19.05	Complete a job application form correctly.
19.06	Demonstrate competence in job interview techniques.
19.07	Identify or demonstrate appropriate responses to criticism from an employer, supervisor, coworkers, and customers.
19.08	Identify acceptable work habits.
19.09	Demonstrate knowledge of how to make appropriate job changes.
19.10	Demonstrate acceptable employee health habits.

19.11	Demonstrate knowledge of the Federal Hazard Communication regulation (29 CFR 1910.1200).
19.12	Produce and present a finished portfolio.
19.13	Understand and demonstrate self-promotion skills.
19.14	Effectively use electronic media to promote and control self-branding.
20.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
20.01	Define <i>entrepreneurship</i> .
20.02	Describe the importance of entrepreneurship to the American economy.
20.03	List the advantages and disadvantages of business ownership.
20.04	Identify the risks involved in ownership of a business.
20.05	Identify the necessary personal characteristics of a successful entrepreneur.
20.06	Identify the business skills needed to operate a small business efficiently and effectively.
20.07	Understand the challenges associated with a sole proprietorship.
21.0	Demonstration appropriate usage of electronic media for self-promotion – the student will be able to:
21.01	Demonstrate knowledge of and the ability to use electronic media.
21.02	Identify the technological uses of various forms of electronic media.
21.03	Utilize technology for various forms of electronic media.
21.04	Update posts and use Internet resources for sharing work and self-promotion.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Graphic Design Support (0611080302) – 15 credit hours
- Interactive Media Support (0650010203) – 15 credit hours
- Graphic Design Production (0611080303) – 24 credit hours
- Interactive Media Production (0611080304) – 24 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Graphic Arts Technology
Career Cluster: Arts A/V Technology and Communication

AS

CIP Number	1611080301
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1024 – Graphic Designers

Purpose

The purpose of this program is to prepare students for employment as printing operations managers. This program also provides supplemental training for persons previously or currently employed in this occupation.

The course content includes the following: pre-press, press and post-press operations, administration, copy preparation, stripping black and white, line graphic photo processes, offset presswork, estimating, graphic arts halftone processes and color reproduction technology. The course content should also include training in communication, leadership, human relations and employability skills, and safe, efficient work practices.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Graphic Arts industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Perform reproduction process operations.
- 02.0 Perform estimating operations.
- 03.0 Perform graphic design operations.
- 04.0 Perform typographical operations.
- 05.0 Perform copy preparation operations.
- 06.0 Perform line graphic photo operations.
- 07.0 Perform graphic arts halftone operations.
- 08.0 Perform color reproduction operations.
- 09.0 Perform stripping operations.
- 10.0 Perform proofing and plate-making operations.
- 11.0 Perform offset operations.
- 12.0 Perform finishing operations.
- 13.0 Demonstrate appropriate communication skills.
- 14.0 Demonstrate appropriate math skills.
- 15.0 Demonstrate appropriate understanding of basic science.
- 16.0 Demonstrate employability skills.
- 17.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Graphic Arts Technology
 CIP Numbers: 1611080301
 Program Length: 64 credit hours
 SOC Code(s): 27-1024

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Perform reproduction process operations – the student will be able to:
01.01	Identify the equipment and materials used in reproduction process operations, their parts and functions and the safety rules relating to their operation.
01.02	Set up and operate reproduction tools and equipment.
01.03	Perform operator maintenance on reproduction equipment.
01.04	Identify and explain the scope, purpose, size and products of the graphic communications industry by identifying various statistics that relate to its existence.
01.05	Trace the evolution of writing, kinds of communications, materials used and printing by identifying and recalling times, cultures and specific inventions.
01.06	Analyze various reproduction processing methods (e.g., letterpress, gravure, offset lithography, screen, flexography, electronic).
01.07	Compare and contrast the various reproduction processes to distinguish the strengths and weaknesses of each.
01.08	Explain the value of planning and design to the graphic communication process by identifying principles of design and the steps used in the planning of layouts.
01.09	Analyze the various printing surfaces by contrast and comparison to a variety of elements in each process to distinguish the difference in each surface.
01.10	Evaluate printing processes by judging advantages and disadvantages of each.
01.11	Define terms used in mark-up of copy for composition by being able to recognize marks, instructions and other data.
01.12	Place in sequential order the production steps of a printing job from conception to completion.
01.13	Understand the historical significance of creating paste-ups and mechanicals; understand how paste-ups and mechanicals were made and the steps used in the process.
01.14	Define and explain the elements of typography and their value to the printing and design process.
01.15	Analyze typographic terms.

01.16	Define and explain the terms and methodology used in commercial and process photography as they relate to the printing processes.
01.17	Analyze plates used in the various printing processes.
01.18	Define and explain the principles and generalizations in the use of color in design of printing.
01.19	Define and explain the history of inks, substrates and differences between printing processes.
01.20	Define and explain the history of paper and basic components in paper by recalling items used in place of paper and identifying the steps used in the manufacture of paper.
01.21	List and explain career opportunities in printing.
01.22	Analyze the difference between artist use and production use of printing.
01.23	Set up and operate machine used in reproduction process operation in accordance with manufacturer's specifications.
01.24	Perform operator maintenance on machine used in reproduction process operation in accordance with manufacturer's specifications.
02.0	Perform estimating operations – the student will be able to:
02.01	Identify the equipment and materials used in estimating operations, their parts and functions and the safety rules relating to their operation.
02.02	Define and explain the methods of reproduction illustrated by offset and letter press.
02.03	Define and explain the organization and management of a well organized printing company by identifying its organizational elements.
02.04	Define and explain an estimator's duties including the knowledge of categories of production pertaining to estimating.
02.05	Define and explain the role and responsibility of the estimator in a printing plant.
02.06	Define and explain the sources of information available to the estimator.
02.07	Define and explain the factors that must be considered by the estimator in preparing an estimate such as standard production times, budgeted hour cost rates, outside purchased services and material costs.
02.08	Analyze terms used in estimating.
02.09	Place in sequential order the progressive steps for preparing an estimate.
02.10	Define and explain the principle characteristics of the different papers used in the printing process.
02.11	List the job tasks that usually appear on an estimating form.
02.12	List the job tasks that usually appear on an estimating form in the sequential order in which they are usually performed.

02.13	Apply formula for computing weight of paper stock.
02.14	Define and explain basic sheet sizes by listing the paper categories with the basic sheet size for each.
02.15	Prepare costs estimates utilizing given items, costs and specifications for a one-color, one-up job.
02.16	Prepare costs estimates utilizing given items, costs and specifications for a one-color, multiple.
02.17	Prepare cost estimates utilizing given items, costs and specifications for a one-color, step job.
02.18	Prepare cost estimates utilizing given items, costs and specifications for a one-color, four-page job.
02.19	Prepare cost estimates utilizing given items, costs and specifications for a one-color, eight-page job.
02.20	Prepare cost estimates utilizing given items, costs and specifications for a one color, sixteen-page folded, saddle stitched job.
03.0	Perform graphic design operations – the student will be able to:
03.01	Identify the equipment and materials used in graphic design operations, their parts and functions and the safety rules relating to their operation.
03.02	Set up and operate graphic design operation tools and equipment.
03.03	Perform operator maintenance on graphic design operation equipment.
03.04	Prepare thumbnail layout.
03.05	Prepare rough layout.
03.06	Prepare comprehensive layout including finish working dummy.
03.07	Size and proportion photographs, line drawings and other copy elements.
03.08	Copy fit and mark up (specify type sizes and styles).
04.0	Perform typographical operations – the student will be able to:
04.01	Identify the equipment and materials (to include parts and functions), historically utilized in typographical operations; demonstrate understanding of the historical role this equipment played in the printing industry, how this equipment was used, and how it was operated.
04.02	Define and explain typographic terms for measurement.
04.03	Set up and proofread type by a variety of means.
04.04	Analyze and solve printing measurement problems using a group of specific facts, a system of logic and arithmetic based on printer's measurements.

04.05	Demonstrate the ability to typeset using industry standard software.
04.06	Evaluate printed typed samples for visual spacing to mechanical spacing and certain letter combinations to other letter combinations and produce examples.
04.07	Define terms used in typesetting and typography and explain the difference.
04.08	Define and explain terms that deal with type identification.
04.09	Define and explain the elements of typography and their values in printing and design.
04.10	Solve copy fitting problems by applying typographic principles.
04.11	Evaluate typesetting systems by judging their advantages and their disadvantages.
04.12	Perform manual, automatic and semi-automatic justification decisions.
05.0	Perform copy preparation operations – the student will be able to:
05.01	Identify the equipment used historically in the preparation of copy prior to the availability of digital layout programs.
05.02	Understand the historical significance of mechanical paste-ups using printed type proofs and how that applies to modern offset printing.
05.03	Understand how copy was scaled proportionally in layouts prior to the availability of computer programs.
05.04	Understand the ways printing plates were created by hand and the materials involved in the creation of printing plates prior to direct-to-plate methods.
06.0	Perform line graphic photo operations – the student will be able to:
06.01	Understand how art was reproduced in the past and the photographic process that was employed to recreate original artwork for printing.
06.02	Identify the types of art that were commonly used before the advent of the computer.
06.03	Understand the differences between line art and half tones.
07.0	Perform graphic arts halftone operations – the student will be able to:
07.01	Demonstrate understanding of halftones, their uses, and importance.
07.02	Use industry-standard software to check, correct, and create digital images.
07.03	Define historical halftone terminology and identify how these terms relate to modern industry-standard software.
08.0	Perform color reproduction operations – the student will be able to:
08.01	Identify the equipment and materials used in color reproduction operations, their parts and functions and the safety rules relating to their operation.

08.02	Set up and operate color reproduction tools and equipment.
08.03	Perform operator maintenance on color reproduction equipment.
08.04	Apply the principles of visible light by constructing a spectrograph and placing the major subdivisions of white light in their proper position according to scientific theory.
08.05	Define and explain the interrelationship of light and color.
08.06	Define and explain the principles of color theory as they apply to process printing.
08.07	Define and explain the difference between additive and subtractive color.
08.08	Define and explain the color absorption/reflection theory as it applies to process color filters and printing inks.
08.09	Compare and contrast color separation systems for direct, indirect and electronic scanning.
08.10	Demonstrate understanding of how printing plates were made in the past and the photographic processes involved.
08.11	Define and explain densitometry and sensitometry.
08.12	Apply the principles of densitometry and sensitometry to establish local laboratory standards.
08.13	Understand how color separations are created and how direct-to-plate methods work.
08.14	Define and explain the requirements for color production by graphing and interpreting the deficiencies of printing inks.
09.0	Perform stripping operations – the student will be able to:
09.01	Understand the materials historically used in the process of stripping.
09.02	Define stripping and explain how this process was used in the past to make plates.
09.03	Understand the differences between one-color, two-color, and process color layouts.
09.04	Understand and demonstrate page registration.
09.05	Understand and demonstrate page imposition on large size printing paper.
10.0	Perform proofing and plate making operations – the student will be able to:
10.01	Identify the equipment and materials used in proofing and plate making operations, their parts and functions and the safety rules relating to their operation.
10.02	Set up and operate proofing and plate making tools and equipment.
10.03	Perform operator maintenance on proofing and plate making equipment.

10.04	Identify equipment and materials used in proofing and plate making to obtain proper exposures using a transmission density guide.
10.05	Inspect and evaluate proofs to original mechanical.
10.06	Identify, contrast and compare image carriers such as paper, photo direct, foil, aluminum additive and aluminum subtractive for run length and quality to suit customer specifications.
10.07	Process paper, photo direct, foil, aluminum additive and aluminum subtractive image carriers to manufacturer specifications.
10.08	Inspect and evaluate plates to proofs.
10.09	File, handle and retrieve flats and plates.
11.0	Perform offset operations – the student will be able to:
11.01	Identify the equipment and materials used in offset presswork operations, their parts and functions and the safety rules, rules relating to their operation.
11.02	Set up and operate offset presswork tools and equipment.
11.03	Perform operator maintenance on offset presswork equipment.
11.04	Define and explain the basic principle of the lithographic process.
11.05	Compare and contrast a single-sheet feeder, stream-fed, web-fed systems.
11.06	Compare and contrast deliver systems for sheet- and web-fed systems.
11.07	Compare and contrast register systems such as side-guide, pull-guide and head register.
11.08	Compare and contrast ink and moisture system for sheet- and web-fed systems.
11.09	Explain make ready procedures in proper sequence in preparation for actual production.
11.10	Apply basic principles of offset lithography pertaining to dampening systems (ducted and continuous).
11.11	Apply basic principles of offset lithography pertaining to fountain solutions chemical components (acid, alkaline and neutral).
11.12	Apply basic principles of offset lithography pertaining to pH control and its effects on the lithographic process.
11.13	Apply basic principles of offset lithography pertaining to interrelationships of paper.
11.14	Demonstrate the inking system by identifying each part and making proper adjustments.
11.15	Make ready and demonstrate feeder and delivery systems.
11.16	Demonstrate methods for achieving register by making machine adjustments.

11.17	Apply basic principles of offset press operations to produce work and turn, work and tumble, and sheetwise printed products.
12.0	Perform finishing operations – the student will be able to:
12.01	Identify the equipment and materials used in finishing/binding operation, their parts and functions and the safety rules relating to their operation.
12.02	Identify basic principles of finishing/binding operations pertaining to pre-press paper cutting, post press paper cutting and post bindery cutting (after folding, stitching, etc.).
12.03	Apply basic principles of finishing/binding operations pertaining to sheet cutting.
12.04	Identify basic principles of finishing/binding operations pertaining to grain, caliper and finish (coated or uncoated or paper).
12.05	Identify basic principles of finishing/binding operations pertaining to signature configurations for sheet and web presses.
12.06	Apply basic principles of finishing/binding operations pertaining to folding.
12.07	Apply basic principles of finishing/binding operations pertaining to scoring and perforating.
12.08	Identify basic principles of finishing/binding operations pertaining to collating and gathering.
12.09	Identify basic principles of finishing/binding operations pertaining to binding alternatives (saddle, side, perfect, comb, spiral, case, etc.).
12.10	Identify basic principles of finishing/binding operations pertaining to adhesive binding (padding and fan-apart).
13.0	Demonstrate appropriate communication skills – the student will be able to:
13.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
13.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
13.03	Read and follow written and oral instructions.
13.04	Answer and ask questions coherently and concisely.
13.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
13.06	Demonstrate appropriate telephone/communication skills.
14.0	Demonstrate appropriate math skills – the student will be able to:
14.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
14.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
14.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.

14.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
14.05	Demonstrate an understanding of federal, state and local taxes and their computation.
15.0	Demonstrate appropriate understanding of basic science – the student will be able to:
15.01	Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
15.02	Draw conclusions or make inferences from data.
15.03	Identify health related problems which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
15.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.
16.0	Demonstrate employability skills – the student will be able to:
16.01	Conduct a job search.
16.02	Secure information about a job.
16.03	Identify documents that may be required when applying for a job.
16.04	Complete a job application form correctly.
16.05	Demonstrate competence in job interview techniques.
16.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor, or other persons.
16.07	Identify acceptable work habits.
16.08	Demonstrate knowledge of how to make job changes.
16.09	Demonstrate acceptable employee health habits.
16.10	Interview job applicants.
16.11	Develop and monitor safe and efficient work practices.
16.12	Stimulate, motivate and direct the development of others.
16.13	Interact affectively with customers and vendors.
17.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
17.01	Define entrepreneurship.

17.02 Describe the importance of entrepreneurship to the American economy.

17.03 List the advantages and disadvantages of business ownership.

17.04 Identify the risks involved in ownership of a business.

17.05 Identify the necessary personal characteristics of a successful entrepreneur.

17.06 Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Florida Department of Education
Curriculum Framework

Program Title: Telecommunication Engineering Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1615030302
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	49-2022 – Telecommunications Equipment Installers and Repairers, Except Line Installers

Purpose

This program is designed to prepare students for employment as communications engineering technicians, television technicians, analysis technicians, 2-way cellular wireless technicians, network technicians, network operations specialists, product specialists, I.P. (Internet Protocol) engineers, technical salespersons, field engineers, field technicians, transmission engineers, technical support salespersons, installer/repair technicians, network engineers, or in related occupations. This program may also provide supplemental training to persons previously or currently employed in these occupations.

This specialization content includes, but is not limited to, basic electronics skills, transmission and distribution systems, telephony communication systems, digital communications, data communications and network communications.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Telecommunication Engineering industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of basic electronics.
- 02.0 Demonstrate proficiency in basic operation and application of transmitters, receivers, and transmission and distribution systems.
- 03.0 Demonstrate proficiency in design and analysis of digital communications systems.
- 04.0 Demonstrate proficiency in the analysis of transmission and distribution systems.
- 05.0 Demonstrate proficiency in network communications.
- 06.0 Demonstrate proficiency in the analysis of telephony communication systems.
- 07.0 Demonstrate proficiency in the analysis of analog and digital video systems.

Florida Department of Education
Student Performance Standards

Program Title: Telecommunication Engineering Technology
CIP Number: 1615030302
Program Length: 64 credit hours
SOC Code(s): 49-2022

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate knowledge of basic electronics – the student will be able to:
01.01	Perform various types of soldering.
01.02	Perform various types of wiring and cable terminations.
01.03	Demonstrate knowledge of AC/DC concepts and applications.
01.04	Demonstrate knowledge of computer systems and basic applications.
01.05	Demonstrate use of basic test and measurement equipment.
01.06	Understand and demonstrate safety rules.
01.07	Demonstrate understanding of digital fundamentals.
02.0	Demonstrate proficiency in basic operation and application of transmitters, receivers, and transmission and distribution systems – the student will be able to:
02.01	Describe the principles and operation of amplitude modulation and frequency modulation.
02.02	Demonstrate understanding of block diagrams and components of transmitter receiver circuits including mixers, IF amplifiers, local oscillators, modulators and demodulators.
02.03	Identify, measure, analyze and troubleshoot AM and FM transmitter/receiver circuits including mixers, IF amplifiers, local oscillators, modulators, demodulators and speech amplifiers.
02.04	Analyze, troubleshoot, and maintain transmitters and receivers, to include heterodyning, frequency synthesis, phase-locked-loop, filtering and automatic control circuits.
02.05	Analyze, troubleshoot and adjust RF power amplifier circuits.
02.06	Describe the operation of Double Side Band (DSB) and Single Side Band (SSB) radio systems.
02.07	Identify the stages of SSB and DSB transmitter and receiver circuits.

02.08	Design, analyze and troubleshoot SSB and DSB transmitter and receiver circuits.
02.09	Conduct operating system checks and make minor adjustments to SSB and DSB transmitters and receivers.
02.10	Analyze and test AM, SSB and DSB radio circuits using spectrum analyzers, noise analyzers, impedance meters, sweep generators, distortion meters and power meters.
02.11	Analyze, adjust and troubleshoot Phase Modulation (PM) circuits.
02.12	Analyze, adjust and troubleshoot FM transceiver circuits.
02.13	Test, adjust and align transmitters and receivers using the spectrum analyzer, sweep generator, noise analyzer, frequency meter, modulation meter, Impedance Bridge and power meter.
02.14	Describe the components and concepts of transmission systems: antennas, fiber optics, coax, copper, microwave, satellite, feed lines, and wave guides.
02.15	Calculate transmission line characteristics and understand impedance matching.
02.16	Analyze and describe the concepts of radio wave propagation and radiation fields.
02.17	Test, set up and adjust antenna systems using a power meter, network analyzer, and SWR meter.
02.18	Describe government rules, regulations, and permits.
03.0	Demonstrate proficiency in design and analysis of digital communication systems – the student will be able to:
03.01	Describe digital modulation techniques and systems.
03.02	Describe industry standards in digital communications.
03.03	Analyze, measure, and troubleshoot digital modulation systems.
03.04	Perform specific test and measurement as related to the digital devices and equipment.
03.05	Analyze and evaluate the operation of programmable digital filters.
03.06	Describe the operation and application of compression amplifiers.
03.07	Analyze and describe the operation of compander circuits.
03.08	Describe and analyze the operation of a sample and hold circuit.
03.09	Describe the conversion of analog signals into a digital format.
03.10	Describe and analyze the operation of Pulse Code Modulation (PCM) circuits.
03.11	Describe, analyze and evaluate the operation of a Coder/Decoder (CODEC) IC circuit.

03.12	Describe, analyze and evaluate the operation of a continuously variable slope delta modulation circuit.
04.0	Demonstrate proficiency in the analysis of transmission and distribution systems – the student will be able to:
04.01	Analyze and demonstrate the application of optical electronic devices in power control circuits and in analog, digital and data communication circuits.
04.02	Analyze and demonstrate the operation of optical devices.
04.03	Splice and terminate cabling systems.
04.04	Test and evaluate modulators and demodulators.
04.05	Analyze and demonstrate multiplex transmission including use of full and half duplex communications.
04.06	Describe gain and loss concepts as applied to transmission and distribution systems.
04.07	Describe the fundamental concepts of satellite communications.
04.08	Operate satellite communication systems.
04.09	Operate multiplexed data telemetry systems.
04.10	Analyze the theoretical concepts that define antenna equivalent circuits and couplers.
04.11	Perform and analyze the calculations required to evaluate the effectiveness of antennas.
05.0	Demonstrate proficiency in network communications – the student will be able to:
05.01	Describe the layers of a communications system.
05.02	Describe the protocol requirements necessary to ensure the transmission of a data message.
05.03	Describe, from a system standpoint, the characteristics of serial communications standards.
05.04	Analyze and troubleshoot communications between computers.
05.05	Compare serial communications with parallel and other standards.
05.06	Describe, analyze, troubleshoot and demonstrate the operation of network access devices.
05.07	Demonstrate use of network management system.
05.08	Identify the capabilities of a telephone circuit on a data communications system.
05.09	Describe LAN topologies as applied to data networks.

05.10	Design, connect and troubleshoot a Local Area Network (LAN).
05.11	Describe WAN topologies as applied to data networks.
05.12	Design, connect and troubleshoot a Wide Area Network (WAN).
05.13	Describe wireless topologies as applied to data networks.
05.14	Design, connect and troubleshoot a wireless network.
05.15	Fabricate and test LAN cabling.
05.16	Describe the operation of a short-range wireless network (i.e. Blue Tooth, IEEE802.11).
05.17	Describe the operation of a long-range wireless network (i.e. PCS, digital messaging, 3G Technology).
05.18	Describe the operation of a cellular communications network.
05.19	Describe and analyze error detection and correction methods used in data communication systems.
05.20	Describe basic data firewalls, encryption and decryption methods.
05.21	Demonstrate understanding of compression and decompression.
05.22	Describe the general characteristics and operations of frame relay, DSL, and ISDN as they apply to data networks.
05.23	Describe the characteristics of frame relay network management.
05.24	Describe the general characteristics and operations of routers and switches as they apply to data networks and systems.
05.25	Describe the general characteristics and design capabilities of the T-carrier system.
05.26	Analyze the network design criteria of T-1 systems.
05.27	Describe the general characteristics and design capabilities of the Synchronous Optical Network (SONET).
05.28	Describe the characteristics and design capabilities of the Asynchronous Transfer Mode (ATM) network.
05.29	Describe the characteristics of high-speed public data networks.
05.30	Apply the theory of wide area network design to systems.
06.0	Demonstrate proficiency in the analysis of telephony communication systems – the student will be able to:
06.01	Describe the general characteristics of a telephone subscriber loop.

06.02	Describe, demonstrate and analyze the operation of tone dialing, DTMF (Dual Tone Multi Frequency), pulse dialing and ringing circuits.
06.03	Describe, evaluate and analyze the operation of a MODEM in the originate and answer modes.
06.04	Describe the various functions of a BORSCHT (Battery Overload Ring Supervision Coding Hybrid Test) circuit.
06.05	Describe, evaluate and analyze the operation of a Subscriber Loop Interface Circuit (SLIC).
06.06	Describe, evaluate and analyze the operation of a Time-Slot Assignment Circuit (TSAC).
06.07	Describe and evaluate the application of fiber optic systems to telecommunications.
06.08	Analyze and describe applications of speech synthesis and recognition circuits to telecommunications.
06.09	Terminate and test telephony cable.
06.10	Describe the operation of an integrated voice and data system.
07.0	Demonstrate proficiency in the analysis of analog and digital video systems – the student will be able to:
07.01	Describe the fundamental principles and concepts of television/video systems.
07.02	Describe the operation of the key components of a television/video system.
07.03	Describe the principles of NTSC and HDTV video signals.
07.04	Analyze and describe the operation of the various sections of a DTV transmitter.
07.05	Analyze and describe the characteristics of the television signal (analog, digital, RF).
07.06	Describe and analyze the operation of the various sections of an NTSC and DTV receiver.
07.07	Analyze and describe the operation of encoders and decoders.
07.08	Assemble and test cables and connectors related to video/audio systems.
07.09	Demonstrate proficiency in the use of video and audio test equipment.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Cable Installation (0647010304) – 12 credit hours
- Television System Support (0609040205) – 24 credit hours
- Network Communications (LAN) (0611100206) – 18 credit hours
- Network Communications (WAN) (0611100207) – 18 credit hours
- Wireless Communications (0615030508) – 18 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Theater and Entertainment Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1650050202
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4011 – Audio and Video Equipment Technicians

Purpose

The purpose of this program is to prepare students for work as audio and video equipment technicians.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Construct and install scenery to the specifications required in a scene design.
- 02.0 Perform the duties of a stage hand.
- 03.0 Install and operate theatrical sound equipment for performance.
- 04.0 Implement a "sound design" for live entertainment productions.
- 05.0 Hang, circuit, and focus stage lights to the specifications required in a lighting design.
- 06.0 Perform the duties of a light board operator and follow spot operator.
- 07.0 Maintain stage, lighting, sound, and shop equipment.
- 08.0 Install and operate AV/Multimedia presentation equipment.
- 09.0 Demonstrate safe work practices.
- 10.0 Function as part of a technical team in planning, implementing, and running the technical aspects of theatrical/entertainment productions.
- 11.0 Demonstrate appropriate communication skills.
- 12.0 Demonstrate appropriate math skills.
- 13.0 Demonstrate appropriate understanding of basic science.
- 14.0 Demonstrate employability skills.
- 15.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Theater and Entertainment Technology
 CIP Number: 1650050202
 Program Length: 64 credit hours
 SOC Code(s): 27-4011

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Construct and install scenery to the specifications required in a scene design – the student will be able to:
01.01	Use hand and power tools commonly found in scene shops.
01.02	Draft working drawings when given a ground plan and designer's elevations.
01.03	Choose the appropriate materials and hardware for scene construction.
01.04	Construct common two-dimensional scenery.
01.05	Construct common three-dimensional scenery.
01.06	Demonstrate application techniques used in painting scenery.
01.07	Construct properties and mechanical special effects.
02.0	Perform the duties of a stage hand – the student will be able to:
02.01	Operate equipment commonly found in performance venues.
02.02	Determine methods for scenery repair within a limited time frame.
02.03	Assume crew chief responsibilities.
02.04	Perform all duties in a disciplined manner as required by the demands of performance.
02.05	Install and operate special effects such as fog, pyrotechnics, and automated devices.
03.0	Install and operate theatrical sound equipment for performance – the student will be able to:
03.01	Identify sound equipment used in productions.
03.02	Assemble various components to develop an audio recording or reinforcement system.

03.03	Install a sound system resulting in optimal performance and safety of the equipment.
03.04	Operate sound equipment in both record and playback mode.
04.0	Implement a "sound design" for live entertainment productions – the student will be able to:
04.01	Identify sound equipment used in productions.
04.02	Record and edit sound effects for live entertainment productions.
04.03	Operate components of sound systems as required for both reinforcement and effects applications.
04.04	Construct, install, and operate mechanical, electrical, and electronic sound effects for productions.
04.05	Execute sound cues during rehearsal and performance.
05.0	Hang, circuit, and focus stage lights to the specifications required in a lighting design – the student will be able to:
05.01	Read a standard lighting plot.
05.02	Read a standard instrument schedule.
05.03	Identify stage lighting equipment.
05.04	Hang and circuit lights for a stage production.
05.05	Focus lights for a stage production.
05.06	Hang and set control parameters for intelligent lighting fixtures.
06.0	Perform the duties of a light board operator and follow spot operator – the student will be able to:
06.01	Make and read a lighting cue sheet.
06.02	Program and execute cues on a computerized lighting console in both rehearsal and performance.
06.03	Execute cues for intelligent lighting.
06.04	Execute cues using a follow spot in rehearsal and performance.
07.0	Maintain stage, lighting, sound, and shop equipment – the student will be able to:
07.01	Calibrate and operate test equipment through all modes of operation as necessary for the maintenance of systems.
07.02	Locate malfunctions using applicable diagnostic methods.

07.03	Read and understand technical manuals.
07.04	Record and maintain documentation on equipment including manufacturer's warranties and parts inventories.
08.0	Install and operate AV/multimedia presentation equipment – the student will be able to:
08.01	Set up and operate basic video production equipment including camcorders, studio cameras, video monitors, video decks, switchers and video DAs.
08.02	Set up and operate a basic 35 mm slide presentation in both single and multi-projector configurations.
08.03	Set up and operate a variety of video projection systems.
08.04	Install and operate data projection equipment.
08.05	Determine layout for an AV show including screen and equipment location.
08.06	Select and install appropriate cable and interfaces for AV set up.
08.07	Perform basic troubleshooting on AV systems.
09.0	Demonstrate safe work practices – the student will be able to:
09.01	Identify safety rules for stage and shop equipment.
09.02	Identify health and environmental hazards of materials used in stage production.
09.03	Select and use the appropriate protective clothing and equipment when working in a shop or stage environment.
09.04	Use shop and stage equipment in accordance with both manufacturer and industry safety standards.
09.05	Identify and correct unsafe work practices.
10.0	Function as part of a technical team in planning, implementing, and running the technical aspects of theatrical/entertainment productions – the student will be able to:
10.01	Perform as a member of a technical team within the framework of an organized production.
10.02	Schedule job assignments in order to meet production deadlines.
10.03	Apply accepted principles of theater technology to production situations.
10.04	Adapt learned skills and generate new approaches in order to solve unique production problems.
11.0	Demonstrate appropriate communication skills – the student will be able to:
11.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.

11.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
11.03	Read and follow written and oral instructions.
11.04	Answer and ask questions coherently and concisely.
11.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
11.06	Demonstrate appropriate telephone/communication skills.
12.0	Demonstrate appropriate math skills – the student will be able to:
12.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
12.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
12.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
12.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
12.05	Demonstrate an understanding of federal, state and local taxes and their computation.
13.0	Demonstrate appropriate understanding of basic science – the student will be able to:
13.01	Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
13.02	Draw conclusions or make inferences from data.
13.03	Identify health related problems that may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
13.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.
14.0	Demonstrate employability skills – the student will be able to:
14.01	Conduct a job search.
14.02	Secure information about a job.
14.03	Identify documents that may be required when applying for a job interview.
14.04	Complete a job application form correctly.
14.05	Demonstrate competence in job interview techniques.
14.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.

14.07	Identify acceptable work habits.
14.08	Demonstrate knowledge of how to make job changes appropriately.
14.09	Demonstrate acceptable employee health habits.
15.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
15.01	Define entrepreneurship.
15.02	Describe the importance of entrepreneurship to the American economy.
15.03	List the advantages and disadvantages of business ownership. Identify the risks involved in ownership of a business.
15.04	Identify the necessary personal characteristics of a successful entrepreneur.
15.05	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

Stage Technology (0650050201) – 17 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

**Florida Department of Education
Curriculum Framework**

Program Title: Film Production Technology
Career Cluster: Arts A/V Technology and Communication

AS

CIP Number	1650060213
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4032 – Film and Video Editors

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts A/V Technology and Communication career cluster.

The purpose of this program is to prepare students for initial employment as film production technicians, camera operators, sound mixers, editors, editing assistants, set designers, key grips, gaffers, best boys, crane operators, lamp operators, generator operators, re-recording mixers, composers, music editors, Foley artists, production designers, art directors, set decorators, set leads, swings, on-set dressers, prop masters, on-set painters, props buyers, special effects coordinators, special effects assistants, art department coordinators, storyboard artists, visual effects supervisors, animators, technical directors, compositors, director of photography/cinematographers, first assistant/focus pullers, clapper/loaders, video/playback assistants, production manager/coordinators, camera PA/interns, Steadicam operators, electronic assistant editors, production/post-production supervisors, sound designers, sound editors, boom operators, and cable persons, or to provide supplemental training for persons previously or currently employed in these occupations. The content includes, but is not limited to, instruction that prepares individuals to function as members of a technical team within the framework of an organized film/video production. Instruction includes: production analysis, interpretation, purchasing/renting, scheduling and the application of production skills to solving unique shooting problems.

Also included are skills relating to professionalism, employability, communication and management. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Film Production industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Design and supervise the construction and installation of theatrical scenery to the specifications required in a scene for a film or video production.
- 02.0 Formulate strategies for audio recording and playback for film/video productions.
- 03.0 Synchronize dailies.
- 04.0 Supervise the hanging, focusing and circuiting of stage lights to the specifications required in lighting designs.
- 05.0 Function as part of a team on film/video productions.
- 06.0 Analyze and implement tasks for gripping.
- 07.0 Interpret and implement the audio requirements for film production.
- 08.0 Analyze and execute tasks for the area of camera.
- 09.0 Analyze and execute tasks for the area of film/video editing.
- 10.0 Analyze and execute tasks for film lighting.
- 11.0 Demonstrate employability skills.
- 12.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Film Production Technology
 CIP Number: 1650060213
 Program Length: 64 credit hours
 SOC Code(s): 27-4032

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Design and supervise the construction and installation of theatrical scenery to the specifications required in a scene for a film or video production – the student will be able to:
01.01	Design and draft scenic plans to scale.
01.02	Interpret scenic plans for the appropriate use of materials and hardware for scenic construction.
01.03	Formulate design strategies for the construction of common flat scenery.
01.04	Formulate design strategies for the construction of three-dimensional scenery.
01.05	Translate scene design needs into application techniques used in painting scenery.
01.06	Create special effects scenery.
01.07	Schedule and organize transportation of scenery to remote locations.
01.08	Supervise scene shop activities.
02.0	Formulate strategies for audio recording and playback for film/video productions – the student will be able to:
02.01	Demonstrate use of microphones, recorders, speakers, mixers, boom poles, and other recording and playback equipment.
02.02	Demonstrate basic knowledge of acoustics.
02.03	Evaluate recording needs.
02.04	Evaluate technical resources as appropriate to given spaces.
02.05	Configure and operate sound recording and playback systems to meet performance needs.
02.06	Analyze various audio qualities to achieve proper sound mix on an audio mixer.

02.07	Perform transactions with audio suppliers.
02.08	Design a plot for proper microphone and speaker placement.
03.0	Synchronize dailies – the student will be able to:
03.01	Transfer location sound from location recording format to display format.
03.02	Synchronize sound element to picture element.
03.03	Demonstrate basic sound editing skills (manually or electronically).
04.0	Supervise the hanging, focusing and circuiting of stage lights to the specifications required in lighting designs – the student will be able to:
04.01	Demonstrate fundamental electrical skills (i.e. switches, circuits, Ohm's law).
04.02	Demonstrate understanding of quality, physics, and color temperature of light.
04.03	Demonstrate understanding of lighting styles and techniques.
04.04	Demonstrate safe work habits.
04.05	Design a standard lighting plot.
04.06	Analyze and document lighting, electrical, and crew requirements for production.
04.07	Supervise hanging, circuiting and focusing lights for a production.
04.08	Manage lighting area operations.
04.09	Appraise maintenance needs for lighting equipment.
04.10	Design special-effects lighting.
04.11	Design and implement a power distribution system for film lighting equipment.
05.0	Function as part of a team on film/video productions – the student will be able to:
05.01	Differentiate the working relationships that exist between the various participants involved in the film making process.
05.02	Perform as a member of a technical team within the framework of an organized theater/film production.
05.03	Adapt learned skills and generate new approaches in order to solve unique production problems.
05.04	Demonstrate the proper use of standard film making forms.

05.05	Define the specific technical processes used by the camera, grip, lighting, sound, art, costume, special effects, make-up and editing departments.
05.06	Compare the techniques used in film and video production.
05.07	Manage resources and personnel in order to meet production deadlines.
05.08	Analyze job needs and perform transactions with rental houses and suppliers.
05.09	Apply accepted principles of film technology to production situation(s).
05.10	Interpret a film script and storyboard for their production requirements.
05.11	Develop appropriate industry contacts.
05.12	Formulate and implement a production plan in the areas of sync sound, camera, grip, electrical, sound, art direction, post-production, special effects, wardrobe, makeup, assistant direction, casting, script supervision and production management.
06.0	Analyze and implement tasks for gripping – the student will be able to:
06.01	Formulate strategies to properly utilize grip equipment during film/video production.
06.02	Translate script needs into creative uses of dollies, cranes and other camera mounts as required for film and video production.
06.03	Originate solutions to unique shooting problems.
06.04	Organize production routines.
06.05	Analyze a script for its technical requirements.
06.06	Work as a member of a film production team.
06.07	Develop appropriate industry contacts.
06.08	Demonstrate safe work habits.
06.09	Analyze production requirements to determine grip equipment needs.
06.10	Create required effects for lighting set-ups.
06.11	Demonstrate proper and safe use of equipment.
06.12	Appraise maintenance needs for gripping equipment (dollies, cranes, etc.).
07.0	Interpret and implement the audio requirements for film production – the student will be able to:
07.01	Formulate sound design for required sound effects and dialogue replacement to complete motion picture soundtrack.

07.02	Augment picture soundtrack with pre-recorded score from various sources.
07.03	Record dialogue replacement lines.
07.04	Record live sound effects.
07.05	Edit and synchronize pre-recorded sound effects from pre-recorded source in synch to picture.
07.06	Evaluate and edit production dialogue track.
07.07	Mix multiple tracks of dialogue, sound effects, and music into finished soundtrack according to industry quality standards.
07.08	Playback/synchronize finished soundtrack to finished picture track.
08.0	Analyze and execute tasks for the area of camera – the student will be able to:
08.01	Demonstrate knowledge of mechanics and parts of a camera (shutter, f/stops, lenses, etc.).
08.02	Demonstrate understanding of film stocks and lab processing.
08.03	Analyze the aesthetic needs of a shot and accomplish them by using standard industry camera equipment.
08.04	Interpret shooting activities required for appropriate camera department documentation.
08.05	Organize the proper care and handling of camera and camera support equipment.
08.06	Analyze the script for camera lens and shot requirements.
08.07	Organize production routines for film camera operation.
08.08	Demonstrate understanding of different responsibilities within the camera department.
08.09	Develop appropriate industry contacts.
08.10	Analyze production requirements to determine camera equipment needs.
08.11	Demonstrate knowledge of camera blocking and screen direction.
09.0	Analyze and execute tasks for the area of film/video editing – the student will be able to:
09.01	Interpret various production documentation related to editing script notes, camera notes, sound reports, lined script, continuity reports, etc.).
09.02	Demonstrate understanding of picture and sound editing techniques using traditional film editing equipment.
09.03	Demonstrate understanding of picture and sound editing techniques using nonlinear video editing systems.

09.04	Convert electronic editing list into material ready for a negative cutter.
09.05	Prepare electronic materials for further laboratory optical or visual effects.
09.06	Demonstrate understanding of organizing, archiving and cataloguing film and tape media.
10.0	Analyze and execute tasks for film lighting – the student will be able to:
10.01	Formulate strategies to utilize standard film lighting equipment to production specifications.
10.02	Plan and implement a power distribution system for film lighting equipment.
10.03	Organize production routines necessary for the lighting department.
10.04	Work as a member of a film production team.
10.05	Create a safe working environment.
10.06	Develop appropriate industry contacts.
10.07	Analyze production requirements to determine lighting equipment needs.
10.08	Create required lighting effects for film shooting.
11.0	Demonstrate employability skills – the student will be able to:
11.01	Conduct a job search.
11.02	Secure information about a job.
11.03	Identify documents that may be required when applying for a job.
11.04	Complete a job application form correctly.
11.05	Demonstrate competence in job interview techniques.
11.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other persons.
11.07	Identify acceptable work habits.
11.08	Demonstrate knowledge of how to make job changes appropriately.
11.09	Demonstrate acceptable employee health habits.
11.10	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.

12.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
12.01	Define entrepreneurship.
12.02	Describe the importance of entrepreneurship to the American economy.
12.03	List the advantages and disadvantages of business ownership.
12.04	Identify the risks involved in ownership of a business.
12.05	Identify the necessary personal characteristics of a successful entrepreneur.
12.06	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

- Film Production Fundamentals (0650060203) - 24 credit hours
- Motion Picture Production (0650060204) - 16 credit hours
- Motion Picture Post-Production (0650060205) - 16 credit hours
- Motion Picture Production Management (0650060206) - 16 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Photographic Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1650060500
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4021 – Photographers

Purpose

The purpose of this program is to prepare students for employment as a photographer or to provide supplemental training for persons previously or currently employed in this occupation. The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills, safe and efficient work practices, the use of film, cameras, chemicals, photographic papers, laboratory practices, photographic equipment, and technical recording and reporting.

This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Photography industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Perform laboratory skills.
- 02.0 Control exposures (SLR camera).
- 03.0 Take basic photographs (SLR camera and digital).
- 04.0 Operate various format cameras.
- 05.0 Finish photographs.
- 06.0 Apply lighting techniques.
- 07.0 Take studio photographs.
- 08.0 Reproduce photographic media.
- 09.0 Process color film.
- 10.0 Print color photographs.
- 11.0 Produce media presentations.
- 12.0 Demonstrate competencies required to manage a photographic business.
- 13.0 Take photographs for news media.
- 14.0 Apply quality control.
- 15.0 Demonstrate appropriate communication skills.
- 16.0 Demonstrate appropriate math skills.
- 17.0 Demonstrate appropriate understanding of basic science.
- 18.0 Demonstrate employability skills.
- 19.0 Demonstrate an understanding of entrepreneurship.

**Florida Department of Education
Student Performance Standards**

Program Title: Photographic Technology
CIP Number: 1650060500
Program Length: 64 credit hours
SOC Code(s): 27-4021

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0 Perform laboratory skills – the student will be able to:

01.01 Mix developers and other chemicals.

01.02 Hand-process black and white as well as color film.

01.03 Print black and white as well as color photographs.

01.04 Process black and white as well as color paper.

01.05 Process high contrast film.

01.06 Perform toning skills.

01.07 Produce pan masking.

01.08 Produce black and white as well as color print using automated processing.

02.0 Control exposures (SLR camera) – the student will be able to:

02.01 Explain appropriate F-stops and shutter speeds.

02.02 Explain appropriate film type.

03.0 Take basic photographs (SLR camera and digital camera) – the student will be able to:

03.01 Apply camera care and maintenance principles.

03.02 Compose photographs.

03.03 Take still photographs.

03.04	Take action photographs.
04.0	Operate various format cameras – the student will be able to:
04.01	Use a 2¼ format camera.
04.02	Use a view camera.
04.03	Use a front screen projection system.
04.04	Use 8 X 10 format.
05.0	Finish photographs – the student will be able to:
05.01	Mount photographs.
05.02	Mat/frame photographs.
05.03	Apply print retouching.
05.04	Apply color lacquer spray.
05.05	Apply photo enhancement.
06.0	Apply lighting techniques – the student will be able to:
06.01	Take photographs with low, medium, and high light as well as on bright back lighting.
06.02	Take photographs with electronic strobe.
06.03	Take photographs with photo-flood lighting.
06.04	Take photographs with quartz lighting.
06.05	Take photographs with parabolic lighting.
07.0	Take studio photographs – the student will be able to:
07.01	Take commercial photographs.
07.02	Take portraits.
07.03	Take industrial photographs.
08.0	Reproduce photographic media – the student will be able to:

08.01	Copy prints.
08.02	Copy transparencies.
08.03	Make inter-negatives.
08.04	Make a Translite.
08.05	Make a halftone print.
08.06	Identify and define color separation.
09.0	Process color film – the student will be able to:
09.01	Hand process color negatives and transparencies.
09.02	Process color negatives and transparencies with automation.
09.03	Mix color film chemistry and maintain replenishment.
10.0	Print color photographs – the student will be able to:
10.01	Process color paper.
10.02	Print color negatives.
10.03	Print color negatives using color analyzer.
10.04	Mix color paper chemistry and maintain replenishment.
10.05	Print color transparencies.
11.0	Produce media presentations – the student will be able to:
11.01	Prepare script for presentation.
11.02	Shoot slides for presentation.
11.03	Produce presentation.
11.04	Prepare script for presentation.
11.05	Shoot video tapes.
11.06	Produce video presentation.

11.07	Prepare storyboard for slide presentation.
11.08	Record sound for slide presentation.
11.09	Record sound for video presentation.
12.0	Demonstrate competencies required to manage a photographic business – the student will be able to:
12.01	Apply communication skills.
12.02	Apply human relations skills.
12.03	Set rates for photographic work.
12.04	Maintain shop records and files.
12.05	Develop effective advertising.
12.06	Maintain presentational portfolio.
12.07	Analyze potential market area.
12.08	Analyze and develop a marketing plan.
12.09	Perform cost analysis.
12.10	Apply accounting techniques.
12.11	Prepare basic media release.
13.0	Take photographs for news media – the student will be able to:
13.01	Identify photographer’s legal rights/responsibilities.
13.02	Identify rules/regulations of copyright.
13.03	Take photographs for news media.
13.04	Write captions for photos.
13.05	Identify special camera accessories.
13.06	Identify specialized optics for photojournalism.
14.0	Apply quality control – the student will be able to:

14.01	Run control strips.
14.02	Plot control results.
14.03	Graft processors performance.
14.04	Maintain pH control of chemistry.
14.05	Operate densitometer.
15.0	Demonstrate appropriate communication skills – the student will be able to:
15.01	Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
15.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
15.03	Read and follow written and oral instructions.
15.04	Answer and ask questions coherently and concisely.
15.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
15.06	Demonstrate appropriate telephone/communication skills.
16.0	Demonstrate appropriate math skills – the student will be able to:
16.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
16.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
16.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
16.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
16.05	Demonstrate an understanding of federal, state and local taxes and their computation.
17.0	Demonstrate appropriate understanding of basic science – the student will be able to:
17.01	Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
17.02	Draw conclusions or make inferences from data.
17.03	Identify health related problems which may result from exposure to work related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
17.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.

18.0	Demonstrate employability skills – the student will be able to:
18.01	Conduct a job search.
18.02	Secure information about a job.
18.03	Identify documents which may be required when applying for a job interview.
18.04	Complete a job application form correctly.
18.05	Demonstrate competence in job interview techniques.
18.06	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
18.07	Identify acceptable work habits.
18.08	Demonstrate knowledge of how to make job changes appropriately.
18.09	Demonstrate acceptable employee health habits.
18.10	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
19.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
19.01	Define entrepreneurship.
19.02	Describe the importance of entrepreneurship to the American economy.
19.03	List the advantages and disadvantages of business ownership.
19.04	Identify the risks involved in ownership of a business.
19.05	Identify the necessary personal characteristics of a successful entrepreneur.
19.06	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

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Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

Photography (0650060501) - 22 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Music Production Technology
Career Cluster: Arts, A/V Technology and Communication

AS

CIP Number	1650091300
Program Type	College Credit
Standard Length	64 credit hours
CTSO	SkillsUSA
SOC Codes (all applicable)	27-2041 – Music Directors and Composers

Purpose

The purpose of this program is to prepare students for employment in music production occupations or to provide supplemental professional training for persons previously or currently employed in this field. The content includes, but is not limited to, instruction that prepares individuals for positions such as music directors, singers, composers, sound engineers, producers, programmers, salespeople (retail), manufacturer’s representatives, consultants, music editors, sound designers, sound systems designers, audio assistants, audio technicians, a/v technicians, studio managers/supervisors, archivists and related workers. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Music Production Technology industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of 64 credit hours.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of basic musical skills.
- 02.0 Demonstrate competence in basic keyboard skills.
- 03.0 Demonstrate knowledge of music history.
- 04.0 Demonstrate application of control protocols and their relationship to equipment used in the music industry.
- 05.0 Demonstrate set-up and configuration of a computer for audio applications.
- 06.0 Understand the operation of basic reproduction, reinforcement and recording audio equipment.
- 07.0 Demonstrate understanding of requirements for set up and operation of a sound reinforcement system.
- 08.0 Perform transactions with music industry suppliers.
- 09.0 Demonstrate management skills.
- 10.0 Demonstrate knowledge of the legal issues of copyright and contracts.
- 11.0 Demonstrate employability skills.
- 12.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Music Production Technology
 CIP Number: 1650091300
 Program Length: 64 credit hours
 SOC Code(s): 27-2041

Refer to Rule 6A-14.030 (4), F.A.C., for the minimum amount of general education coursework required in the Associate of Science (AS) degree. At the completion of this program, the student will be able to:

01.0	Demonstrate knowledge of basic musical skills – the student will be able to:
01.01	Demonstrate knowledge of musical structure.
01.02	Analyze the style, structure, and technical content of selected written and performed music.
01.03	Apply listening skills for hearing live and recorded music.
01.04	Identify performance characteristics of musical instruments.
02.0	Demonstrate competence in basic keyboard skills – the student will be able to:
02.01	Demonstrate basic knowledge of scales and chord progressions.
02.02	Follow basic musical notation.
02.03	Demonstrate basic knowledge of a keyboard.
03.0	Demonstrate knowledge of music history – the student will be able to:
03.01	Contrast stylistic periods of composition and performance through analysis of music scores.
03.02	Contrast stylistic periods of composition and performance through analysis of live and recorded performances.
03.03	Identify primary contributions of principal composers from the Renaissance through present.
03.04	Identify primary forms of music for all performing media.
03.05	Identify the components of musical form (motives, phrases, etc.) visually and aurally.
03.06	Associate particular forms of music with particular stylistic periods.
03.07	List the names of instruments that were prevalent in particular historical periods of music.

03.08	Demonstrate knowledge of multicultural (world) music.
04.0	Demonstrate application of control protocols and their relationship to equipment used in the music industry – the student will be able to:
04.01	Demonstrate an understanding of MIDI.
04.02	Demonstrate proficiency in using MIDI instruments to record sounds using a digital sampler.
04.03	Utilize a computer and multiple MIDI instruments.
04.04	Record a single sound track; add multiple sound tracks, and change MIDI voices using the software.
04.05	Demonstrate an understanding of MIDI and other control protocol in the recording studio.
04.06	Configure MIDI and other show control devices in the studio or live environment.
04.07	Troubleshoot MIDI and control communication problems.
05.0	Demonstrate set-up and configuration of a computer for audio applications – the student will be able to:
05.01	Install and configure software related to audio programs.
05.02	Demonstrate basic knowledge of computer system requirements.
05.03	Install basic peripheral devices related to audio programs.
06.0	Understand the operation of basic reproduction, reinforcement and recording audio equipment – the student will be able to:
06.01	Assess the audio technology needs of a music production (Pre-Production).
06.02	Appraise musical needs of client (personnel, hardware, software, etc.).
06.03	Evaluate available audio resources.
06.04	Select and configure appropriate hardware and software.
06.05	Develop a production plan to meet client needs.
06.06	Manage personnel and technical resources for the execution of the project.
06.07	Evaluate the final project for quality and appropriateness.
06.08	Formulate strategies for producing multi-track recording.
06.09	Evaluate production needs for microphone applications.

06.10	Demonstrate proficiency with multi-track, multi-channeled mixing consoles.
06.11	Formulate strategies for electronic editing.
06.12	Formulate strategies for multi-track recording to industry standards.
06.13	Configure audio recording systems for optimal and appropriate use of signal processing equipment.
06.14	Develop strategies for using MIDI.
06.15	Engineer a recording session and prepare appropriate documentation.
06.16	Mix multi-track recording.
06.17	Configure audio equipment for optimal musical mix.
06.18	Create a mixing plan.
06.19	Evaluate the quality of multi-track recording.
06.20	Interpret audio needs for end user.
06.21	Supervise equipment operator.
06.22	Evaluate quality of the final mix to industry standards.
07.0	Demonstrate understanding of requirements for set up and operation of a sound reinforcement system – the student will be able to:
07.01	Demonstrate basic understanding of audio electronics (head room, biasing, distortion, equalization, frequency response, etc.).
07.02	Demonstrate basic understanding of acoustics.
07.03	Demonstrate knowledge of principles of operation of analog/digital devices (block diagram).
07.04	Demonstrate basic understanding of audio signal flow in an analog or digital chain.
07.05	Formulate strategies for audio reinforcement of music productions.
07.06	Evaluate performance needs.
07.07	Evaluate technical needs as appropriate to given spaces.
07.08	Configure a sound reinforcement system to meet performance needs.
07.09	Analyze various audio qualities to achieve proper sound mix.

07.10	Perform transactions with audio suppliers.
07.11	Design a plot for proper microphone and speaker selection and placement.
08.0	Perform transactions with music industry suppliers – the student will be able to:
08.01	Research sources for needed equipment, supplies and educational materials.
08.02	Differentiate the levels of quality in the hierarchy of manufacturers, distributors and suppliers.
08.03	Evaluate purchasing agreements including bids, warranties, and maintenance contracts.
08.04	Evaluate the technical specifications of audio related products.
08.05	Execute the purchase of audio equipment, supplies and educational materials.
09.0	Demonstrate management skills – the student will be able to:
09.01	Organize scheduling for live music performances.
09.02	Organize scheduling for recording sessions.
09.03	Develop and manage budgets for musical events (performance sessions and equipment).
09.04	Manage live musical performances.
09.05	Manage music recording sessions.
09.06	Demonstrate understanding of music production audio personnel hierarchy.
10.0	Demonstrate knowledge of legal issues of copyright and contracts – the student will be able to:
10.01	Define and implement contractual agreements with unions, agents, managers and other representatives of the commercial music production industry.
10.02	Evaluate and apply copyright and licensing laws.
10.03	Identify potential music marketing areas and manage product distribution.
10.04	Recognize the right of artists and employ successful negotiation of contractual agreements.
11.0	Demonstrate employability skills – the student will be able to:
11.01	Create and write a résumé and cover letter.
11.02	Prepare and compile a work portfolio/demo or recording.

11.03	Identify acceptable work habits.
11.04	Demonstrate competence in job interview techniques.
11.05	Formulate strategy for post-graduation.
11.06	Generate a career plan.
11.07	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
12.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
12.01	Define entrepreneurship.
12.02	Describe the importance of entrepreneurship to the American economy.
12.03	List the advantages and disadvantages of business ownership.
12.04	Identify the risks involved in ownership of a business.
12.05	Identify the necessary personal characteristics of a successful entrepreneur.
12.06	Identify the business skills needed to operate a small business efficiently and effectively.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercultural career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Certificate Programs

A College Credit Certificate consists of a program of instruction of less than sixty (60) credits of college-level courses, which is part of an AS or AAS degree program and prepares students for entry into employment (Rule 6A-14.030, F.A.C.). This AS degree program includes the following College Credit Certificates:

Audio Technology (0650060209) – 15 credit hours

Standards for the above certificate programs are contained in separate curriculum frameworks.

Florida Department of Education
Curriculum Framework

Program Title: Digital Design
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	B070600
CIP Number	0510030306
Grade Level	30, 31
Standard Length	1200 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 – Multimedia Artists and Animators 27-1024 – Graphic Designers 43-9031 – Desktop Publishers 15-1151 – Computer User Support Specialists
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment in digital publishing positions, such as Information Technology Assistants, Production Assistants, Digital Assistant Designers, Graphic Designers, and Multimedia Designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, enhanced practical experiences in computer generated art and text, graphic design, graphic production, electronic design skills, preparation of electronic layouts and illustrations, and electronic scanning, and development of specialized skills in multimedia presentations.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of five occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	OTA0040	Information Technology Assistant	OTA0040 Teacher Certifications	150 hours	15-1151
B	GRA0024	Production Assistant	BUS DP @7 %G BUS ED 1 @2 CLERICAL @7 7G COMM ART @7 7G COMP SCI 6 @2 ELECT DP @7 %G PRINTING @7 7G SECRETAR 7 G TC COOP ED @7 TEC ED 1 @2 ENG&TEC ED1@2 TEC ELEC \$7 G VOE @7	150 hours	43-9031
C	GRA0025	Digital Assistant Designer		300 hours	43-9031
D	GRA0026	Graphic Designer		300 hours	27-1024
E	GRA0027	Media Designer		300 hours	27-1014

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

Information Technology Assistant (OTA0040) is the first course in this and other programs within the Business Management & Administration Career Cluster. Standards 01.0 – 14.0 are associated with this course; those standards/benchmarks do not appear in this framework.

After successfully completing this program, the student will be able to perform the following:

- 15.0 Demonstrate proficiency in computer skills.
- 16.0 Demonstrate knowledge of digital publishing concepts.
- 17.0 Perform decision-making activities.
- 18.0 Demonstrate proficiency in digital imaging.
- 19.0 Demonstrate proficiency in the safe and ethical use of the Internet to locate information.
- 20.0 Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process.
- 21.0 Perform layout, project design, and measurement activities associated with digital planning.
- 22.0 Demonstrate an understanding of color theory and its role in digital design.
- 23.0 Demonstrate an understanding of typography.
- 24.0 Demonstrate basic skill in digital photography.
- 25.0 Demonstrate skill in the use of digital imaging software applications.
- 26.0 Develop an awareness of the emergent technologies associated with digital design.
- 27.0 Demonstrate proficiency in creating a simple website.
- 28.0 Demonstrate proficiency in digital publishing operations.
- 29.0 Demonstrate proficiency in digital imaging and in utilizing digital photography.
- 30.0 Consolidate coursework into a professional portfolio.
- 31.0 Demonstrate the ability to create a multimedia presentation.
- 32.0 Demonstrate promotion applications for a selected industry.
- 33.0 Demonstrate proficiency in website design.
- 34.0 Demonstrate proficiency in the use of web design software.
- 35.0 Demonstrate the ability to apply the design process.
- 36.0 Demonstrate the knowledge and skills relative to the design process.
- 37.0 Use computer network and web-based resources to facilitate collaborative communication.
- 38.0 Compare and contrast various digital media delivery systems.
- 39.0 Demonstrate proficiency in digital photography.
- 40.0 Plan, organize, and carry out collaborative digital design projects.
- 41.0 Demonstrate proficiency in creating and manipulating digital images using software applications.
- 42.0 Demonstrate proficiency in the creation of digital design solutions involving motion or special effects.
- 43.0 Demonstrate knowledge and skills relative to digital design.
- 44.0 Demonstrate the ability to assess the impact of digital products.
- 45.0 Demonstrate an understanding of career opportunities and requirements in the field of digital design.
- 46.0 Demonstrate an understanding of the use of emergent technologies in digital design and advertising.
- 47.0 Demonstrate proficiency in the creation of a digital design product using mobile communication devices.

- 48.0 Demonstrate advanced project design capabilities associated with digital publishing.
- 49.0 Demonstrate advanced ability to create and manipulate digital images using software applications.
- 50.0 Organize and carry out project plans for creating various digital design products.
- 51.0 Demonstrate understanding of the Elements and Principles of Art and Design.

Florida Department of Education
Student Performance Standards

Program Title: Digital Design
Career Certificate Program Number: B070600

Course Number: OTA0040
Occupational Completion Point: A
Information Technology Assistant – 150 Hours – SOC Code 15-1151

- Information Technology Assistant (OTA0040) is part of several programs across the various CTE career clusters. To ensure consistency, the standards and benchmarks for this course (01.0 – 14.0) have been placed in a separate document.

Course Number: GRA0024
Occupational Completion Point: B
Production Assistant – 150 Hours – SOC Code 43-9031

15.0 Demonstrate proficiency in computer skills – the student will be able to:

15.01 Utilize appropriate font management techniques (e.g., TrueType, OpenType, font installation/removal).

15.02 Perform storage management (e.g., cloud-based services, USB drives).

15.03 Perform basic maintenance of computers and peripherals.

16.0 Demonstrate knowledge of digital publishing concepts – the student will be able to:

16.01 Identify the skills required of a digital designer.

16.02 Define the terms commonly used in graphic communications.

16.03 Identify the characteristics of paper (e.g., weight, point).

16.04 Identify different types of color (e.g., RGB, WebSafe, Pantone Color Matching System, HEX).

16.05 Identify the software used in digital publishing.

17.0 Perform decision-making activities – the student will be able to:

17.01 Determine work priorities.

17.02	Use critical thinking skills to evaluate information and select relevant material.
17.03	Determine the audience.
18.0	Demonstrate proficiency in digital imaging – the student will be able to:
18.01	Demonstrate proper use of scanners, digital cameras, and various input devices.
18.02	Proofread manually and digitally.
19.0	Demonstrate proficiency in the safe and ethical use of the Internet to locate information – the student will be able to:
19.01	Identify and use web-related terminology.
19.02	Define <i>Universal Resource Locator</i> (URL) and associated protocols (e.g., http, ftp, telnet, mailto).
19.03	Compare and contrast the various types of Internet domains (e.g., .com, .org, .edu, .gov, .net, .mil).
19.04	Demonstrate proficiency using search engines, including Boolean search techniques.
19.05	Apply the rules for properly citing works or other information obtained from the Internet.
19.06	Identify and apply Copyright Fair Use guidelines.
19.07	Evaluate web-based information for credibility and quality using basic guidelines and indicators (e.g., authority, affiliation, purpose).
19.08	Demonstrate an understanding of safe and ethical Internet usage.
19.09	Describe cyber-bullying and its impact on the victims and perpetrators.
20.0	Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process – the student will be able to:
20.01	Identify the purpose, audience, and the needs of the audience for the preparation of design projects.
20.02	Research and describe the implications of audience, purpose/message, and time constraints relative to a design project.
20.03	Make decisions based on specifications.
20.04	Research current applications and perspectives related to a project.
20.05	Explain the relationship between design criteria and design constraints.
20.06	Produce thumbnail sketches and rough designs.
21.0	Perform layout, project design, and measurement activities associated with digital publishing – the student will be able to:

21.01	Demonstrate an understanding of the elements and principles of design (e.g., line, shape, balance).
21.02	Determine the appropriate type of layout for a specified problem (e.g., audience, purpose).
21.03	Determine the activities and implications of content preparation and editing/proofreading.
21.04	Develop and apply specifications projects.
21.05	Demonstrate basic technical skills using a desktop or digital publishing application (e.g., InDesign, Publisher).
21.06	Identify distinct components in a layout (e.g., headlines, subheads, body copy).
21.07	Demonstrate appropriate use of typography by considering visual hierarchy, proximity, alignment, contrast, repetition.
21.08	Compare and contrast methods of measurement used in desktop publishing (e.g., inches, centimeters, millimeters, points, picas).
21.09	Produce a variety of designs using digital publishing applications (e.g., flyers, postcards, brochures, business cards, letterhead).
21.10	Incorporate clip art, images, borders, and other special effects into a layout.
21.11	Select the appropriate color format and resolution for a variety of purposes (e.g., web, print).
21.12	Understand and comply with the legalities of using preexisting images (e.g., copyright laws, trademarking).
21.13	Create a professional portfolio to showcase projects.
22.0	Demonstrate an understanding of color theory and its role in digital design – the student will be able to:
22.01	Describe the spectral colors in the visible light spectrum.
22.02	Describe the difference between additive and subtractive color mixing.
22.03	Compare and contrast RGB and CYMK color models as used in digital design.
22.04	Define and explain the terminology related to color (e.g., chroma, lightness, saturation, hue, intensity, luminance/value, shade, tint).
22.05	Demonstrate the application of color theory to design practices.
23.0	Demonstrate an understanding of typography – the student will be able to:
23.01	Define and describe the terminology related to character and line spacing (e.g., leading, kerning, tracking, baseline shift, ligature).
23.02	Identify the characteristics and psychology of type, type families, type series, and type styles.
23.03	Demonstrate an understanding of the history of typography.

23.04	Describe the principles of typographic design as they relate to digital design.
23.05	Compare and contrast the techniques of typographic communication relative to appropriateness and effectiveness.
23.06	Demonstrate proficiency in incorporating typographic techniques into a communication design.
23.07	Understand the installation and application of fonts.
24.0	Demonstrate basic skill in digital photography – the student will be able to:
24.01	Demonstrate the operation of a digital camera (typical features/modes).
24.02	Demonstrate knowledge of ethics related to digital images/imaging; examine legal and content-related issues.
24.03	Apply effective design principles in digital photography compositions (e.g., rule of thirds).
24.04	Illustrate the essence of an event, quotation, or slogan through digital photography and or digital imaging.
25.0	Demonstrate skill in the use of digital imaging software applications – the student will be able to:
25.01	Differentiate between raster (bitmap) and vector graphic images.
25.02	Demonstrate basic knowledge of the tools and techniques for using vector software applications (e.g., Illustrator, InkScape, CorelDRAW).
25.03	Create and edit various illustrations using vector software (e.g., line art, drawing basics, transforming/applying effects to objects, painting, type and type effects, layers).
25.04	Demonstrate basic knowledge of the tools and techniques for using a raster-based software application (e.g., Photoshop, GNU Image Manipulation Program).
25.05	Create and edit images/photographs using digital imaging software (e.g., layers, image editing, adjustments, filters, selections).
25.06	Demonstrate skill in image manipulation, color correction, and special effects to creatively convey a message using vector-based or raster-based software applications.
25.07	Demonstrate skill in scanning, cropping, and importing photographs.
25.08	Compare and contrast image formats (e.g., BMP, EPS, GIF, JPEG, PDF, PNG, RAW, TIF).
25.09	Demonstrate an understanding of image resolution and compression factors such as transmission speed, color reduction, and delivery media parameters.
25.10	Incorporate scanned and digital photographs into documents comprising a specified design (e.g., poster, brochure, card, advertisement, web page).
26.0	Develop an awareness of the emergent technologies associated with digital design – the student will be able to:
26.01	Compare and contrast emerging technologies relative to their role in digital design (e.g., wireless, cloud-based, mobile, portable devices, kiosks).

26.02	Describe social media as a form of digital design.
26.03	Describe the emergent and evolving nature of software applications used in interactive design.
26.04	Explain how the use of advanced image sensing devices have altered the manner in which communication takes place, especially those utilizing Quick Response (QR) Codes and other forms of two-dimensional bar coding techniques.

Course Number: GRA0025
Occupational Completion Point: C
Digital Assistant Designer – 300 Hours – SOC Code 43-9031

17.0	Perform decision-making activities – the student will be able to:
17.04	Demonstrate an understanding of various advertising channels.
17.05	Recognize and maintain ethical standards.
17.06	Demonstrate knowledge of copyright laws.
17.07	Determine project specifications.
17.08	Research a digital design problem and determine the most appropriate problem-solving method to enhance the functional, economic, and ethical viability of a project.
17.09	Utilize a variety of approaches to solve digital design problems.
19.0	Demonstrate proficiency in the safe and ethical use of the Internet to locate information – the student will be able to:
19.10	Differentiate between viruses and malware, specifically the sources, ploys, and impact on personal privacy and computer operation; identify ways to avoid infection.
19.11	Demonstrate an understanding of how to run an antivirus scan to remove viruses and malware.
19.12	Describe the risks associated with social networking sites (e.g., Facebook, Instagram, Twitter) and identify ways to mitigate these risks.
19.13	Adhere to cyber safety practices with regard to conducting Internet searches, email, chat rooms, and other social network sites.
19.14	Adhere to Acceptable Use policies when accessing the Internet.
20.0	Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process – the student will be able to:
20.07	Produce final designs based on specifications.
20.08	Demonstrate knowledge of project management tasks and responsibilities.
20.09	Evaluate solutions to ensure the sustainability and effectiveness of a digital design product (e.g., visual appeal, audience, media, market research).

20.10	Identify basic usability, readability, and accessibility standards.
27.0	Demonstrate proficiency in creating a simple website – the student will be able to:
27.01	Create a webpage.
27.02	Convert publications for viewing on the Internet.
27.03	Save files in multiple formats.
27.04	Create a simple website and use hyperlinks.
27.05	Demonstrate knowledge of e-Portfolios and how to create an e-Portfolio.
28.0	Demonstrate proficiency in digital publishing operations – the student will be able to:
28.01	Produce a variety of color designs using different color techniques; include process color and spot color.
28.02	Prepare output files using prepress operations (e.g., color separation, font management, file management).
28.03	Read work orders and prepare electronic files that meet all specifications.
28.04	Design a document using grids and formats.
28.05	Produce documents integrating the Elements and Principles of Art and Design.
28.06	Demonstrate proficiency in the use of a raster-based illustration program.
28.07	Demonstrate proficiency in the use of a vector-based illustration program.
28.08	Demonstrate the ability to save documents to various storage media/devices.
29.0	Demonstrate proficiency in digital imaging and in utilizing digital photography – the student will be able to:
29.01	Digitally crop and scale photographs.
29.02	Demonstrate understanding of and proficiency in the use of formats and modes.
29.03	Demonstrate the ability to use image editing software.
29.04	Complete projects using appropriate resolution and screen values (e.g., DPI, LPI, PPI).
29.05	Produce digitally retouched photographs; utilize tones, hues, and values.
29.06	Produce projects using a digital camera.

29.07	Scan multiple documents and images.
29.08	Apply special effects to image files.
29.09	Demonstrate increased proficiency in digital photography and digital image manipulation.
30.0	Consolidate coursework into a professional portfolio – the student will be able to:
30.01	Assess personal interest and create an individual career plan that reflects the transition from school to work, lifelong learning, and personal and professional goals.
30.02	Prepare a traditional (hard copy) portfolio.
30.03	Prepare a digital portfolio.
30.04	Present the portfolio to an audience.
30.05	Refine and implement a plan to facilitate personal growth and skill development related to career opportunities in digital design.
30.06	Develop and maintain a professional portfolio; include a résumé and letter of interest.
31.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
31.01	Create quality multimedia files; add audio, links, images/photos, and video.
31.02	Incorporate audio and video into a presentation.
31.03	Demonstrate the ability to create a multimedia PDF.
31.04	Demonstrate proficiency in the use of 2D and 3D animation effects.
32.0	Demonstrate promotion applications for a selected industry – the student will be able to:
32.01	Identify the types of promotion used in the industry.
32.02	Discuss the importance of advertising media.
32.03	Use design principles to prepare promotional messages.
32.04	Write a promotional message that appeals to a specified target market.
32.05	Use advertising guidelines to design appropriate sample ads for print, television, and the Internet.
32.06	Design a website to promote a product or service.
33.0	Demonstrate proficiency in website design – the student will be able to:

33.01	Develop awareness of acceptable website design.
33.02	Access and digitize graphics through various resources (e.g., scanner, digital cameras, online graphics, clipart, CD-ROM).
33.03	Use image design software to create and edit images.
33.04	Demonstrate proficiency in adding downloadable forms to a website.
33.05	Demonstrate proficiency in publishing to the Internet.
34.0	Demonstrate proficiency in the use of web design software – the student will be able to:
34.01	Compare and contrast various specialized web design programs.
34.02	Demonstrate proficiency using web design software.
35.0	Demonstrate the ability to apply the design process – the student will be able to:
35.01	Determine whether a digital design problem should be addressed or resolved.
35.02	Identify the criteria and constraints associated with a digital design problem and select the most appropriate solution based on these factors.
35.03	Evaluate the quality, efficiency, and productivity of an existing or proposed design; refine the design accordingly.
35.04	Evaluate an existing design using conceptual, physical, and mathematical models; note aspects for improvement; determine whether the design meets criteria and constraints.
35.05	Select an appropriate brainstorming process (e.g., concept mapping, graphic organizers) and explain the role of brainstorming in the digital design process.
35.06	Develop a digital design solution using the design process.
35.07	Apply and evaluate the design process pertaining to a specific design solution.
36.0	Demonstrate the knowledge and skills relative to the design process – the student will be able to:
36.01	Demonstrate the ability to represent a concept.
36.02	Determine the most effective software applications for the digital design problem.
36.03	Use communication, analysis, and design skills to define project specifications that meet the client's needs/desires; include purpose, mood, and audience.
36.04	Demonstrate increased proficiency in the use of tools and techniques in desktop/digital publishing software applications (e.g., layout, text, graphics, color and transparency, output).
36.05	Use communication, analysis, and design skills to define project specifications that will meet the client's expectations.
36.06	Use the most effect designs to complete projects according to plan.

36.07	Define, design, and complete digital design projects; account for time and resources.
36.08	Update the professional digital design portfolio.
36.09	Create a project plan to account for the time and resources to complete the project.
36.10	Complete the project according to plan.
37.0	Use computer network and web-based resources to facilitate collaborative communication – the student will be able to:
37.01	Discuss the legal and ethical copyright issues related to downloading or sharing music and/or video files from online collaborative environments (e.g., GoogleDocs).
37.02	Describe the risks associated with the use of social networking sites for collaboration; identify ways to mitigate those risks.
37.03	Adhere to cyber safety practices while conducting Internet searches and using email, chat rooms, and social networking sites.
37.04	Use various web-based tools associated with online collaboration; include those tools used to download and transfer files, telnet, FTP, PDF, plug-ins, and data compression.
37.05	Describe the ways interactive web applications support communication; include the real-time sharing of photos and video clips, messaging, chatting, and collaborating.
37.06	Describe the appropriate use of social networking sites and applications, blogs, and collaborative tools for gathering and disseminating information and/or images.
38.0	Compare and contrast various digital media delivery systems – the student will be able to:
38.01	Explain the benefits and constraints of fixed versus streaming digital media.
38.02	Describe the variations in design considerations between the mass display and on-demand display of digital media.
38.03	Discuss the variations in design considerations related to digital signage.
38.04	Describe the design implications of digital images and/or graphics based on projected mobile and Wi-Fi delivery media.
39.0	Demonstrate proficiency in digital photography – the student will be able to:
39.01	Demonstrate proficiency in adjusting the hardware features (e.g., manual settings, shutter speed, f-stops) of a basic digital single-lens reflex camera (DSLR or digital SLR).
39.02	Demonstrate knowledge of editing processes on smartphone devices; recognize the availability of apps related to photograph editing.
39.03	Demonstrate understanding of white balance and ISO.
39.04	Understand the role of lighting in photographic composition; develop an awareness of and use the three-point lighting concept.
39.05	Use imaging techniques (e.g., High Dynamic Range, panoramic, long exposure, stop motion, time lapse) to achieve different artistic effects.

39.06	Demonstrate the use of various photography techniques (e.g., black and white photography, macro photography).
39.07	Demonstrate knowledge of photography by creating a variety of projects that include appropriate composition, framing, and point-of-view (POV).
39.08	Demonstrate effective presentation of a thematic photograph or create a video portfolio of different types of photos.
39.09	Develop an awareness of the history of photography.
40.0	Plan, organize, and carry out collaborative digital design projects – the student will be able to:
40.01	Apply the design process to determine the scope of a project.
40.02	Organize a team according to individual strengths.
40.03	Assign specific tasks to team members.
40.04	Determine project priorities and the timeline for completion.
40.05	Identify the resources required for the project.
40.06	Plan and conduct research, design, development, and evaluation activities for the project.
40.07	Carry out the project plan to successful completion.
40.08	Create a presentation to articulate the problem, the solution, the selected process, conclusions, and lessons learned (self-reflection).

Course Number: GRA0026
Occupational Completion Point: D
Graphic Designer – 300 Hours – SOC Code 27-1024

18.0	Demonstrate proficiency in digital imaging – the student will be able to:
18.03	Produce projects using line art, grayscale, duotone, and the four-color process.
18.04	Use illustrations to emphasize, interpret, and establish mood and emotion.
18.05	Apply special effects to projects.
25.0	Demonstrate basic skill in digital photography – the student will be able to:
25.11	Demonstrate advanced knowledge of and skills in photography by creating various theme-based projects.
28.0	Demonstrate proficiency in digital publishing operations – the student will be able to:
28.09	Produce designs by integrating the elements and principles of design.

28.10	Use software to produce vector illustrations.
28.11	Produce multiple projects using a variety of software programs.
28.12	Demonstrate the ability to prepare output files.
28.13	Establish workflows using advanced features in desktop publishing software.
28.14	Create documents using advanced features in desktop publishing software.
28.15	Produce color designs for a presentation using appropriate color balance.
28.16	Create multimedia presentations.
30.0	Consolidate coursework into a professional portfolio – the student will be able to:
30.07	Maintain a professional digital portfolio.
30.08	Present an updated digital portfolio to an audience.
31.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
31.05	Create links in webpages, PDF files, and other documents.
31.06	Optimize images for Internet publication.
31.07	Build pages for multimedia presentations.
41.0	Demonstrate proficiency in creating and manipulating digital images using software applications – the student will be able to:
41.01	Demonstrate proficiency using tools and techniques in raster-based software applications (e.g., layers, adjustments, filters, special effects, selections, masks, channels).
41.02	Demonstrate proficiency using tools and techniques in vector-based software applications (e.g., line art, drawing, transforming/applying effects to objects, painting, type and type effects, layers).
42.0	Demonstrate proficiency in the creation of digital design solutions involving motion or special effects – the student will be able to:
42.01	Demonstrate an understanding of kinetic typography.
42.02	Design a communication solution that employs animation or motion (e.g., graphics, text, video) to achieve or enhance the intended message.
42.03	Describe the design constraints associated with optics and devices (e.g., tablet, kiosk, smartphone) used to deliver digital design projects.
42.04	Demonstrate proficiency in the use of editing software to create a product featuring special visual effects.
42.05	Design and create an interactive digital design project feature the use of rich media.

43.0	Demonstrate knowledge and skills relative to digital design – the student will be able to:
43.01	Demonstrate effective use of the Internet to locate and evaluate information.
43.02	Distribute information digitally.
43.03	Identify effective design methods for the digital presentation of information.
43.04	Demonstrate the ability to select appropriate media topics, equipment, and materials for a digital media project.
43.05	Produce a digital media project.
44.0	Demonstrate the ability to assess the impact of digital products – the student will be able to:
44.01	Collect information and evaluate the quality and validity of this information.
44.02	Evaluate data, analyze trends, and draw conclusions regarding the effects of technology on the individual, society, and the environment.
44.03	Use assessment techniques (e.g., trend analysis, experimentation) to make decisions about the future development of technology.
45.0	Demonstrate an understanding of career opportunities and requirements in the field of digital design – the student will be able to:
45.01	Discuss individual interests related to a career in digital design.
45.02	Explore career opportunities in the field of digital design.
45.03	Explore secondary and post-secondary educational opportunities related to digital design.
45.04	Conduct a job search.
45.05	Correctly complete a job application form.
45.06	Demonstrate competence in job interview skills and techniques.
45.07	Create a professional résumé and letter of introduction.
45.08	Procure letters of recommendation; list awards and recognition received.
45.09	Organize work samples in a professional portfolio (digital and traditional formats).
46.0	Demonstrate an understanding of the use of emergent technologies in digital design and advertising – the student will be able to:
46.01	Demonstrate an understanding of the principles of optics and how they relate to digital design.
46.02	Discuss contemporary trends in digital signage and imprinted advertising specialties.

46.03	Explain the various technologies associated with digital design, advertising, and associated industries.
46.04	Compare and contrast printing processes.
47.0	Demonstrate proficiency in the creation of a digital design product using mobile communication devices – the student will be able to:
47.01	Design and create digital design products suitable for delivery via multiple media options (e.g., smartphones, tablets, laptops).
47.02	Discuss the design implications of products intended for delivery via Bluetooth-enabled devices.
47.03	Compare and contrast the security and privacy issues associated with different delivery media, particularly in regard to social media.
48.0	Demonstrate advanced project design capabilities associated with digital publishing – the student will be able to:
48.01	Demonstrate advanced capabilities in the use of tools and techniques in digital publishing software applications (e.g., layout of a document, text, graphics, color/transparency, basic output).
49.0	Demonstrate advanced ability to create and manipulate digital images using software applications – the student will be able to:
49.01	Demonstrate advanced capabilities in the use of tools and techniques in raster-based software applications.
49.02	Demonstrate advanced capabilities in the use of tools and techniques in vector-based software applications.
50.0	Organize and carry out project plans for creating various digital design products – the student will be able to:
50.01	Apply the design process to determine the goal, scope, criteria, constraints, and timeline of the project.
50.02	Work as part of the project team; support the project’s focus, direction, and progress.
50.03	Identify the required resources for a specified project.
50.04	Plan and conduct research, design, development, and evaluation activities for the successful completion of the project.
50.05	Carry out the project plan to successful completion.
50.06	Create a presentation to articulate the problem, the solution, the selected process, conclusions, and lessons learned (self-reflection).

Course Number: GRA0027
Occupational Completion Point: E
Media Designer – 300 Hours – SOC Code 27-1014

30.0	Consolidate coursework into a professional portfolio – the student will be able to:
30.09	Continue to update the professional digital portfolio.

30.10	Refine and present the finalized portfolio to an audience.
31.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
31.08	Incorporate multimedia elements into digitally-delivered documents/products.
31.09	Select appropriate fonts for on-screen presentations.
31.10	Generate presentations with fully integrated text and images.
51.0	Demonstrate understanding of the Elements and Principles of Art and Design – the student will be able to:
51.01	Describe the Elements of Art and Design (line, shape, mass, value, space, texture).
51.02	Describe the Principles of Art and Design (balance, unity, contrast, rhythm, proportion, emphasis, movement, scaling).
51.03	Apply the Elements and Principles of Art and Design to enhance the message of the image/text and layout.
51.04	Utilize design elements and principles to create cohesive digital design projects.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Audio Production
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I100230
CIP Number	0650060223
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-3011 – Radio and Television Announcers 27-4011 – Audio and Video Equipment Technicians 27-4012 – Broadcast Technicians 27-4014 – Sound Engineering Technicians
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment as radio and television announcers, audio and video equipment technicians, sound engineering technicians, and broadcast technicians.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills; safe and efficient work practices; announcing and moderating programs; preparing copy, programming, and operating audio broadcast equipment to support the production of materials or programs.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	RTT0522	Broadcast Announcer	TEC ED 1 @ 2	150 hours	27-3011
B	RTT0523	Audio Equipment Technician	ENG&TEC ED1@2	300 hours	27-4011
C	RTT0524	Sound Engineering Technician	TEC ELEC ¶ 7 ¶ G	300 hours	27-4014
D	RTT0527	Audio Broadcast Technician	TV PRO TEC @7 7G	300 hours	27-4012

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of school and classroom procedures.
- 02.0 Demonstrate the ability to operate an audio console.
- 03.0 Demonstrate knowledge of production writing.
- 04.0 Demonstrate news-writing skills.
- 05.0 Demonstrate appropriate voice-over skills.
- 06.0 Demonstrate appropriate on-air skills.
- 07.0 Demonstrate the appropriate broadcast speaking manner.
- 08.0 Demonstrate the set up and configuration of a computer for audio applications.
- 09.0 Understand the operation of basic reproduction, reinforcement and recording audio equipment.
- 10.0 Demonstrate understanding of the requirements for set up and operation of a sound reinforcement system.
- 11.0 Demonstrate the application of control protocols and their relationship to equipment used in the music industry.
- 12.0 Demonstrate basic operation of a digital audio workstation.
- 13.0 Demonstrate basic digital production skills.
- 14.0 Demonstrate advanced digital production skills.
- 15.0 Perform transactions with music industry suppliers.
- 16.0 Plan, coordinate, and manage an audio broadcast or album.
- 17.0 Demonstrate knowledge of legal issues related to copyright.
- 18.0 Demonstrate knowledge of current and future digital audio networking standards.
- 19.0 Demonstrate professionalism and employability skills.

Florida Department of Education
Student Performance Standards

Program Title: Digital Audio Production
Career Certificate Program Number: I100230

Course Number: RTT0522	
Occupational Completion Point: A	
Broadcast Announcer – 150 Hours – SOC Code 27-3011	
01.0	Demonstrate knowledge of school and classroom procedures – the student will be able to:
01.01	Verbalize the rules and operational procedures of the school and classroom.
01.02	State the nature of the instruction.
01.03	Identify what will be learned in relation to stated goals and existing job opportunities.
02.0	Demonstrate the ability to operate an audio console – the student will be able to:
02.01	Demonstrate an ability to control the audio console during the recording of a show or program; combine all the sound elements onto tape, compact disc or for broadcast.
02.02	Route outside organizations through the audio console or computer.
02.03	Demonstrate application of an appropriate recording mix while adjusting audio levels.
02.04	Demonstrate the ability to keep the program on time according to the production plan.
02.05	Perform to high standards in the role of audio console operator in varied format situations.
02.06	Demonstrate knowledge of the audio console signal flow.
03.0	Demonstrate knowledge of production writing – the student will be able to:
03.01	Explain the job of a copywriter and outline the elements of good copy and copy writing.
03.02	Demonstrate the ability to write commercial copy in its various forms.
03.03	Demonstrate the ability to write a production plan for a show.
03.04	Demonstrate the ability to write lyrics for a song or jingle.
03.05	Demonstrate the ability to write show intros, outros and bumpers.

04.0	Demonstrate news-writing skills – the student will be able to:
04.01	Differentiate between news, commentary, and editorials.
04.02	Demonstrate the ability to mark, edit, and present news in an acceptable manner.
04.03	Explain the various sources of news and how they are used.
04.04	List the elements that constitute news materials and evaluate them.
04.05	Demonstrate the ability to write news stories in broadcast style.
05.0	Demonstrate appropriate voice-over skills – the student will be able to:
05.01	Demonstrate the ability to read aloud in a professional broadcast manner.
05.02	Modify reading speed as required to properly complete their assignment in the allotted time.
05.03	Demonstrate the ability to receive and properly act upon direction given by the commercial producer.
05.04	Understand the concept of voice acting and playing a role while speaking.
05.05	Perform the various assignments in a professional manner according to industry standards.
06.0	Demonstrate appropriate on-air skills – the student will be able to:
06.01	State the characteristics of various microphones and demonstrate the ability to use them.
06.02	Handle outside organizations through the console.
06.03	Demonstrate how to handle changes in show format during a recording or live broadcast.
06.04	Perform the various assignments in a professional manner according to industry standards.
06.05	List the elements and procedures of log keeping.
07.0	Demonstrate appropriate broadcast speaking manner – the student will be able to:
07.01	Identify and correct verbal deficiencies in self and others.
07.02	Demonstrate the ability to breathe properly, control voice projection, volume, and resonance, and vary tone, pitch and pacing.
07.03	Articulate and pronounce words according to accepted standards.
07.04	Read aloud in a professional broadcast manner.

07.05 Outline the qualifications and requirements of an announcer.

07.06 Demonstrate development of the skills related to announcing, the various techniques of delivery and procedures according to accepted standards.

Course Number: RTT0523
Occupational Completion Point: B
Audio Equipment Technician – 300 Hours – SOC Code 27-4011

08.0 Demonstrate the set up and configuration of a computer for audio applications – the student will be able to:

08.01 Install basic peripheral devices related to audio programs.

08.02 Install and configure software related to audio programs.

08.03 Demonstrate basic knowledge of computer system requirements.

08.04 Demonstrate basic knowledge of installing plug-ins or additional audio source material such as beats and/or samples.

08.05 Understand the signal flow of a digital audio workstation.

09.0 Understand the operation of basic reproduction, reinforcement and recording audio equipment – the student will be able to:

09.01 Assess the audio technology needs of a music production (pre-production).

09.02 Evaluate available audio resources.

09.03 Select and configure appropriate hardware and software.

10.0 Demonstrate understanding of the requirements for set up and operation of a sound reinforcement system – the student will be able to:

10.01 Demonstrate basic understanding of audio electronics (e.g., head room, biasing, distortion, equalization, frequency response).

10.02 Demonstrate basic understanding of acoustics.

10.03 Demonstrate knowledge of the principles of operation of analog/digital devices (block diagram).

10.04 Demonstrate basic understanding of audio signal flow in an analog or digital chain.

10.05 Formulate strategies for audio reinforcement of music productions.

10.06 Evaluate performance needs.

10.07 Evaluate technical needs as appropriate to given spaces.

10.08 Configure a sound reinforcement system to meet performance needs.

10.09	Analyze various audio qualities to achieve the proper sound mix.
10.10	Perform transactions with audio suppliers.
10.11	Design a plot for proper microphone and speaker selection and placement.
10.12	Evaluate the quality of a multi-track recording.
10.13	Interpret audio needs for the end user.
10.14	Supervise equipment operator.
10.15	Evaluate the quality of the final mix to industry standards.
11.0	Demonstrate the application of control protocols and their relationship to equipment used in the music industry – the student will be able to:
11.01	Demonstrate an understanding of MIDI.
11.02	Utilize a computer and multiple MIDI instruments.
11.03	Record a single-sound track, add multiple-sound tracks, and change MIDI voices using the appropriate software.
12.0	Demonstrate basic operation of a digital audio workstation – the student will be able to:
12.01	Demonstrate knowledge of the digital audio workstation interface.
12.02	Create and arrange a multi-track project.
12.03	Create interest and effect using editing techniques
12.04	Design and edit audio using a waveform editor.
12.05	Record audio directly to the digital audio workstation.
12.06	Demonstrate knowledge of mixing audio.
12.07	Demonstrate skill in using audio effects and plug-ins.
12.08	Prepare an audio project for finishing and final mix down.
12.09	Transfer audio files between various audio software applications.
12.10	Record finished audio to tape or compact disc and/or publish to a webpage.
13.0	Demonstrate basic digital production skills – the student will be able to:

13.01	Demonstrate understanding of digital audio storage concepts and digital storage media.
13.02	Demonstrate knowledge of and the ability to operate digital recording decks and other digital storage devices.
13.03	Demonstrate a working familiarity with and understanding of the function and operation of digital audio workstations.
13.04	Demonstrate the ability to edit, cut, erase, and insert sound utilizing various digital production techniques.

Course Number: RTT0524
Occupational Completion Point: C
Sound Engineering Technician – 300 Hours – SOC Code 27-4014

09.0	Understand the operation of basic reproduction, reinforcement and recording audio equipment – the student will be able to:
09.04	Formulate strategies for producing multi-track recordings.
09.05	Evaluate production needs for microphone applications.
09.06	Demonstrate proficiency with multi-track, multi-channel mixing consoles.
09.07	Formulate strategies for digital editing.
09.08	Configure audio recording systems for optimal and appropriate use of signal processing equipment.
09.09	Engineer a recording session and prepare appropriate documentation.
09.10	Mix multi-track recordings.
09.11	Configure audio equipment for optimal musical mix.
09.12	Create a mixing plan.
09.13	Evaluate the quality of multi-track recordings.
09.14	Interpret audio needs for the end user.
09.15	Supervise equipment operators.
09.16	Evaluate the quality of the final mix according to industry standards.
11.0	Demonstrate the application of control protocols and their relationship to equipment used in the music industry – the student will be able to:
11.04	Demonstrate proficiency in using MIDI instruments to record sounds using a digital sampler.
11.05	Demonstrate an understanding of MIDI and other control protocols in the recording studio.

11.06	Configure MIDI and other show control devices in the studio or live environment.
11.07	Troubleshoot MIDI and control communication problems.
14.0	Demonstrate advanced digital production skills – the student will be able to:
14.01	Demonstrate knowledge of and the ability to perform digital transfers of audio information between digital and analog production environments.
14.02	Demonstrate a working familiarity with and understanding of the function and operation of multi-track digital audio workstations.
14.03	Demonstrate an ability to edit, cut, erase, and insert sound utilizing various digital production techniques in the multi-track digital environment.

Course Number: RTT0527
Occupational Completion Point: D
Audio Broadcast Technician – 300 Hours – SOC Code 27-4012

14.0	Demonstrate advanced digital production skills – the student will be able to:
14.04	Demonstrate the knowledge and ability to connect the hardware for a digital audio workstation, an audio console, and various recording equipment together using proper signal flow techniques, cables and connectors.
14.05	Demonstrate the knowledge and ability to record, edit and encode a surround-sound digital mix for use on DVD or SACD.
14.06	Demonstrate the knowledge and ability to encode audio for use on the web, digital distribution, use in video and animation.
14.07	Demonstrate the knowledge and ability to create album cover art for CD and web distribution.
14.08	Demonstrate the knowledge and ability to create a blog page to post Internet broadcasts.
14.09	Demonstrate understanding of RSS feeds to be used to distribute digital content to Internet subscribers and to build an audience.
14.10	Formulate a marketing strategy for Internet broadcast, independent CD release, or Internet distribution.
15.0	Perform transactions with music industry suppliers – the student will be able to:
15.01	Research sources for necessary equipment, supplies and educational materials.
15.02	Differentiate the levels of quality in the hierarchy of manufacturers, distributors and suppliers.
15.03	Evaluate purchasing agreements including bids, warranties, and maintenance contracts.
15.04	Evaluate the technical specifications of audio related products.
15.05	Execute the purchase of audio equipment, supplies, and educational materials.
16.0	Plan, coordinate and manage an audio broadcast or album – the student will be able to:

16.01	Define the program format and market demographics.
16.02	Present a project proposal with script or lyrics.
16.03	Develop a production schedule.
16.04	Create a plan to acquire all required production resources and talent.
16.05	Manage crew and staff during pre-production and production.
16.06	Determine post-production requirements.
16.07	Determine post-production activities.
16.08	Conduct client approval reviews of the project.
16.09	Archive and manage finished assets and originals.
16.10	Oversee broadcast/Internet distribution or physical distribution to the market.
16.11	Explain various techniques for program or segment promotion.
17.0	Demonstrate knowledge of legal issues related to copyright – the student will be able to:
17.01	Define Federal Communications Commission (FCC) regulations pertaining to the broadcasting industry.
17.02	Define the laws and regulations pertaining to the ownership and control of media assets, license allocation, measurement and records, political broadcasts and lottery laws.
17.03	Define the laws and practices underlying rights, releases and permits.
17.04	Define the laws and practices underlying slander, libel, free speech and “truth in advertising” issues.
17.05	Define the laws and practices underlying indecent programming, obscenity and censorship issues.
17.06	Define the laws and practices underlying contract, labor, copyright and insurance/liability issues.
18.0	Demonstrate knowledge of current and future digital audio networking standards – the student will be able to:
18.01	Demonstrate the ability to plan and configure a basic digital audio network; include Audio over Ethernet (AoE).
18.02	Demonstrate knowledge of digital audio networking options (e.g., Audinate’s DANTE).
18.03	Demonstrate knowledge of networking and processing platforms for real-time professional audio applications (e.g., SoundGrid by Waves Audio).
18.04	Demonstrate knowledge of Multichannel Audio Digital Interface (MADI).

18.05	Demonstrate knowledge of AES50.
19.0	Demonstrate professionalism and employability skills – the student will be able to:
19.01	Demonstrate punctuality and promptness.
19.02	Demonstrate a strong work ethic and exemplify passion and motivation.
19.03	Demonstrate flexibility and teamwork when working in groups.
19.04	Demonstrate the ability to interact with staff, vendors, and performers in a professional manner.
19.05	Demonstrate knowledge of business processes and procedures.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

**Florida Department of Education
Curriculum Framework**

Program Title: Telecommunications Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

PSAV	
Program Number	I470301
CIP Number	0647010301
Grade Level	30, 31
Standard Length	600 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	49-2022 – Telecommunications Equipment Installers and Repairers, Except Line Installers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment or advanced training in a variety of occupations in the Telecommunications industry.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The courses content includes, but is not limited to, installation, maintenance and servicing of telecommunication systems; and diagnosis and correction of operational problems in telecommunications arising from mechanical, electrical, electronics and hardware malfunctions.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of three occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	EER0051	Telecommunications Installer	BUS MACH 7G	150 hours	49-2022
B	EER0052	Telecommunications Installation and Repair Specialist	COMP SVC 7G ELECTRICAL @7 7G ELECTRONIC @7 7G	150 hours	49-2022
C	EER0055	Telecommunications Technician	TELCOM 7G	300 hours	49-2022

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Explain and practice workplace safety.
- 02.0 Demonstrate basic work practices.
- 03.0 Demonstrate the use of safety equipment.
- 04.0 Inspect tools and equipment.
- 05.0 Inspect test equipment.
- 06.0 Explain industry code of conduct.
- 07.0 Demonstrate traffic control.
- 08.0 Demonstrate pole climbing.
- 09.0 Explain roadside safety.
- 10.0 Explain electrical hazards.
- 11.0 Perform data line safety checks.
- 12.0 Demonstrate proficiency in making electrical connections, splices and basic field repair.
- 13.0 Troubleshoot and repair telecommunication system wiring.
- 14.0 Demonstrate proficiency in customer relations.
- 15.0 Demonstrate proficiency in basic DC circuits.
- 16.0 Demonstrate appropriate understanding of basic math.
- 17.0 Demonstrate proficiency in the use of tools and test equipment used in the telecommunications industry.
- 18.0 Demonstrate science knowledge and skills.
- 19.0 Demonstrate proficiency in basic AC circuits.
- 20.0 Analyze technical data associated with cable validation and fault location.
- 21.0 Install repair terminate and test network cabling.
- 22.0 Demonstrate advanced skills in test equipment usage to locate faults.
- 23.0 Demonstrate advanced cable repair techniques. (Optional)
- 24.0 Demonstrate usage of test equipment validate network and telecommunication cabling systems.
- 25.0 Demonstrate a basic understanding of computer systems architecture.
- 26.0 Demonstrate proficiency in peripheral equipment.
- 27.0 Demonstrate proficiency in electronic information exchange.
- 28.0 Demonstrate proficiency in site requirements and considerations.
- 29.0 Use tables and charts.
- 30.0 Prepare worksite plans.
- 31.0 Demonstrate proficiency in twisted pair design.

Florida Department of Education
Student Performance Standards

Program Title: Telecommunications Technology
PSAV Number: I470301

Course Number: EER0051
Occupational Completion Point: A
Telecommunications Installer – 150 Hours – SOC Code 49-2022

01.0	Explain and practice workplace safety--The student will be able to:
01.01	Demonstrate office safety.
01.02	Demonstrate safety outside of the office.
01.03	Explain fiber optics safety.
01.04	Demonstrate safety for splicing.
01.05	Demonstrate or explain bucket truck safety. (Optional)
02.0	Demonstrate basic work practices--The student will be able to:
02.01	Demonstrate good work attitudes.
02.02	Explain work and business ethics.
02.03	Explain general code of conduct.
03.0	Demonstrate the use of safety equipment--The student will be able to:
03.01	Correctly use personal safety equipment used in the telecommunications industry.
03.02	Explain the hazards associated with telecommunications industry.
04.0	Inspect tools and equipment--The student will be able to:
04.01	Safety, inspect support equipment.
04.02	Safety, inspect tools.
05.0	Inspect test equipment--The student will be able to:
05.01	Evaluate and inspect test equipment.

06.0	Explain industry code of conduct--The student will be able to:
06.01	Explain the purpose of a code of conduct.
06.02	List the basic parts of his/her Industry code of conduct.
06.03	Explain how the code of conduct protects both customers and workers.
06.04	Explain the relationship between code of conduct and the laws governing privacy of telephone conversations.
07.0	Demonstrate traffic control--The student will be able to:
07.01	Use roadside signals. (Optional)
07.02	Use signage, barricades and cones. (Optional)
07.03	Perform flagging, and hand signals. (Optional)
07.04	Explain general outside safety procedures.
08.0	Demonstrate pole climbing--The student will be able to:
08.01	Conduct pole-climbing safety inspection. (Optional)
08.02	Use pole-climbing equipment in a safe and correct manner. (Optional)
08.03	Explain the hazards of pole climbing.
08.04	Demonstrate safe and correct ladder usage.
08.05	Select correct ladder for telecommunication work.
08.06	Demonstrate ladder rigging for aerial installation.
08.07	Demonstrate pole climbing to install drops and perform splicing. (Optional)
09.0	Explain roadside safety--The student will be able to:
09.01	Explain the hazards encountered around roadways.
09.02	Work in a safe manner around roadways. (Optional)
10.0	Explain electrical hazards--The student will be able to:
10.01	Identify the hazards associated with work on telecommunication lines and equipment.
10.02	Test and analyze various telecommunications equipment and lines for safety hazards.

11.0	Perform data line safety checks--The student will be able to:
11.01	Check and identify hazardous line currents and voltages.
12.0	Demonstrate proficiency in making electrical connections, splices and basic field repair--The student will be able to:
12.01	Apply proper Occupational Safety Health Administration (OSHA) Safety Standards.
12.02	Make electrical connections.
12.03	Identify and use hand tools properly.
12.04	Identify and use power tools properly.
12.05	Demonstrate acceptable soldering techniques.
12.06	Demonstrate acceptable de-soldering techniques.
12.07	Demonstrate Electrostatic Discharge (ESD) safety procedures.
12.08	Describe the construction of Printed Circuit Boards (PCB's). (Optional)
12.09	Demonstrate rework and repair techniques. (Optional)
13.0	Troubleshoot and repair telecommunication system wiring--The student will be able to:
13.01	Test telecommunication systems and evaluate based on established criteria.
13.02	Identify range of fault conditions for telecommunication systems.
13.03	Demonstrate telecommunication fault identification skills.
13.04	Use field documentation techniques for repair of systems.
13.05	Use test equipment and logic to locate faults.
13.06	Demonstrate proficiency in repair techniques using splices, closure assembly and punch-down terminations.
13.07	Validate repaired system to industry criteria.
14.0	Demonstrate proficiency in customer relations--The student will be able to:
14.01	Describe and demonstrate appropriate personal hygiene and professional attire.
14.02	Describe and demonstrate effective listening techniques.
14.03	Describe and apply techniques for installing customer confidence and satisfaction.

14.04	Describe and apply techniques for keeping the customer informed
14.05	Describe and apply effective follow-up techniques.
14.06	Demonstrate discretion in interacting with customers in field and retail environments.
14.07	Demonstrate an understanding of basic conflict resolution.
15.0	Demonstrate proficiency in basic DC circuits--The student will be able to:
15.01	Solve problems in electronics units utilizing metric prefixes.
15.02	Identify sources of electricity.
15.03	Define voltage, current, resistance, power and energy.
15.04	Apply ohm's law and power formulas.
15.05	Identify and interpret industry appropriate, color codes and symbols to identify electrical components and values.
15.06	Measure properties of a circuit using Volt-Ohm Meter (VOM) and Digital Volt-Com Meter (DVM) and oscilloscopes.
15.07	Compute conductance and compute and measure resistance of conductors and insulators.
15.08	Apply ohm's law to series circuits.
15.09	Construct and verify operation of series circuits.
15.10	Analyze and troubleshoot series circuits.
15.11	Apply ohm's law to parallel circuits.
15.12	Construct and verify the operation of parallel circuits.
15.13	Analyze and troubleshoot parallel circuits.
16.0	Demonstrate appropriate understanding of basic math--The student will be able to:
16.01	Solve problems for volume, weight, area and circumference and perimeter measurements for rectangles, square and cylinders.
16.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, and feet and inches.
16.03	Add, subtract, multiply and divide using fractions, decimals and whole numbers.
16.04	Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
16.05	Demonstrate an understanding of federal, state and local taxes and their computation.

16.06	Use basic algebra to solve job related problems.
17.0	Demonstrate proficiency in the use of tools and test equipment used in the telecommunications industry--The student will be able to:
17.01	Install twisted pair cabling systems.
17.02	Terminate twisted pair cords, plugs, and outlets.
17.03	Test installed cables.
17.04	Troubleshoot cables.
17.05	Demonstrate proficiency in the current techniques and equipment used in the telecommunications industry.
17.06	Demonstrate proficiency in usage of the NEC codes.
17.07	Demonstrate proficiency in usage of the color codes and configuration.
17.08	Interpret cable substitution hierarchy.

Course Number: EER0052
Occupational Completion Point: B
Telecommunication Installation and Repair Specialist – 150 Hours – SOC Code 49-2022

18.0	Demonstrate science knowledge and skills--The student will be able to:
18.01	Demonstrate an understanding of the effects of temperature extremes and moisture content in regards to electronic equipment.
18.02	Demonstrate an understanding of the impact and effects of Electrostatic Discharge (ESD), power surges, grounding, and lightning strikes.
18.03	Apply the scientific method to draw conclusions or make inferences from data.
18.04	Demonstrate deductive reasoning techniques when troubleshooting
18.05	Demonstrate an understanding of the effects of heat load and ventilation in regards to electronic equipment.
18.06	Identify safety and health related issues including exposure to work related chemicals and hazardous materials, and demonstrate the appropriate precautionary measures.
18.07	Demonstrate an understanding of environmental impact and regulations in regards to the appropriate disposal of electronic equipment.
19.0	Demonstrate proficiency in basic AC circuits--The student will be able to:
19.01	Identify properties of an AC signal.
19.02	Identify AC sources.

19.03	Analyze and measure AC signals utilizing VOM, DVM.
19.04	Perform AC safety checks.
19.05	Perform AC safety checks.
19.06	Explain high voltage power systems and hazards.
20.0	Analyze technical data associated with cable validation and fault location--The student will be able to:
20.01	Read and understand telecommunications technical data.
20.02	Interpret diagrams, schematics.
20.03	Document work.
21.0	Install repair terminate and test network cabling--The student will be able to:
21.01	Terminate cable using industry standard configuration termination RJ11, RJ12, RJ45, BNC, and AUI.
21.02	Install cabling using industry standard tools, telepole, and fish tape.
21.03	Punch down cables on standard wiring blocks. (66 Block, 110 Block)
21.04	Route cable over aerial and buried drops.
22.0	Demonstrate advanced skills in test equipment usage to locate faults--The student will be able to:
22.01	Operate butt-in test sets.
22.02	Operate toners.
22.03	Operate subscriber line test set.
22.04	Operate cable locator test sets.

Course Number: EER0055
Occupational Completion Point: C
Telecommunication Technician – 300 Hours – SOC Code 49-2022

23.0	Demonstrate advanced cable repair techniques--The student will be able to: (Optional)
23.01	Prepare buried cable for splicing.
23.02	Splice buried cable.
23.03	Make various closure devices for spliced buried cable.

23.04	Prepare aerial cable for splicing.
23.05	Splice aerial cable.
23.06	Make various closure devices for spliced aerial cable.
24.0	Demonstrate usage of test equipment validate network and telecommunication cabling systems--The student will be able to:
24.01	Validate telephone lines using standard industry procedures.
24.02	Validate high-speed digital lines using industry standard procedures.
24.03	Validate advanced signal lines. (Fiber optics).
25.0	Demonstrate a basic understanding of computer systems architecture--The student will be able to:
25.01	Identify network configurations.
25.02	Distinguish between faults caused by wiring verses architecture configuration.
25.03	Install cable connectors to match architecture.
25.04	Explain cable limitations due to architecture.
26.0	Demonstrate proficiency in peripheral equipment--The student will be to:
26.01	Demonstrate an understanding of input/output devices.
26.02	Identify and define serial and parallel interface standards.
26.03	Troubleshoot, install and upgrade telecommunications devices and adapter cards. (i.e. NIC, Modem)
26.04	Demonstrate professional connector assembly procedures.
27.0	Demonstrate proficiency in electronic information exchange--The student will be able to:
27.01	Install, connect and maintain network clients to various network operating systems.
27.02	Connect and configure computers for network connectivity.
27.03	Describe use and system maintenance of a WAN and telecommunications system.
27.04	Demonstrate knowledge of network protocols.
27.05	Demonstrate knowledge of fundamentals of an Internet system.
27.06	Demonstrate knowledge of telecommunications services and standards.

28.0	Demonstrate proficiency in site requirements and considerations--The student will be able to:
28.01	Demonstrate knowledge of data communication test equipment.
28.02	Demonstrate knowledge of telecommunication wiring systems.
28.03	Demonstrate knowledge of cable and LAN topology.
28.04	Demonstrate knowledge of hubs, switches and routers.
28.05	Calculate and determine power requirements.
28.06	Calculate and determine requirements of the working environment.
28.07	Install, configure and troubleshoot LAN cable systems (twisted pair, coax, or fiber).
28.08	Configure and troubleshoot patch bay, hubs and transceivers.
29.0	Use tables and charts--The student will be able to:
29.01	Determine expected levels of resistance for wiring configuration.
29.02	Determine changes in resistance due to temperature changes.
29.03	Determine capacitance of a given cable configuration.
29.04	Demonstrate quick test methods using Quick Test Charts.
30.0	Prepare worksite plans--The student will be able to:
30.01	Draw site plans.
30.02	Review and evaluate and plan for site electrical considerations.
30.03	Draw cable runs (cut sheet).
30.04	Evaluate and select wiring room.
31.0	Demonstrate proficiency in twisted pair design--The student will be able to:
31.01	Select correct cable for CAT5 installations.
31.02	Ensure cable rating at patch panels conforms to industry standards.
31.03	Test installed design to meet standards using test equipment.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In PSAV programs offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Wireless Telecommunications
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I470305
CIP Number	0615030502
Grade Level	30, 31
Standard Length	1500 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	15-1142 – Network and Computer Systems Administrators
Basic Skills Level	Mathematics: 10 Language: 10 Reading: 10

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The purpose of this program is to prepare students for employment as computer and wireless technicians.

The course content includes, but is not limited to, the operation and maintenance of personal computers, computing networks, printers, communications equipment and wireless systems; training in communication, leadership, human relations, and employability skills; and safe, efficient work practices. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the computer and wireless industry: planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of six occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	CTS0004	Computer Support Technician	TELCOM 7G	150 hours	15-1142
B	EEV0505	Computer Support Specialist		300 hours	15-1142
C	CTS0006	Network Systems Technician		150 hours	15-1142
D	CTS0007	Network Specialist		300 hours	15-1142
E	CTS0008	Network Administrator		300 hours	15-1142
F	CTS0009	Wireless Telecommunications Administrator		300 hours	15-1142

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate proficiency in computer and software fundamentals.
- 02.0 Demonstrate proficiency in customer relations.
- 03.0 Demonstrate proficiency in installation, configuration and upgrading.
- 04.0 Demonstrate proficiency in diagnosing and troubleshooting.
- 05.0 Demonstrate proficiency in preventive maintenance.
- 06.0 Demonstrate an understanding of motherboards.
- 07.0 Demonstrate an understanding of processors and memory.
- 08.0 Demonstrate proficiency in the understanding of printers.
- 09.0 Demonstrate proficiency in basic networking.
- 10.0 Demonstrate proficiency in operating systems and protocols.
- 11.0 Demonstrate proficiency in fault tolerance.
- 12.0 Demonstrate proficiency in the OSI layer model.
- 13.0 Demonstrate proficiency in networking media and topologies.
- 14.0 Demonstrate proficiency in network elements.
- 15.0 Demonstrate proficiency in installation, configuration, and troubleshooting scenarios.
- 16.0 Demonstrate proficiency in network components.
- 17.0 Demonstrate proficiency in the OSI model data link layer.
- 18.0 Demonstrate proficiency in the OSI model network layer.
- 19.0 Demonstrate proficiency in the OSI model transport layer.
- 20.0 Demonstrate proficiency in TCP/IP (Transmission Control Protocol/Internet Protocol) fundamentals.
- 21.0 Demonstrate proficiency in understanding of TCP/IP addressing.
- 22.0 Demonstrate proficiency in understanding of TCP/IP configuration.
- 23.0 Demonstrate proficiency in understanding of TCP/IP utilities.
- 24.0 Demonstrate proficiency in understanding of remote connectivity.
- 25.0 Demonstrate proficiency in understanding of dial-up networking.
- 26.0 Demonstrate proficiency in understanding of network security.
- 27.0 Demonstrate proficiency in understanding of network implementation.
- 28.0 Demonstrate proficiency in understanding of environmental factors.
- 29.0 Demonstrate proficiency in understanding of peripherals.
- 30.0 Demonstrate proficiency in understanding cabling and compatibility issues.
- 31.0 Demonstrate proficiency in understanding of network maintenance.
- 32.0 Demonstrate proficiency in troubleshooting fundamentals – investigation.
- 33.0 Demonstrate proficiency in troubleshooting fundamentals – users.
- 34.0 Demonstrate proficiency in troubleshooting fundamentals – operators.
- 35.0 Demonstrate proficiency in troubleshooting fundamentals – physical indicators.
- 36.0 Demonstrate proficiency in troubleshooting fundamentals – network.
- 37.0 Demonstrate proficiency in troubleshooting fundamentals – network tools.
- 38.0 Demonstrate proficiency in current software applications.

- 39.0 Demonstrate proficiency in a state of the art server.
- 40.0 Demonstrate proficiency in network infrastructure administration.
- 41.0 Demonstrate proficiency and knowledge to become a Certified Network Administrator.
- 42.0 Demonstrate proficiency and knowledge to become a Certified Network Associate.
- 43.0 Demonstrate proficiency in principles of radio frequency (RF) and wireless technology.
- 44.0 Demonstrate an understanding of RF system block diagrams.
- 45.0 Demonstrate proficiency in understanding antennas.
- 46.0 Demonstrate proficiency in understanding filters.
- 47.0 Demonstrate proficiency in principles of electricity and electrical signals.
- 48.0 Demonstrate proficiency in understanding RF transmission lines.
- 49.0 Demonstrate proficiency in understanding modulation.
- 50.0 Demonstrate proficiency in understanding wireless applications.
- 51.0 Demonstrate proficiency in understanding cellular generations.
- 52.0 Demonstrate proficiency in understanding cellular phone technology.
- 53.0 Demonstrate skills in mathematics for RF.
- 54.0 Demonstrate knowledge of electricity for RF.
- 55.0 Demonstrate proficiency in understanding RF component requirements.
- 56.0 Demonstrate proficiency in understanding phase noise.
- 57.0 Demonstrate proficiency in understanding digital modulation.
- 58.0 Demonstrate proficiency in understanding short range wireless.
- 59.0 Demonstrate proficiency in understanding WLAN and WPAN devices.
- 60.0 Demonstrate proficiency in planning.
- 61.0 Demonstrate proficiency in wireless network standards.
- 62.0 Demonstrate proficiency in the principles of a wireless network.
- 63.0 Demonstrate proficiency in understanding the components of wireless networking.
- 64.0 Demonstrate proficiency in Applied Wireless Networking. (optional)
- 65.0 Demonstrate proficiency in Voice over Internet Protocol (VoIP) telephony. (optional)

Florida Department of Education
Student Performance Standards

Program Title: **Wireless Telecommunications**
Career Certificate Program Number: **I470305**

Course Number: CTS0004
Occupational Completion Point: A
Computer Support Technician –150 Hours – SOC Code 15-1142

01.0	Demonstrate proficiency in computer and software fundamentals – the student will be able to:
01.01	Develop keyboarding skills to enter and manipulate text and data.
01.02	Describe and use current and emerging computer technology and software to perform personal and business related tasks.
01.03	Identify and describe communications and networking systems used in workplace environments.
01.04	Use reference materials such as online help, vendor bulletin boards, tutorials, and manuals available for application software.
01.05	Demonstrate basic file management skills.
01.06	Troubleshoot problems with computer software.
01.07	Describe ethical issues and problems associated with computers and information systems.
01.08	Apply ergonomic principles applicable to the configuration of computer workstations.
02.0	Demonstrate proficiency in customer relations – the student will be able to:
02.01	Describe and demonstrate appropriate personal hygiene and professional attire.
02.02	Describe and demonstrate effective listening techniques.
02.03	Describe and apply techniques for instilling customer confidence and satisfaction.
02.04	Describe and apply techniques for keeping the customer informed.
02.05	Describe and apply effective follow-up techniques.
02.06	Demonstrate discretion in interacting with customers in field and retail environments.
02.07	Demonstrate an understanding of basic conflict resolution.

Course Number: EEV0505
Occupational Completion Point: B
Computer Support Specialist -- 300 Hours – SOC Code 15-1142

03.0 Demonstrate proficiency in installation, configuration and upgrading – the student will be able to:

03.01 Identify basic terms, concepts, and functions of system modules.

03.02 Identify procedures for replacing system modules.

03.03 Identify available IRQs, DMAs, and I/O address.

03.04 Identify common peripherals and the connectors associated cabling.

03.05 Identify proper procedures for installing IDE/EIDE devices.

03.06 Identify proper procedures for installing SCSI devices.

03.07 Identify proper procedures for installing peripheral devices.

03.08 Identify hardware methods of upgrading system performance.

04.0 Demonstrate proficiency in diagnosing and troubleshooting – the student will be able to:

04.01 Identify common symptoms of computer peripherals, troubleshooting and isolation.

04.02 Identify basic troubleshooting procedures and how to elicit problem symptoms from customers.

05.0 Demonstrate proficiency in preventive maintenance – the student will be able to:

05.01 Identify the purpose of various preventive maintenance products and procedures.

05.02 Identify issues, procedures and devices for protection within the computing environment.

05.03 Identify RAM terminology, locations, and physical characteristics.

06.0 Demonstrate an understanding of motherboards – the student will be able to:

06.01 Identify a motherboard.

06.02 Identify different types of motherboards.

06.03 Describe motherboard architecture.

06.04 Identify the purpose of CMOS and define and explain its basic parameters.

07.0 Demonstrate an understanding of processors and memory – the student will be able to:

07.01	Distinguish between the basic characteristics of different CPU types.
07.02	Describe RAM terminology, locations, and physical characteristics.
08.0	Demonstrate proficiency in the understanding of printers – the student will be able to:
08.01	Identify basic printer concepts and components.
08.02	Identify care and service techniques and troubleshoot common problems.
09.0	Demonstrate proficiency in basic networking – the student will be able to:
09.01	Describe basic networking concepts.
10.0	Demonstrate proficiency in operating systems and protocols – the student will be able to:
10.01	Identify current major network operating systems.
10.02	Identify operating systems that best serve the client's specific network and resources.
10.03	Identify directory services of the major network operating systems.
10.04	Describe current network protocols.
11.0	Demonstrate proficiency in fault tolerance – the student will be able to:
11.01	Describe mirroring.
11.02	Describe duplexing.
11.03	Describe striping.
11.04	Describe volumes.
11.05	Describe the need for tape backup.
12.0	Demonstrate proficiency in the OSI layer model – the student will be able to:
12.01	Define the seven layers of the OSI model.
12.02	Identify the protocols for each OSI layer.
12.03	Identify the services for each OSI layer.
12.04	Identify and functions that pertain to each layer.
13.0	Demonstrate proficiency in networking media and topologies – the student will be able to:

13.01	Describe the advantages of using different types of cabling.
13.02	Describe the disadvantages of using different types of cabling.
13.03	Determine the appropriate cabling to use in different network environments.
13.04	Identify the maximum lengths and speeds of various network cables.
13.05	Visually identify various cable connectors.
13.06	Identify network topologies.
14.0	Demonstrate proficiency in network elements – the student will be able to:
14.01	Identify the basic attributes, purposes, and functions of full-and half-duplexing
14.02	Identify the basic attributes, purposes, and functions of WAN and LAN topologies.
14.03	Identify the basic attributes, purposes, and functions of a server, workstation, and host.
14.04	Identify the basic attributes, purposes, and functions of server-based networking and peer-to-peer networking.
14.05	Identify the basic attributes, purposes, and functions NIC and routers.
14.06	Identify the basic attributes, purposes, and functions of broadband and baseband technology.
14.07	Describe a gateway as both a default IP router and as a method to connect dissimilar systems or protocols.
15.0	Demonstrate proficiency in installation, configuration, and troubleshooting scenarios – the student will be able to:
15.01	Identify the correct course of action given a variety of network troubleshooting scenarios.
15.02	Explain why a given action is warranted.
15.03	Display knowledge of how a network card is configured.
15.04	Demonstrate the use of network card diagnostics, including the loop back test and vendor-supplied diagnostics.
15.05	Demonstrate the ability to resolve hardware resource conflicts, including IRQ, DMA, and I/O base address.

Course Number: CTS0006
Occupational Completion Point: C
Network Systems Technician – 150 Hours – SOC Code 15-1142

16.0 Demonstrate proficiency in network components – the student will be able to:

16.01 Visually identify and use hubs.

16.02 Visually identify and use MAUs.

16.03 Visually identify and use switching hubs.

16.04 Visually identify and use repeaters.

16.05 Visually identify and use transceivers.

17.0 Demonstrate proficiency in the OSI model data link layer – the student will be able to:

17.01 Identify the purpose and uses of bridges.

17.02 Describe the 802 standard characteristics and specs.

17.03 Describe the function and characteristics of MAC addresses.

18.0 Demonstrate proficiency in the OSI model network layer – the student will be able to:

18.01 Describe how routing occurs at the network layer.

18.02 Describe the differences between a router and a bridge router (brouter).

18.03 Describe the differences between routable and non-routable protocols.

18.04 Define and explain the use of default gateways and subnetworks.

18.05 Define and explain the need for employing unique network IDs.

18.06 Define and explain the difference between static and dynamic routing.

19.0 Demonstrate proficiency in the OSI model transport layer – the student will be able to:

19.01 Define and explain the distinction between connectionless and connection-oriented transport.

19.02 Define and explain the purpose of and need for name resolution.

20.0 Demonstrate proficiency in TCP/IP (Transmission Control Protocol/Internet Protocol) fundamentals – the student will be able to:

20.01 Describe the concept of IP default gateways.

20.02	Define and explain the purpose and use of DHCP, DNS, WINS, and host files.
20.03	Identify the main protocols that make up TCP/IP suite.
20.04	Define and explain the concept that every operating system and millions of hosts worldwide support TCP/IP.
20.05	Describe the purpose and function of Internet DNS hierarchies.
21.0	Demonstrate proficiency in understanding of TCP/IP addressing – the student will be able to:
21.01	Demonstrate knowledge of the fundamental concepts of TCP/IP addressing.
21.02	Describe the A, B, and C classes of IP addresses and default subnet mask numbers.
21.03	Understand the use of ports for HTTP, FTP, SMTP and port numbers commonly assigned to a given service.
22.0	Demonstrate proficiency in understanding of TCP/LP configuration – the student will be able to:
22.01	Define and explain the concept and use of IP proxy.
22.02	Identify the configuration parameters for a workstation to include IP address, DNS, default gateway, IP proxy configuration, WINS, DHCP, host name, and Internet domain name.
23.0	Demonstrate proficiency in understanding TCP/LP utilities – the student will be able to:
23.01	Define and explain how to use TCP/LP utilities to test, validate, and troubleshoot IP connectivity.
23.02	Demonstrate the ability to use ARP.
23.03	Demonstrate the ability to use Telnet.
23.04	Demonstrate the ability to use NBTSTAT.
23.05	Demonstrate the ability to use TRACERT.
23.06	Demonstrate the ability to use NETSTAT.
23.07	Demonstrate the ability to use IPCONFIG and WINIPCFG.
23.08	Demonstrate the ability to use FTP.
23.09	Demonstrate the ability to use PING.
24.0	Demonstrate proficiency in understanding remote connectivity – the student will be able to:
24.01	Define and explain the distinction between PPP and SLIP.
24.02	Define and explain the purpose and function of PPTP.

24.03	Define and explain the attributes, advantages, and disadvantages of ISDN and PSTN (POTS).
25.0	Demonstrate proficiency in understanding of dial-up networking – the student will be able to:
25.01	Describe different elements of dial-up networking.
25.02	Define and explain modem configuration parameters (e.g., serial port IRQ, I/O address, maximum port speed).
25.03	Describe the requirements for a remote connection.
26.0	Demonstrate proficiency in understanding of network security – the student will be able to:
26.01	Define and explain the selection of a security model (user and share level).
26.02	Define and explain standard password practices and procedures.
26.03	Define and explain the need to employ data encryption to protect network data.
26.04	Define and explain the use of a firewall.
27.0	Demonstrate proficiency in understanding of network implementation – the student will be able to:
27.01	Define and explain what must be obtained prior to network implementation.
27.02	Demonstrate the use of administrative accounts, test accounts, passwords, IP addresses, IP configurations and relevant SOPs.
28.0	Demonstrate proficiency in understanding of environmental factors – the student will be able to:
28.01	Describe the impact of environmental factors on computer networks.
28.02	Given a network installation scenario, identify unexpected or atypical conditions that could cause problems for the network or signify that a problem condition already exists.
28.03	Identify room conditions (e.g., humidity, heat).
28.04	Identify the placement of building contents and personal effects (e.g., space heaters, TVs, radios).
28.05	Identify computer equipment.
28.06	Identify error messages.
29.0	Demonstrate proficiency in understanding of peripherals – the student will be able to:
29.01	Recognize common peripheral ports, external SCSI (especially DB-25 connectors), and common network components. <ul style="list-style-type: none"> a. Identify print servers. b. Identify hubs. c. Identify routers. d. Identify brouters.

	<ul style="list-style-type: none"> e. Identify bridges. f. Identify patch panels. g. Identify UPSs. h. Identify NICs. i. Identify token ring media filters.
30.0	Demonstrate proficiency in understanding cabling and compatibility issues – the student will be able to:
30.01	Given an installation scenario, demonstrate awareness of troubleshooting compatibility and cabling issues.
30.02	Define and explain the consequences of trying to install an analog modem in a digital jack.
30.03	Define and explain how the uses of RJ-45 connectors may differ greatly depending on the cabling.
30.04	Define and explain how patch cables contribute to the overall length of the cabling segment.
30.05	Identify the types of test documentation that are usually available regarding a vendor's patches, fixes, upgrades, etc.
31.0	Demonstrate proficiency in understanding of network maintenance – the student will be able to:
31.01	Describe standard backup procedures and backup media storage practices.
31.02	Describe the need for the periodic application of software patches and other fixes to the network.
31.03	Describe the need to install antivirus software on the server and workstations.
31.04	Describe the need to frequently update virus signatures.
32.0	Demonstrate proficiency in understanding of troubleshooting fundamentals – investigation – the student will be able to:
32.01	Define, explain and follow a systematic approach to identify the extent of a network problem; and, given a problem scenario, select the appropriate next step.
32.02	Determine whether the problem exists across the network.
32.03	Determine whether the problem is workstation, workgroup, LAN- or WAN-related.
32.04	Determine whether the problem is consistent and replicable.
32.05	Use standard troubleshooting methods.
33.0	Demonstrate proficiency in understanding of troubleshooting fundamentals – users – the student will be able to:
33.01	Define, explain and follow a systematic approach to determining whether a problem is attributable to the user or the system; and, given a problem scenario, select the appropriate next step: <ul style="list-style-type: none"> a. Identify the exact issue. b. Recreate the problem. c. Isolate the cause of the problem.

	<ul style="list-style-type: none"> d. Formulate a correction to the problem. e. Implement the correction to the problem. f. Test. g. Document the problem and the solution. h. Provide feedback.
34.0	Demonstrate proficiency in understanding of troubleshooting fundamentals -- operators – the student will be able to:
34.01	Define, explain and follow a systematic approach to determining whether a problem is attributable to the operator or the system; and, given a problem scenario, select the appropriate next step.
34.02	Define and explain the need to have a second operator perform the same task on an equivalent workstation.
34.03	Define and explain the need to have a second operator perform the same task on the original operator's workstation.
34.04	Determine whether operators are following standard operating procedure.
35.0	Demonstrate proficiency in understanding of troubleshooting fundamentals -- physical indicators – the student will be able to:
35.01	Given a network-troubleshooting scenario, demonstrate awareness of the need to check for physical and logical indicators of trouble.
35.02	Identify link lights.
35.03	Identify power lights.
35.04	Identify error displays.
35.05	Identify error logs and displays.
35.06	Identify performance monitors.
36.0	Demonstrate proficiency in understanding of troubleshooting fundamentals – network – the student will be able to:
36.01	Given a network problem scenario, including symptoms, determine the most likely cause or causes of the problem based on the available information.
36.02	Recognize abnormal physical conditions.
36.03	Isolate and correct problems in cases where there is a fault in the physical media (patch cable).
36.04	Check the status of servers.
36.05	Check for configuration problems with DNS, WINS, and host files.
36.06	Check for viruses.
36.07	Check the validity of the account name and password.
36.08	Recheck operator logon procedures.

36.09	Select and run appropriate diagnostics.
37.0	Demonstrate proficiency in understanding of troubleshooting fundamentals -- network tools – the student will be able to:
37.01	Specify the tools that are commonly used to resolve network equipment problems.
37.02	Identify the purpose and function of common network tools.
37.03	Define and explain when to utilize crossover cable.
37.04	Define and explain when to utilize hardware loop back.
37.05	Define and explain when to utilize a tone generator.
37.06	Define and explain when to utilize a tone locator (fox and hound).

Course Number: CTS0007	
Occupational Completion Point: D	
Network Specialist – 300 Hours – SOC Code 15-1142	
38.0	Demonstrate proficiency in current software applications – the student will be able to:
38.01	Perform an attended installation of software.
38.02	Perform an unattended installation of software.
38.03	Upgrade from a previous version of software.
38.04	Deploy service packs.
38.05	Troubleshoot failed installations.
38.06	Monitor, manage, and troubleshoot access to files and folders.
38.07	Manage and troubleshoot access to shared folders.
38.08	Connect to local and network print devices.
38.09	Configure and manage file systems.
38.10	Implement, manage, and troubleshoot disk devices.
38.11	Implement, manage, and troubleshoot display devices.
38.12	Implement, manage, and troubleshoot mobile computer hardware.
38.13	Implement, manage, and troubleshoot input and output devices.

38.14	Update drivers.
38.15	Monitor and configure multiple processing units.
38.16	Install, configure, and troubleshoot network adapters.
38.17	Manage and troubleshoot driver signing.
38.18	Configure, manage, and troubleshoot task scheduler.
38.19	Manage and troubleshoot the use and synchronization of offline files.
38.20	Optimize and troubleshoot performance of software-desktop.
38.21	Manage hardware profiles.
38.22	Recover systems and user data.
38.23	Configure and manage user profiles.
38.24	Configure support for multiple languages or multiple locations.
38.25	Install applications by using Windows Installer packages.
38.26	Configure and troubleshoot desktop settings.
38.27	Configure and troubleshoot fax support.
38.28	Configure and troubleshoot accessibility services.
38.29	Configure and troubleshoot the TCP/IP protocol.
38.30	Connect to computers using dial-up networking.
38.31	Connect to shared resources on a shared network.
38.32	Encrypt data on a hard disk by using Encrypting File System (EFS).
38.33	Implement, configure, manage, and troubleshoot local group policy.
38.34	Implement, configure, manage, and troubleshoot local user accounts.
38.35	Implement, configure, manage, and troubleshoot local user authentication.
38.36	Implement, configure, manage, and troubleshoot a security configuration.
39.0	Demonstrate proficiency in a state of the art server – the student will be able to:

39.01	Create an unattended answer file by using setup manager to automate the installation of a server.
39.02	Create and configure automated methods for installation of a server.
39.03	Upgrade a server.
39.04	Deploy services packs.
39.05	Troubleshoot failed installations.
39.06	Install and configure network services for interoperability.
39.07	Monitor, configure, troubleshoot and control access to printers.
39.08	Monitor, configure, troubleshoot and control access to files, folders, and shared folders.
39.09	Configure, manage, and troubleshoot a stand-alone distributed file system (DFS).
39.10	Configure, manage, and troubleshoot a domain-based distributed file system.
39.11	Monitor, configure, troubleshoot, and control access to files and folders via web services.
39.12	Monitor, configure, troubleshoot and control access to websites.
39.13	Configure hardware devices.
39.14	Configure driver-signing options.
39.15	Update device drivers.
39.16	Troubleshoot problems with hardware.
39.17	Monitor and optimize usage of system resources.
39.18	Set priorities and start and stop processes.
39.19	Optimize disk performance.
39.20	Manage and optimize availability of system state data and user data.
39.21	Recover systems and user data by using a backup.
39.22	Troubleshoot system restoration by using safe mode.
39.23	Recover system and user data by using safe mode.
39.24	Recover systems and user data by using the recovery console.

39.25	Configure and manage user profiles.
39.26	Monitor, configure, and troubleshoot disks and volumes.
39.27	Configure data compression.
39.28	Monitor and configure disk quotas.
39.29	Recover from disk failures.
39.30	Install, configure, and troubleshoot shared access.
39.31	Install, configure, and troubleshoot network protocols.
39.32	Install, configure, and troubleshoot a virtual private network (VPN).
39.33	Install, configure, and troubleshoot network services.
39.34	Configure, monitor, and troubleshoot remote access.
39.35	Install, configure, monitor and troubleshoot terminal services.
39.36	Configure the properties of a connection.
39.37	Install, configure, and troubleshoot network adapters and drivers.
39.38	Encrypt data on a hard disk by using Encrypting File System (EFS).
39.39	Implement, configure, manage and troubleshoot policies in a software-product environment.
39.40	Implement, configure, manage and troubleshoot auditing.
39.41	Implement, configure, manage and troubleshoot local accounts.
39.42	Implement, configure, manage and troubleshoot account policy.
39.43	Implement, configure, manage and troubleshoot security by using the Security Configuration Tool Set.
40.0	Demonstrate proficiency in network infrastructure administration – the student will be able to:
40.01	Install the DNS server service.
40.02	Configure a root name server.
40.03	Configure zones.
40.04	Configure a caching-only server.

40.05	Configure a DNS Client.
40.06	Configure zones for dynamic updates.
40.07	Test the DNS server.
40.08	Implement a delegated zone for DNS.
40.09	Manually create DNS resource records.
40.10	Install the DHCP Server.
40.11	Create and manage DHCP scopes, superscopes and multicast services.
40.12	Configure DHCP for DNS integration.
40.13	Authorize a DHCP server in Active Directory.
40.14	Configure inbound connections.
40.15	Create remote access policy.
40.16	Configure a remote access profile.
40.17	Configure a VPN.
40.18	Configure multilink connections.
40.19	Configure routing and remote access for DHCP integration.
40.20	Manage and monitor remote access.
40.21	Configure authentication protocols.
40.22	Configure encryption protocols.
40.23	Configure remote access policy.
40.24	Install and configure TCP/IP.

Course Number: CTS0008
Occupational Completion Point: E
Network Administrator – 300 Hours – SOC Code 15-1142

43.0	Demonstrate proficiency and knowledge to become a Certified Network Administrator – the student will be able to:
43.01	Define and explain NetWare 5 (NW 5) and the role of NDS.

43.02	Define and explain how to use a workstation.
43.03	Define and explain network access for users.
43.04	Define and explain Novell Distributed Print Services.
43.05	Define and explain network file system.
43.06	Define and explain file system security.
43.07	Define and explain login scripts for NDS objects.
43.08	Define and explain NDS security.
43.09	Define and explain network applications with ZENworks.
43.10	Identify workstations in an NDS environment.
43.11	Define and explain basic network services in a multi-context environment.
43.12	Define and explain how to manage and install NW user licenses.
43.13	Have an introduction to NetWare 5 and NDS.
43.14	Define and explain how to use a workstation.
43.15	Define and explain how to setup and manage network access for users.
43.16	Define and explain how to setup printing with Novell Distributed Print Services.
43.17	Define and explain how to setup manage the file system.
43.18	Define and explain how to setup and manage file system security.
43.19	Create and manage login scripts.
43.20	Define and explain how to manage NDS security.
43.21	Define and explain how to distribute and manage network applications with ZENworks.
43.22	Define and explain how to manage workstations in an NDS environment with ZENworks.
43.23	Define and explain how to manage resources in a multi-context environment.
43.24	Define and explain how to install NetWare 5.
44.0	Demonstrate proficiency and knowledge to become a Certified Network Associate – the student will be able to:

44.01	Identify the major components of the network system.
44.02	Examine the primary types and uses of network cabling.
44.03	Compare the functions or usage of a Local Area Network (LAN) versus a Wide Area Network (WAN).
44.04	Describe the standard topologies and the advantages and disadvantages of each.
44.05	Discuss the functions of each of the seven layers of the OSI reference model.
44.06	Describe the basic process of communication between the layers of the OSI reference model.
44.07	Define the major network access methods and outline the key features of each.
44.08	Describe the functions and features of devices used at Layers One, Two and Three of the OSI model.
44.09	Explain the significance of each of the following to the following to a network system: IP addresses and classes and reserved address space.
44.10	Identify and described common routed and routing protocols.

Course Number: CTS0009	
Occupational Completion Point: F	
Wireless Telecommunications Administrator – 300 Hours – SOC Code 15-1142	
45.0	Demonstrate proficiency in principles of radio frequency (RF) and wireless technology – the student will be able to:
45.01	Define and explain radio frequency (RF) Waves.
45.02	Define and explain frequency/wavelength.
45.03	Define and explain the electromagnetic spectrum.
45.04	Define and explain how to use the spectrum.
45.05	Describe the Federal Communications Commission (FCC).
45.06	Define and explain velocities.
45.07	Define and explain disparities.
45.08	Define and explain attenuation, trapping, and ducting.
45.09	Define and explain power (DB and DBM).
45.10	Define and explain reflection and scattering.

45.11	Define and explain path loss.
45.12	Define and explain phase.
45.13	Define and explain characteristics.
45.14	Define and explain compensation methods.
45.15	Define and explain matching.
45.16	Define and explain phase locked.
45.17	Define and explain phased array.
45.18	Define and explain frequency reuse.
45.19	Define and explain channels vs. bandwidth.
46.0	Demonstrate proficiency in understanding RF system block diagrams – the student will be able to:
46.01	Identify RF components.
46.02	Identify, define and explain the functionality of oscillators.
46.03	Identify, define and explain the functionality of attenuators.
46.04	Identify, define and explain the functionality of modulators.
46.05	Identify, define and explain the functionality of power amplifiers.
46.06	Define and explain linearity.
46.07	Identify, define and explain the functionality of couplers.
46.08	Identify, define and explain the functionality of detectors.
47.0	Demonstrate proficiency in understanding antennas – the student will be able to:
47.01	Identify the different types of antennas.
47.02	Define and explain TX antennas.
47.03	Define and explain RX antennas.
47.04	Define and explain gain antennas.
47.05	Define and explain architecture antennas.

47.06	Define and explain smart and complex antennas.
47.07	Define and explain omnidirectional antennas.
48.0	Demonstrate proficiency in understanding filters – the student will be able to:
48.01	Define and explain the different types of filters.
48.02	Identify ISI filters.
48.03	Describe intermodulation.
48.04	Identify low noise amplifiers.
48.05	Identify mixers.
48.06	Identify IF amplifiers.
48.07	Identify demodulators.
49.0	Demonstrate proficiency in principles of electricity and electrical signals – the student will be able to:
49.01	Describe electrical signals in time and frequency.
49.02	Describe audio signals.
49.03	Describe video signals.
49.04	Describe digitizing analog signals.
49.05	Describe pulse code.
49.06	Describe MPEG-2.
49.07	Describe data signals.
49.08	Describe types of data.
49.09	Describe priorities.
49.10	Describe bit error rate.
49.11	Describe parity.
49.12	Describe a CRC.
49.13	Describe TTL.

50.0	Demonstrate proficiency in understanding RF transmission lines – the student will be able to:
50.01	Define and explain a wave-guide.
50.02	Define and explain coaxial.
50.03	Define and explain micro-strip.
50.04	Define and explain impedance.
50.05	Define and explain reflection.
50.06	Define and explain matching.
51.0	Demonstrate proficiency in understanding modulation – the student will be able to:
51.01	Define and explain carrier.
51.02	Define and explain AM.
51.03	Define and explain FM.
51.04	Define and explain signal-to-noise ration (S/N)
51.05	Define and explain QPSK.
51.06	Define and explain MPSK.
51.07	Define and explain GPSK.
51.08	Define and explain QAM.
51.09	Define and explain spectral regrowth/QPSK.
51.10	Define and explain CDMA.
51.11	Define and explain TDMA.
51.12	Define and explain SDMA.
51.13	Define and explain FDMA.
51.14	Define and explain AMPS.
51.15	Define and explain DAMPS.
51.16	Define and explain GSM.

51.17	Define and explain PCS.
52.0	Demonstrate proficiency in understanding wireless applications – the student will be able to:
52.01	Define and explain wireless services.
52.02	Define and explain direct broadcast satellite (DBS).
52.03	Define and explain paging.
52.04	Define and explain wireless phones (PCS, Mobile Satellite).
52.05	Define and explain carriers.
52.06	Define and explain technologies.
52.07	Define and explain wireless application features.
52.08	Define and explain wireless local loop (WLL).
52.09	Define and explain wireless data terminal.
52.10	Define and explain mobile satellite.
52.11	Define and explain PTN.
52.12	Define and explain MTSO.
52.13	Define and explain GPS.
53.0	Demonstrate proficiency in understanding cellular generations – the student will be able to:
53.01	Describe 1st Generation (1G) cellular.
53.02	Describe 2nd Generation (2G) cellular.
53.03	Describe 2.5-G cellular.
53.04	Describe 3rd Generation cellular.
53.05	Define and explain goals.
53.06	Describe technical challenges.
53.07	Define and explain 8-PSK.
53.08	Define and explain data rates.

53.09	Define and explain MPEG-4.
53.10	Define and explain ARIB.
53.11	Explain business challenges.
53.12	Define and explain costs.
53.13	Explain 2 ½-technology migration.
54.0	Demonstrate proficiency in understanding cellular phone technology – the student will be able to:
54.01	Define and explain CDMA.
54.02	Define and explain IMT-2000.
54.03	Define and explain EDGE.
54.04	Define and explain GSM.
54.05	Define and explain WCDMA.
54.06	Define and explain CDMA 2000.
54.07	Define and explain spread spectrum.
55.0	Demonstrate skills in mathematics for RF – the student will be able to:
55.01	Define the attributes of decibels (dB).
55.02	Identify the characteristics of RF waves.
56.0	Demonstrate knowledge of electricity for RF – the student will be able to:
56.01	Define and explain electric fields.
56.02	Define and explain magnetic fields.
56.03	Define and explain electromagnetic fields for component design.
56.04	Define and explain frequencies.
56.05	Define and explain wavelengths.
56.06	Define and explain impedance.
56.07	Define and explain power.

56.08	Define and explain phase.
56.09	Define and explain polarizations.
56.10	Define and explain insertion loss/gain.
56.11	Define and explain cascading.
56.12	Define and explain reflected power.
56.13	Define and explain return loss.
56.14	Define and explain S-parameters.
56.15	Define and explain matching networks.
57.0	Demonstrate proficiency in understanding RF component requirements – the student will be able to:
57.01	Define and explain phase locked oscillators.
57.02	Define and explain a modulator.
57.03	Define and explain power amplifiers.
57.04	Define and explain antennas.
57.05	Define and explain LNA.
57.06	Define and explain mixers and IF amplifiers.
57.07	Define and explain filters.
58.0	Demonstrate proficiency in understanding phase noise – the student will be able to:
58.01	Define and explain BER Degradation.
58.02	Define and explain error vector magnitudes.
59.0	Demonstrate proficiency in understanding digital modulations – the student will be able to:
59.01	Define and explain QPSK.
59.02	Define and explain Pi/4DQPSK.
59.03	Define and explain 16 QAM.
59.04	Define and explain GMSK.

60.0	Demonstrate proficiency in understanding short-range wireless – the student will be able to:
60.01	Define and explain propagation.
60.02	Define and explain path loss.
60.03	Define and explain fading.
60.04	Define and explain multipaths.
60.05	Define and explain interference.
60.06	Define and explain IR versus RF.
60.07	Define and explain frequency usages.
60.08	Define and explain how to calculate range.
61.0	Demonstrate proficiency in understanding WLAN and WPAN devices – the student will be able to:
61.01	Define and explain IEEE 802.11.
61.02	Define and explain Home RF.
61.03	Define and explain IrDA.
61.04	Define and explain HiperLAN.
62.0	Demonstrate proficiency in planning – the student will be able to:
62.01	Describe cellular topologies.
62.02	Describe wireless LAN topologies.
62.03	Describe WLL.
62.04	Describe ad hoc networking.
62.05	Describe site planner software.
63.0	Demonstrate proficiency in wireless networking standards – the student will be able to:
63.01	Define and explain 802.11a.
63.02	Define and explain 802.11b.
63.03	Define and explain WLAN and WPAN devices.

64.0	Demonstrate proficiency in the principles of a wireless network – the student will be able to:
64.01	Define and explain different types of wireless.
64.02	Define and explain handheld devices.
64.03	Define and explain mobile communications.
64.04	Define and explain satellite communications.
64.05	Define and explain wireless local loop (WLL).
64.06	Define and explain building-to-building networking.
64.07	Define and explain site planning.
64.08	Define and explain wireless integration.
64.09	Define and explain wireless management.
64.10	Describe the need for quality of service (QOS).
65.0	Demonstrate proficiency in understanding the components of wireless networking – the student will be able to:
65.01	Identify access points.
65.02	Identify repeaters.
65.03	Identify network interface cards.
65.04	Identify Power over Ethernet (PoE).
66.0	Demonstrate proficiency in applied wireless networking (optional) – the student will be able to:
66.01	Utilize an in-building lab.
66.02	Utilize a building-to-building lab.
66.03	Utilize a cellular lab.
66.04	Utilize a satellite lab.
67.0	Demonstrate proficiency in Voice over Internet Protocol (VoIP) Telephony (optional) – the student will be able to:
67.01	Define Voice over Internet Protocol (VoIP) telephony standards.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercultural career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 10, and Reading 10. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: 3-D Animation Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I480200
CIP Number	0610030400
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 - Multimedia Artists and Animators
Basic Skills Level	Mathematics: 10 Language: 10 Reading: 10

Purpose

The purpose of this program is to prepare students for employment in 3-D Animation and related career fields.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, practical experiences in 3-D Animation design and production. Specialized skills such as video editing, audio production, and the utilization of animation and authoring software are used to produce a variety of multimedia productions.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	DIG0060	3-D Animation Production Assistant	BUS ED 1 @ 2	150 hours	27-1014
B	DIG0061	Modeler	COMM ART @7 7G COMPU SCI 6	300 hours	27-1014
C	DIG0062	Texture Artist/Rigger	ELECT DP @7 %G	300 hours	27-1014
D	DIG0063	Animation/Motion Capture Technician	TEC ELEC \$7 G TV PRO TEC @7 7G	300 hours	27-1014

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Understand the history of 3-D Animation.
- 02.0 Understand the production process.
- 03.0 Understand intellectual property rights, copyright laws and plagiarism relative to creative assets.
- 04.0 Demonstrate proficiency in computer skills.
- 05.0 Demonstrate knowledge of photo editing software.
- 06.0 Demonstrate knowledge of production writing as it relates to 3-D animation.
- 07.0 Demonstrate knowledge of art direction.
- 08.0 Demonstrate knowledge of character development.
- 09.0 Demonstrate knowledge of storyboarding.
- 10.0 Demonstrate knowledge of animatics.
- 11.0 Demonstrate knowledge of video-editing software.
- 12.0 Demonstrate appropriate voice acting skills.
- 13.0 Demonstrate basic audio production.
- 14.0 Demonstrate knowledge of audio editing software.
- 15.0 Demonstrate knowledge of funding presentations and pitches.
- 16.0 Understand modeling in relation to the production process.
- 17.0 Demonstrate knowledge of animation principles as they relate to modeling.
- 18.0 Demonstrate knowledge of modeling principles.
- 19.0 Demonstrate knowledge of 3-D Animation software.
- 20.0 Demonstrate knowledge of 3-D Animation software navigation.
- 21.0 Demonstrate knowledge of NURBS modeling.
- 22.0 Demonstrate knowledge of polygonal modeling.
- 23.0 Demonstrate knowledge of basic lighting.
- 24.0 Demonstrate knowledge of basic materials and textures.
- 25.0 Demonstrate knowledge of basic animation.
- 26.0 Demonstrate knowledge of basic character setup.
- 27.0 Demonstrate knowledge of basic 3-D rendering.
- 28.0 Understand the role of a texture artist in relation to the production process.
- 29.0 Demonstrate knowledge color theory.
- 30.0 Demonstrate knowledge of advanced material and texture creation.
- 31.0 Demonstrate knowledge of cloth and hair.
- 32.0 Demonstrate knowledge of cell-shading.
- 33.0 Demonstrate knowledge of texture baking.
- 34.0 Demonstrate knowledge of texture maps.
- 35.0 Demonstrate knowledge of 3-D painting software.
- 36.0 Demonstrate knowledge of rigging.
- 37.0 Demonstrate knowledge of morphing.
- 38.0 Demonstrate knowledge of facial animation.

- 39.0 Demonstrate knowledge of advanced rigging.
- 40.0 Demonstrate knowledge of motion capture systems.
- 41.0 Demonstrate knowledge of motion capture system setup.
- 42.0 Demonstrate knowledge of motion capture preproduction.
- 43.0 Demonstrate knowledge of motion capture production.
- 44.0 Demonstrate knowledge of motion capture post production.
- 45.0 Understand the role of a 3-D animator in relation to the production process.
- 46.0 Demonstrate knowledge of advanced animation.
- 47.0 Demonstrate knowledge of motion graphics.
- 48.0 Demonstrate knowledge of animation behaviors and scripting.
- 49.0 Demonstrate knowledge of particle systems.
- 50.0 Demonstrate knowledge of advanced audio production.
- 51.0 Demonstrate knowledge of dynamics (physics).
- 52.0 Demonstrate knowledge of distributed rendering.
- 53.0 Demonstrate knowledge of video compositing software.
- 54.0 Demonstrate knowledge of post-production.
- 55.0 Develop professional portfolio of work.

**Florida Department of Education
Student Performance Standards**

Program Title: 3-D Animation Technology
Career Certificate Program Number: I480200

Course Number: DIG0060
Occupational Completion Point: A
3-D Animation Production Assistant – 150 Hours – SOC Code 27-1014

01.0 Understand the history of 3-D Animation – the student will be able to:

01.01 Understand the history of animation (e.g., 2D, cell, stop motion).

01.02 Understand the history of computer animation.

01.03 Identify the advantages and limitations of computer animation.

01.04 Identify industry and business uses of 3-D animation.

01.05 Identify 3-D assets and associated end products.

02.0 Understand the production process – the student will be able to:

02.01 Identify the job titles associated with animation production.

02.02 Identify the various tools and equipment used to produce 3-D animation.

02.03 Understand speed and efficiency concepts.

02.04 Understand a production pipeline.

02.05 Identify the departments of an animation studio.

02.06 Understand the interrelationships between departments.

02.07 Understand basic communication concepts (e.g., verbal, memos, paperwork).

02.08 Identify the stages of production.

02.09 Understand studio terms and jargon.

02.10 Create and organize production paperwork into production bibles (guidebooks) and prepare for presentations.

03.0 Understand intellectual property rights, copyright laws and plagiarism relative to creative assets – the student will be able to:

03.01	Understand the limits and expectations of copyright protection.
03.02	Understand the concepts of “Fair Use” and “Fair Dealing.”
03.03	Understand the transfer and licensing of creative works.
03.04	Understand the use of “exclusive rights” to intellectual creations.
03.05	Demonstrate the use of digital watermarking.
04.0	Demonstrate proficiency in computer skills – the student will be able to:
04.01	Identify the computer components relevant to 3-D Animation.
04.02	Demonstrate understanding of computer performance specifications.
04.03	Compare and contrast business machines and workstations.
04.04	Demonstrate best practices of computer safety and ergonomics.
04.05	Demonstrate understanding of operating systems.
04.06	Perform storage management operations.
05.0	Demonstrate knowledge of photo editing software – the student will be able to:
05.01	Demonstrate understanding of file formats and storage options.
05.02	Identify parts of the software interface.
05.03	Demonstrate the ability to use each of the basic tool sets.
05.04	Demonstrate the ability to import, export and save images.
05.05	Demonstrate understanding of layers and channels.
05.06	Demonstrate understanding of filters, effects and plug-ins.
05.07	Demonstrate understanding of file presets.
05.08	Demonstrate the ability to select portions of an image for manipulation.
05.09	Demonstrate the ability to transform selections and images (e.g., crop, scale).
05.10	Demonstrate the ability to color-correct images (e.g., brightness, hue, contrast).
05.11	Demonstrate the ability to use brushes for image creation and correction.

05.12	Understand non-destructive and destructive operations.
05.13	Demonstrate the ability to import, paint and export 3-D objects.
05.14	Demonstrate the basic use of video in photo-editing software.
06.0	Demonstrate knowledge of production writing as it relates to 3-D animation – the student will be able to:
06.01	Understand the job of a scriptwriter.
06.02	Identify target audiences, markets, and demographics.
06.03	Identify the elements of a script.
06.04	Develop the intended message of a script.
06.05	Demonstrate the ability to write a treatment.
06.06	Demonstrate the ability to write a professionally formatted script.
06.07	Identify the genre of a story.
06.08	Define the characters and setting for a story.
06.09	Demonstrate the ability to breakdown a script into production elements (e.g., cast, props).
07.0	Demonstrate knowledge of art direction – the student will be able to:
07.01	Develop the overall visual appearance of an animation.
07.02	Demonstrate the ability to create moods with style.
07.03	Determine the geographic location and time period of a story.
07.04	Understand the importance of art direction as it pertains to the intended message.
07.05	Understand the use of color in art direction.
07.06	Document the technical aspects of art direction.
07.07	Perform assignments in a professional manner and according to industry standards.
08.0	Demonstrate knowledge of character development – the student will be able to:
08.01	Demonstrate an understanding of character profiles.
08.02	Demonstrate the ability to develop character résumés/profiles.

08.03	Develop the look and design for a character that reflects the art direction.
08.04	Understand the technical challenges/limitations of a character.
09.0	Demonstrate knowledge of storyboarding – the student will be able to:
09.01	Demonstrate understanding of visual storytelling and how storyboards are used during production.
09.02	Identify common aspect ratios and demonstrate how to calculate ratios.
09.03	Demonstrate understanding of camera framing and camera movement.
09.04	Develop a visual style using art direction.
09.05	Break down a script into the various camera shots and character actions.
09.06	Demonstrate understanding of perspective and depth of field.
09.07	Demonstrate knowledge of lighting and color use.
09.08	Demonstrate the ability to sketch a storyboard and characters.
09.09	Demonstrate the ability to use storyboarding software or illustration software.
10.0	Demonstrate knowledge of animatics – the student will be able to:
10.01	Demonstrate understanding of animatics and how they are used during production.
10.02	Identify the different types of animatics.
10.03	Demonstrate understanding of shot timing.
10.04	Break down a script into the various camera shots and character actions.
10.05	Understand the concept of a working print.
11.0	Demonstrate knowledge of video-editing software – the student will be able to:
11.01	Demonstrate understanding of file formats and storage options.
11.02	Identify parts of the software interface.
11.03	Demonstrate the ability to use each of the basic tool sets.
11.04	Demonstrate the ability to import, export and save video.
11.05	Demonstrate understanding of layers and compositing.

11.06	Demonstrate understanding of filters, effects and plug-ins.
11.07	Demonstrate understanding of file presets.
11.08	Demonstrate understanding of rendering processes.
11.09	Demonstrate the ability to transform video (e.g., crop, scale).
11.10	Demonstrate the ability to color-correct images (e.g., brightness, hue, contrast).
11.11	Demonstrate the ability to use brushes for image creation and correction.
11.12	Understand non-destructive and destructive operations.
11.13	Demonstrate the compositing integration of rendered 3-D animation with video.
12.0	Demonstrate appropriate voice acting skills – the student will be able to:
12.01	Demonstrate an understanding of how to mark a script for voice-over (VO).
12.02	Demonstrate the ability to read aloud in a professional manner.
12.03	Demonstrate an understanding of the use of phonemes and facial morphs for lip-sync animation.
12.04	Understand the concept of voice acting and playing a role while speaking.
12.05	Perform assignments in a professional manner and according to industry standards.
13.0	Demonstrate basic audio production – the student will be able to:
13.01	Understand the concept and mechanics of recording environment set-up; demonstrate the ability to set up a recording environment, if available.
13.02	Demonstrate understanding of digital audio recording hardware.
13.03	Demonstrate understanding of the proper use of microphones.
13.04	Demonstrate knowledge of audio codecs and media.
13.05	Understand the history of Foley and sound effects production.
14.0	Demonstrate knowledge of audio editing software – the student will be able to:
14.01	Demonstrate understanding of file formats and storage options.
14.02	Identify parts of the software interface.
14.03	Demonstrate the ability to use each of the basic tool sets.

14.04	Demonstrate the ability to import, export and save audio.
14.05	Demonstrate the ability to utilize multiple tracks.
14.06	Demonstrate understanding of filters, effects and plug-ins.
14.07	Demonstrate understanding of file presets.
14.08	Demonstrate understanding of audio rendering processes.
14.09	Demonstrate the ability to edit, cut, and delete.
14.10	Understand non-destructive and destructive operations.
15.0	Demonstrate knowledge of funding presentations and pitches – the student will be able to:
15.01	Understand the network associated with product distribution.
15.02	Identify the job titles and roles of the distributors.
15.03	Identify potential markets, target audiences, and products.
15.04	Effectively convey a message by utilizing the available presentation software and/or other methods.
15.05	Develop a script of talking points.
15.06	Effectively communicate a message or pitch.

Course Number: DIG0061
Occupational Completion Point: B
Modeler – 300 Hours – SOC Code 27-1014

16.0	Understand modeling in relation to the production process – the student will be able to:
16.01	Define <i>modeling</i> as a process.
16.02	Define the role of a modeler.
16.03	Identify job titles associated with a modeler.
16.04	Identify modeling in the production pipeline.
17.0	Demonstrate knowledge of animation principles as they relate to modeling – the student will be able to:
17.01	Demonstrate an understanding of the principle of <i>squash and stretch</i> .
17.02	Demonstrate an understanding of the principle of <i>anticipation</i> .

17.03	Demonstrate an understanding of the principle of <i>staging</i> .
17.04	Demonstrate an understanding of the principles of <i>straight ahead action</i> and <i>pose-to-pose</i> .
17.05	Demonstrate an understanding of the principles of <i>follow through</i> and <i>overlapping action</i> .
17.06	Demonstrate an understanding of the principles of <i>ease in / ease out</i> .
17.07	Demonstrate an understanding of the principle of <i>arcs</i> .
17.08	Demonstrate an understanding of the principle of <i>secondary action</i> .
17.09	Demonstrate an understanding of the principle of <i>timing</i> .
17.10	Demonstrate an understanding of the principle of <i>exaggeration</i> .
17.11	Demonstrate an understanding of the principle of <i>solid drawing</i> .
17.12	Demonstrate an understanding of the principle of <i>appeal</i> .
18.0	Demonstrate knowledge of modeling principles – the student will be able to:
18.01	Understand 3-D construction theory.
18.02	Demonstrate understanding of primitives and parametric modeling.
18.03	Demonstrate an understanding of NURBS, splines, and polygonal modeling.
18.04	Demonstrate the ability to use reference images and files while modeling.
19.0	Demonstrate knowledge of 3-D Animation software – the student will be able to:
19.01	Identify the computer requirements for 3-D animation software.
19.02	Compare and contrast available 3-D animation software options.
19.03	Identify file formats and protocols.
19.04	Demonstrate an understanding of naming conventions.
19.05	Develop a software and file backup plan.
19.06	Identify common icons within the software.
19.07	Demonstrate the use of keyboard shortcuts.
19.08	Demonstrate the use of a three-button mouse.

20.0	Demonstrate knowledge of 3-D Animation software navigation – the student will be able to:
20.01	Identify the main windows of a 3-D animation software program.
20.02	Identify common window layouts.
20.03	Identify tool icons within the software.
20.04	Understand the significance of keyboard shortcut use and efficiency.
20.05	Demonstrate the use of keyboard shortcuts.
20.06	Demonstrate an understanding of the Euclidean Geometry Model (x-y-z coordinate system).
20.07	Demonstrate an understanding of attribute managers.
20.08	Demonstrate an understanding of layers.
20.09	Navigate the modeling window using pan, rotate, and zoom controls.
20.10	Demonstrate knowledge of selection tools (e.g., lasso, loop).
20.11	Utilize wireframe, Gouraud shading, lines, boxes modes.
20.12	Demonstrate use of selection sets.
20.13	Undo and redo an action within the program.
20.14	Locate and utilize the help menu system.
21.0	Demonstrate knowledge of NURBS modeling – the student will be able to:
21.01	Demonstrate an understanding of points, vertices, edges, and polygons.
21.02	Demonstrate an understanding of poly-count.
21.03	Demonstrate an understanding of primitives.
21.04	Define <i>parametric primitives</i> .
21.05	Locate the properties, attributes, and coordinates of an object.
21.06	Demonstrate understanding of non-uniform rational basis splines (NURBS).
21.07	Demonstrate understanding of splines and generators (e.g., extrude, lathe, sweep).
21.08	Understand the use of hierarchy.

21.09	Demonstrate an understanding of Boolean Objects.
21.10	Demonstrate an understanding of Null Objects.
21.11	Demonstrate an understanding of scene management (hiding and un-hiding).
21.12	Demonstrate an understanding of arrays.
22.0	Demonstrate knowledge of polygonal modeling – the student will be able to:
22.01	Demonstrate an understanding of N-gons.
22.02	Demonstrate an understanding of subdivision.
22.03	Demonstrate basic polygon editing and manipulation.
22.04	Demonstrate knowledge of point management (location).
22.05	Demonstrate the ability to create polygonal models from points.
22.06	Demonstrate an understanding of cutting/division tools.
22.07	Demonstrate an understanding of extruders.
22.08	Demonstrate an understanding of symmetry.
22.09	Demonstrate an understanding of hyper-NURBS.
22.10	Demonstrate an understanding of basic deformers (e.g., bend, twist, melt).
23.0	Demonstrate knowledge of basic lighting – the student will be able to:
23.01	Compare and contrast real lighting with 3-D lighting.
23.02	Demonstrate an understanding 3-point lighting.
23.03	Demonstrate an understanding of low-key and high-key lighting.
23.04	Use “include/exclude” commands to target light on objects.
23.05	Demonstrate use of negative intensity.
23.06	Demonstrate an understanding of the hierarchy of lights.
23.07	Demonstrate an understanding of area lights.
23.08	Demonstrate an understanding of volumetric lights.

23.09	Demonstrate an understanding of radiosity/global illumination.
23.10	Demonstrate an understanding of ambient occlusion.
23.11	Demonstrate an understanding of HDRI lighting.
23.12	Demonstrate an understanding of how light settings will affect render times.
24.0	Demonstrate knowledge of basic materials and textures – the student will be able to:
24.01	Demonstrate an understanding of material and texture storage.
24.02	Apply textures to an object.
24.03	Demonstrate an understanding of procedural shaders.
24.04	Demonstrate an understanding of channels.
24.05	Adjust the transparency, luminance, and reflection of a material.
24.06	Demonstrate an understanding of displacement maps.
24.07	Demonstrate an understanding of bump maps.
24.08	Demonstrate knowledge of material projections.
24.09	Demonstrate an understanding of UV mapping.
24.10	Demonstrate an understanding of 3-D painting.
24.11	Understand how light affects the look of materials.
24.12	Understand how camera angles affect the look of materials.
25.0	Demonstrate knowledge of basic animation – the student will be able to:
25.01	Apply animation principles to object animation.
25.02	Demonstrate an understanding of animation timelines.
25.03	Demonstrate an understanding of key framing.
25.04	Demonstrate an understanding of F-curves.
25.05	Record and edit key frames.
25.06	Demonstrate the use of controllers.

25.07	Demonstrate an understanding of ease in/out.
25.08	Demonstrate an understanding of camera animation.
25.09	Render low-quality reference animation.
26.0	Demonstrate knowledge of basic character setup – the student will be able to:
26.01	Compare and contrast rigging approaches and styles.
26.02	Demonstrate an understanding of the rig as it relates to the model.
26.03	Demonstrate an understanding of mesh morphing.
26.04	Demonstrate an understanding of skeletal systems.
26.05	Demonstrate an understanding of bones and joints.
26.06	Demonstrate an understanding of bone/joint hierarchies and naming conventions.
26.07	Demonstrate an understanding of controllers.
26.08	Demonstrate an understanding of spline inverse kinematics (IK).
26.09	Demonstrate an understanding of kinematic chains.
26.10	Demonstrate an understanding of skins and weights.
26.11	Demonstrate the ability to create a visual selector for the rig.
27.0	Demonstrate knowledge of basic 3-D rendering – the student will be able to:
27.01	Demonstrate an understanding of processor, hardware, and software rendering techniques.
27.02	Determine the final render format.
27.03	Demonstrate an understanding of basic render settings.
27.04	Demonstrate understanding of title safe, action safe, and render safe.
27.05	Select the range of frames to be rendered.
27.06	Demonstrate an understanding of global illumination (radiosity) render settings.
27.07	Demonstrate an understanding of anti-aliasing.
27.08	Demonstrate an understanding of net rendering.

27.09	Demonstrate an understanding of alpha channels.
27.10	Render animation as a movie or image sequence.
27.11	Compile image sequences into a movie.
27.12	Demonstrate an understanding of the benefits, purpose and workflow of multi-pass rendering.
27.13	Demonstrate an understanding of the batch render process.

Course Number: DIG0062	
Occupational Completion Point: C	
Texture Artist/Rigger – 300 Hours – SOC Code 27-1014	
28.0	Understand the role of a texture artist in relation to the production process – the student will be able to:
28.01	Define <i>texturing</i> as a process.
28.02	Define the role of a texture artist.
28.03	Identify job titles associated with texture artist.
28.04	Identify texture creation in the production pipeline.
28.05	Demonstrate knowledge of the differences between textures and shaders.
28.06	Demonstrate an understanding of texture projection methods.
28.07	Demonstrate the application of UV coordinates to texture mapping.
28.08	Demonstrate the round-trip integration of photo-editing software and a 3-D host for texture development.
28.09	Demonstrate how to link texture and shade properties to object movement via either visual or scripted programming relationships.
29.0	Demonstrate knowledge color theory – the student will be able to:
29.01	Demonstrate an understanding of additive and subtractive color mixtures.
29.02	Demonstrate an understanding of hue, saturation, and brightness.
29.03	Demonstrate an understanding of complementary colors and composition.
29.04	Identify warm and cool colors.
29.05	Demonstrate an understanding of the psychology of color influence.
30.0	Demonstrate knowledge of advanced material and texture creation – the student will be able to:

30.01	Determine required materials and textures needed for a model based on production design sheets and reference images.
30.02	Determine the material and texture properties to create.
30.03	Select an appropriate style (e.g., realistic, hyper-real, simplified).
30.04	Determine appropriate color pallets to use.
30.05	Determine the appropriate image resolution and file format for use in 3-D application.
30.06	Demonstrate knowledge of material and texture creation techniques and approaches.
30.07	Identify the tools and software used to create materials and textures.
30.08	Acquire raw texture images from digital stills or scans.
30.09	Create tiled textures using photo-editing software.
31.0	Demonstrate knowledge of cloth and hair – the student will be able to:
31.01	Determine cloth or hair requirements based on production design sheets and reference images.
31.02	Define the physical properties associated with cloth and hair.
31.03	Demonstrate knowledge of hair and cloth toolsets.
31.04	Determine appropriate materials to use with hair.
31.05	Demonstrate knowledge of hair manipulation and management.
31.06	Demonstrate knowledge of hair and cloth lighting techniques.
31.07	Demonstrate knowledge of the dynamic simulation parameters required to make cloth and hair perform to production requirements.
31.08	Demonstrate knowledge of how cloth and hair interact with other objects.
32.0	Demonstrate knowledge of cell-shading – the student will be able to:
32.01	Understand the history of cell-shading.
32.02	Determine the appropriate use of cell shading techniques.
32.03	Determine cell-shading requirements needed for a model based on production design sheets and reference images.
32.04	Demonstrate knowledge of lighting techniques used with cell-shading.
32.05	Determine appropriate render settings for cell-shading.

32.06	Determine the appropriate materials and shaders to use with cell-shading.
33.0	Demonstrate knowledge of texture baking – the student will be able to:
33.01	Describe the advantages of baking textures.
33.02	Determine the appropriate use of baking textures.
33.03	Demonstrate texture-baking procedures.
33.04	Export models with baked textures.
33.05	Determine the appropriate render settings needed for baked textures.
34.0	Demonstrate knowledge of texture maps – the student will be able to:
34.01	Define the properties of displacement, bump, and normal maps.
34.02	Determine the appropriate texture mapping requirements for a model based on production design sheets and reference images.
34.03	Demonstrate knowledge of displacement map placement tools and techniques.
34.04	Demonstrate knowledge of bump map tools and techniques.
34.05	Demonstrate knowledge of normal map tools and techniques.
35.0	Demonstrate knowledge of 3-D painting software – the student will be able to:
35.01	Identify available 3-D paint programs.
35.02	Demonstrate knowledge of UV mapping tools.
35.03	Prepare a UV map for export for use with photo-editing software.
35.04	Demonstrate knowledge of 3-D painting tools within 3-D animation software.
35.05	Apply a painted image map to a model.
36.0	Demonstrate knowledge of rigging – the student will be able to:
36.01	Define <i>rigging</i> as a process.
36.02	Define the role of a rigger.
36.03	Identify the job titles associated with a rigger.
36.04	Identify rigging creation in the production pipeline.

36.05	Demonstrate knowledge of forward kinematics versus inverse kinematics
36.06	Demonstrate an understanding of the joint weighting process
36.07	Demonstrate the proper hierarchical structure of goals and nulls to construct effective control objects.
37.0	Demonstrate knowledge of morphing – the student will be able to:
37.01	Define <i>morphing</i> as it relates to animation.
37.02	Demonstrate knowledge of morphing tools.
37.03	Demonstrate knowledge of model meshes.
37.04	Define the model area to be morphed.
37.05	Create morph target points.
37.06	Demonstrate knowledge of controllers and relational morphs (driver, driven).
37.07	Demonstrate knowledge of rotational morphs.
37.08	Demonstrate knowledge of key frame animation and morph tags.
38.0	Demonstrate knowledge of facial animation – the student will be able to:
38.01	Demonstrate knowledge of animation-related facial morphing techniques.
38.02	Demonstrate knowledge of phoneme-viseme principles for lip synchronization.
38.03	Apply facial expression animation to complement lip synchronization.
38.04	Break down a script into a sound chart.
38.05	Create a set of controls for each sound and expression.
39.0	Demonstrate knowledge of advanced rigging – the student will be able to:
39.01	Determine uses for advanced rigging.
39.02	Demonstrate knowledge of advanced rigging tools.
39.03	Prepare a rigged model for animation.
39.04	Demonstrate knowledge of advanced scripting relative to rigging.
39.05	Create complex rigs for greater precision and control.

39.06	Demonstrate knowledge of deformers.
39.07	Demonstrate knowledge of motion capture rigging.
39.08	Determine necessary joint/bone hierarchy for motion capture rigging.
39.09	Apply pre-captured motion data to a motion capture rig.

Course Number: DIG0063
Occupational Completion Point: D
Animator/Motion Capture Technician – 300 Hours – SOC Code 27-1014

40.0	Demonstrate knowledge of motion capture systems – the student will be able to:
40.01	Demonstrate knowledge of the history of motion capture.
40.02	Demonstrate an awareness of emerging technologies in the industry.
40.03	Demonstrate understanding of motion capture for 3-D production.
40.04	Define the role of a motion capture technician.
40.05	Demonstrate understanding of optical, magnetic, and mechanical systems.
40.06	Demonstrate understanding of software-based or simulated motion capture systems.
40.07	Demonstrate understanding of the motion capture production pipeline.
41.0	Demonstrate knowledge of motion capture system setup – the student will be able to:
41.01	Determine the capture volume based on available space and cameras.
41.02	Demonstrate understanding of XYZ perimeters in lab orientation.
41.03	Demonstrate understanding of motion capture computer hardware requirements and software security dongles.
41.04	Demonstrate understanding of the tools and instruments specific to motion capture.
41.05	Demonstrate the ability to create individual optical markers and arrays using optical tape and Velcro strapping.
42.0	Demonstrate knowledge of motion capture preproduction – the student will be able to:
42.01	Identify the use of motion capture as it relates to a production plan.
42.02	Mark a script and shot list for motion capture.
42.03	Understand the role of motion capture talent/actors.

42.04	Rehearse the performance with talent.
42.05	Identify the necessary captured performance props.
42.06	Determine real-time video needs.
43.0	Understand the role of a 3-D animator in relation to the production process – the student will be able to:
43.01	Define <i>animation</i> as a process.
43.02	Define the role of an animator.
43.03	Identify job titles associated with an animator.
43.04	Identify animation in the production pipeline.
44.0	Demonstrate knowledge of advanced animation – the student will be able to:
44.01	Demonstrate knowledge of how nondestructive deformers affect animation.
44.02	Demonstrate knowledge of how muscle deformers integrate with a character rig.
44.03	Demonstrate knowledge of transforms and animation transfers from one object or object hierarchy to another.
45.0	Demonstrate knowledge of motion graphics – the student will be able to:
45.01	Demonstrate knowledge of 3-D animated motion graphics.
45.02	Demonstrate knowledge of motion graphics tools and techniques.
45.03	Demonstrate knowledge of integrated dynamics to simulate gravitational and collision effects.
45.04	Demonstrate the integration of standard animation techniques to drive motion graphics elements based on node-based visual programming.
45.05	Demonstrate an applied working knowledge of motion graphics for broadcast application in TV show opens and commercials.
46.0	Demonstrate knowledge of animation behaviors and scripting – the student will be able to:
46.01	Determine appropriate use of behaviors and automated animation.
46.02	Demonstrate the ability to apply behavior to an object.
46.03	Demonstrate the ability to apply multiple behaviors using node or visual systems.
46.04	Demonstrate the ability to use object-oriented programming language to create scripts.
46.05	Demonstrate understanding of the scripting console and commands.

47.0	Demonstrate knowledge of particle systems – the student will be able to:
47.01	Demonstrate understanding of particle emitters.
47.02	Prepare objects to be emitted.
47.03	Determine the direction of emission and coordinate.
47.04	Determine birthrate and lifetime.
47.05	Determine scale, speed, and rotation.
47.06	Demonstrate the ability to use animated particles
47.07	Demonstrate the ability to create smoke, fire, and sparks using emitters and materials.
47.08	Apply dynamics to an emitter, including wind/gravity.
47.09	Demonstrate use of key frame animation or triggers.
48.0	Demonstrate knowledge of advanced audio production – the student will be able to:
48.01	Edit and export sound effects for use in video-editing software.
48.02	Demonstrate the ability to place audio in 3-D space using 3-D animation software.
49.0	Demonstrate knowledge of dynamics (physics) – the student will be able to:
49.01	Demonstrate a basic understanding physics principles (e.g., mass, velocity and collision).
49.02	Determine when to use physics instead of key frame animation.
49.03	Apply physics tools and commands to models in a simulation.
49.04	Demonstrate an understanding of rigid and soft bodies.
49.05	Demonstrate an understanding of forces (e.g., gravity, drag, wind).
49.06	Demonstrate an understanding of collision detection.
50.0	Demonstrate knowledge of video compositing software – the student will be able to:
50.01	Demonstrate understanding of file formats and storage options.
50.02	Identify parts of the software interface.
50.03	Demonstrate the ability to use each of the basic tool sets.

50.04	Demonstrate the ability to import files and videos to be composited.
50.05	Demonstrate understanding of layers and compositing.
50.06	Demonstrate understanding of filters, effects and plug-ins.
50.07	Demonstrate understanding of motion paths.
50.08	Demonstrate understanding of lighting effects.
50.09	Demonstrate understanding of rendering processes.
50.10	Demonstrate the ability to mask video.
50.11	Demonstrate the ability to color-correct video (e.g., brightness, hue, contrast).
50.12	Demonstrate the ability to use vector and color keying tools.
50.13	Demonstrate understanding of particle systems.
50.14	Demonstrate understanding of time correction.
50.15	Demonstrate the ability to export final video to use with video-editing software.
50.16	Demonstrate the ability to prepare the 3-D scene for compositing using alpha channel setting in the 3-D host as well as object buffers that will be assigned video sources in the compositing software.
50.17	Demonstrate the ability to add camera and lighting positions and rotations for use in the compositing software.
51.0	Demonstrate knowledge of post-production – the student will be able to:
51.01	Import composited video into the timeline.
51.02	Import final audio into the timeline.
51.03	Edit video using the animatic as a reference.
51.04	Export video for use in websites, DVDs and other media formats.
51.05	Encode and assemble DVD for distribution.
52.0	Develop a professional portfolio of work – the student will be able to:
52.01	Identify the elements of a professional portfolio and résumé.
52.02	Examine and determine work samples to include in a portfolio and résumé.
52.03	Gather illustrations, audio, video, and work history details to include into portfolio and résumé.

52.04 Understand web-based portfolio distribution.

52.05 Determine formatting for the portfolio and résumé.

52.06 Produce a résumé for final review.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 10, and Reading 10. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 10, and Reading 10. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement

(Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Art Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I480203
CIP Number	0650040208
Grade Level	30, 31
Standard Length	1500 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 Multimedia Artists and Animators 27-1029 Designers All Others 27-1024 Graphic Designers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment as artists and related workers, illustrators, and commercial designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, basic art skills, lettering skills, preparation of layouts and illustrations, preparation of camera ready paste-up, and development of specialized skills.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0036	Graphic Designer	COMM ART @7 7G GRAPHIC COMM 7G	450 hours	27-1024
B	GRA0037	Digital Designer		450 hours	27-1029
C	GRA0038	Print Media Artist		300 hours	27-1014
D	GRA0039	Web Designer		300 hours	27-1024

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate proficiency in the elements and principles of design.
- 02.0 Demonstrate proficiency in art and design skills.
- 03.0 Demonstrate an understanding of type design.
- 04.0 Demonstrate proficiency in layout.
- 05.0 Demonstrate proficiency in applied design.
- 06.0 Demonstrate proficiency in graphic art computer skills.
- 07.0 Demonstrate proficiency in graphic production.
- 08.0 Demonstrate an understanding of employability in commercial art and graphic media.
- 09.0 Demonstrate an understanding of entrepreneurship.
- 10.0 Demonstrate proficiency in website planning and the design process.
- 11.0 Develop markup language structures.
- 12.0 Create basic webpages.
- 13.0 Incorporate images and graphical formatting on a webpage.
- 14.0 Incorporate form structures on a webpage.
- 15.0 Describe frame structures and their usage.
- 16.0 Use Cascading Style Sheets (CSS).
- 17.0 Examine web design technologies and techniques.
- 18.0 Describe the process for publishing a website.
- 19.0 Describe how website performance is monitored and analyzed.
- 20.0 Create an informational website.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Art Technology
Career Certificate Program Number: I480203

Course Number: GRA0036
Occupational Completion Point: A
Graphic Designer – 450 Hours – SOC Code 27-1024

01.0	Demonstrate proficiency in the elements and principles of design – the student will be able to:
01.01	Explain proper use and care of tools and equipment.
01.02	Discuss the legal and ethical issues related to graphic design.
01.03	Apply the principles and elements of design.
01.04	Demonstrate a basic understanding of vector drawing programs.
01.05	Demonstrate a basic understanding of photo-editing / photo-manipulation programs.
01.06	Apply color theory (pigment versus light).
01.07	Utilize tones, hues, and values.
01.08	Sketch designs using pencil and ink.
01.09	Mix and apply colors to produce desired hues, tints, and shades.
01.10	Apply color for impact (color psychology) and demonstrate an understanding of color theory.
01.11	Differentiate between line, halftone, duotone, spot, RGB, four-color process, and web-safe colors.
01.12	Demonstrate 2-D design capabilities.
01.13	Demonstrate designs with symmetry and asymmetry.
01.14	Develop grids for traditional and digital layouts for print and web media.
01.15	Create freehand designs and objects for visualization and presentation.
01.16	Demonstrate harmony and contrast of line and shape.

01.17	Demonstrate harmony and contrast of color and tone.
01.18	Demonstrate harmony and contrast of proportion.
01.19	Demonstrate harmony and contrast of texture pattern.
01.20	Demonstrate harmony and contrast of motion.
01.21	Indicate style of layout design appropriate to the target audience.
01.22	Make a collage.
01.23	Begin developing a professional portfolio (to be updated as the student progresses through the program).
01.24	(Optional) Create a sign on poster board.
02.0	Demonstrate proficiency in art and design skills – the student will be able to:
02.01	Explain proper use and care of tools.
02.02	Make computations for centering, spacing, and scaling drawings.
02.03	Draw on various types of media.
02.04	Illustrate using ink, pencil, washes, markers, tempera, watercolor, and paints.
02.05	Demonstrate renderings of different textures using the above listed media.
02.06	Make illustrations using various objects.
02.07	Make a montage illustration.
02.08	Draw a cartoon.
02.09	Interpret information from drawings, prints, and sketches.
02.10	Draw freehand sketches.
02.11	Draw a one-point perspective and a two-point perspective.
02.12	Make corrections to a drawing.
02.13	Develop a glossary of technical terms.
02.14	Analyze an object to determine size, shape, and proportion.

02.15 Draw an oblique drawing.

02.16 Draw an isometric drawing.

Course Number: GRA0037
Occupational Completion Point: B
Digital Designer – 450 Hours – SOC Code 27-1029

03.0 Demonstrate an understanding of type design – the student will be able to:

03.01 Define typographic terms (e.g., *leading*, *kerning*).

03.02 Identify and select typographic applications.

03.03 Demonstrate the ability to proofread, to use proofreader's marks, and to run a spell check.

03.04 Explain picas, points, and conversion to inches.

03.05 Explain specification of type and copy fitting.

03.06 Identify and select typographic styles.

03.07 Define basic letter structures.

03.08 Demonstrate mixing of families of type.

03.09 Identify and select lettering styles.

03.10 Determine and select lettering styles for layout sketches.

04.0 Demonstrate proficiency in layout – the student will be able to:

04.01 Identify the parts of a layout.

04.02 Create thumbnail sketches.

04.03 Create roughs and comprehensives from thumbnail sketches.

04.04 Prepare computer roughs from pencil layouts.

04.05 Prepare digital-ready artwork from comprehensives; prepare files that are print-ready and presentation-ready.

04.06 Crop and scale artwork and/or photos for layouts.

04.07 Use adhesives.

04.08	Demonstrate the use of effects or styles.
04.09	Explain layout and color trends.
05.0	Demonstrate proficiency in applied design – the student will be able to:
05.01	Locate and identify resource materials for inspiration; develop a storage or idea bank.
05.02	Design logos.
05.03	Design stationery layouts.
05.04	Design a magazine, book cover, album artwork, and CD cover.
05.05	Design an ad campaign that includes newspapers, magazines, billboards, and television; demonstrate continuity.
05.06	Design a greeting card.
05.07	Design a business card.
05.08	Apply advertising psychology.
05.09	Produce an industrial brochure.
05.10	Design a consumer brochure.
05.11	Construct a package design.
05.12	Produce computer-assisted artwork.
06.0	Demonstrate proficiency in graphic art computer skills – the student will be able to:
06.01	Demonstrate graphic art computer skills using appropriate graphic art programs and hardware.
06.02	Use software and hardware to manipulate and adjust various drawings, photos, and graphic material by computer.
06.03	Produce finished computer projects that reflect current and/or emergent trends in graphic art technology.
06.04	Operate various input devices for computer graphics, such as scanners and cameras.
06.05	Demonstrate proficiency in vector and raster programs.
06.06	(Optional) Make an orthographic drawing using digital software.
06.07	Continue developing a professional portfolio.

Course Number: GRA0038
Occupational Completion Point: C
Print Media Artist – 300 Hours – SOC Code 27-1014

07.0 Demonstrate proficiency in graphic production – the student will be able to:

07.01 Define the differences in production processes and estimate relative costs.

07.02 Recognize the limitations for printing and dissemination on the Internet.

07.03 Identify and select different printing surfaces (e.g., embossing/debossing, silk lamination, varnish, foil, thermography, die cut, letterpress, silkscreen).

07.04 Identify and select appropriate printing inks.

07.05 Identify and select finishing processes.

07.06 Identify standard industry material sizes.

07.07 Specify types of folds.

07.08 Make a print on a plotter.

07.09 Demonstrate proficiency in preparing files for output via print media and web content (preflight).

08.0 Demonstrate an understanding of employability in commercial art and graphic media – the student will be able to:

08.01 Identify and create a résumé, references, cover letter, and a thank you letter.

08.02 Relay instructions to others orally and in writing.

08.03 Define and explain graphic design terms.

08.04 Identify common industry questions.

08.05 Make project presentations.

08.06 Explain appropriate interactions with an employer, fellow employees, and customers.

08.07 Identify potential career pathways.

08.08 Understand the importance of networking with other people in the profession.

08.09 Conduct a job search.

08.10 Develop a professional digital portfolio.

09.0 Demonstrate an understanding of entrepreneurship – the student will be able to:

09.01	Define <i>entrepreneurship</i> .
09.02	Describe the importance of entrepreneurship to the American economy.
09.03	List the advantages and disadvantages of business ownership.
09.04	Identify the risks involved in ownership of a business.
09.05	Identify the necessary personal characteristics of a successful entrepreneur.
09.06	Identify the business skills needed to operate a small business efficiently and effectively.
09.07	Create a business plan.

Course Number: GRA0039
Occupational Completion Point: D
Web Designer – 300 Hours – SOC Code 27-1024

10.0	Demonstrate proficiency in website planning and the design process – the student will be able to:
10.01	Discuss the importance of information architecture to web design and development.
10.02	Conduct a client interview to determine the purpose and needs of the business.
10.03	Conduct a competitive analysis of similar industry sites.
10.04	Identify stages in the web design process and describe the activities comprising each stage.
10.05	Define the site structure by creating a content map, storyboard, and associated wireframes.
10.06	Discuss the legal and ethical issues related to web design and web content.
10.07	Describe accessibility and its implications on web design.
10.08	Create a website mock-up for client approval.
10.09	Continue developing a professional traditional and digital portfolio.
11.0	Develop markup language structures – the student will be able to:
11.01	Define common markup languages and understand the usage of these languages.
11.02	Identify common devices.
11.03	Determine device and browser support and the appropriate usage of markup languages (existing and emerging).

12.0	Create basic webpages – the student will be able to:
12.01	Create basic webpage structures using common markup elements and attributes.
12.02	Incorporate list structures in a webpage (ordered, unordered, definition, nested).
12.03	Incorporate link structures in a webpage (external, internal, email).
12.04	Research web color usage principles and incorporate in a webpage.
13.0	Incorporate images and graphical formatting on a webpage – the student will be able to:
13.01	Describe usage guidelines (e.g., format types, size, relevance) for integrating images and graphics into a webpage.
13.02	Compare and contrast standard image formats used in webpage design.
13.03	Incorporate graphics into a webpage design.
13.04	Create and incorporate image maps in a webpage.
13.05	Optimize images and graphics for use in a webpage.
13.06	Incorporate bootstrap layout.
14.0	Incorporate form structures in a webpage – the student will be able to:
14.01	Create an accessible form using common elements; include form, fieldset, legend, text area, select, option, button, and input (radio, checkbox, submit, reset, image, password, hidden).
14.02	Describe and diagram the relationship between XHTML forms and server-side technologies.
14.03	Compare and contrast the GET and POST methods for forms handling.
14.04	Define <i>form validation</i> and describe how it is accomplished.
14.05	List popular server-side technologies used to process content sent from XHTML forms.
14.06	Use labels with form elements.
14.07	Connect an XHTML form to a server-side script for processing.
15.0	Describe frame structures and the usage of these structures – the student will be able to:
15.01	Explore <i>frame</i> and <i>iframe</i> structures and support issues.
15.02	Describe appropriate uses of iframes.

15.03	Incorporate frame structure in a webpage.
16.0	Use Cascading Style Sheets (CSS) – the student will be able to:
16.01	Define CSS and describe its importance in web design.
16.02	Compare and contrast existing and emerging CSS versions.
16.03	Determine browser support and the appropriate usage of CSS (existing and emerging versions).
16.04	Explain “document flow” and describe its implications on web design.
16.05	Recognize and use element selectors, ID selectors, class selectors, pseudo-class selectors, and descendant selectors.
16.06	Explain how inheritance and specificity affect CSS rule conflicts.
16.07	Use inline styles, embedded style sheets, and external style sheets.
16.08	Use the link and import methods to connect to an external style sheet.
16.09	Use CSS shorthand techniques to create efficient and concise style sheets.
16.10	Apply basic CSS properties (background, border, clear color, float, font, height, line-height, list-style, margin, overflow, padding position, text-align, text-indent, width, z-index, padding).
16.11	Use CSS to style tables (e.g., borders, width, spacing, alignment, background).
16.12	Use CSS to enhance the appearance and usability of an XHTML form.
17.0	Examine web design technologies and techniques – the student will be able to:
17.01	Compare and contrast common authoring tools.
17.02	Compare and contrast client-side and server-side technologies.
17.03	Define e-commerce types and usages.
17.04	Describe database connectivity relative to websites.
17.05	Identify technologies to enhance user experiences.
18.0	Describe the process for publishing a website – the student will be able to:
18.01	Explore domain name selection principles.
18.02	Identify the process for registering a domain name.

18.03	Compare and contrast hosting providers, features, and selection criteria.
18.04	Describe the various means for uploading website files (e.g., FTP, web-based tools).
19.0	Describe how website performance is monitored and analyzed – the student will be able to:
19.01	Identify issues related to website maintenance.
19.02	Use webpage validation tools.
19.03	Describe website performance metrics (e.g., visits, time-on-page, time-on-site) and discuss the implication of performance metrics on design.
19.04	Demonstrate knowledge of accessibility problems and solutions.
19.05	Examine indexing, page ranking, and basic Search Engine Optimization (SEO) techniques.
19.06	Explore common website analytic tools.
20.0	Create an informational website – the student will be able to:
20.01	Use Content Management System (CMS) web authoring software to create a multipage informational website.
20.02	Use image-editing software to enhance website designs with simple graphics.
20.03	Use animation software to enhance website designs.
20.04	Enhance the website using client-side technologies (e.g., rollovers, plug-ins, pop-up windows).
20.05	Demonstrate efficient and consistent website development practices (e.g., the use of templates, snippets).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: Postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Photography Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I480204
CIP Number	0650040600
Grade Level	30, 31
Standard Length	1650 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4021 – Photographers 51-9151 – Photographic Process Workers and Processing Machine Operators
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment as photographers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills; safe and efficient work practices; and the use of cameras and laboratory film-processing techniques in portrait, commercial and industrial applications with emphasis on composition and color dynamics; contact printing; enlarging and developing film; and the use, care, and maintenance of photographic equipment.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	PGY0180	Photographic Imaging Specialist 1	PHOTOG @7 7G	250 hours	51-9151
	PGY0181	Photographic Imaging Specialist 2		250 hours	
B	PGY0182	Photography Specialist/Lab Technician		200 hours	51-9151
C	PGY0183	Portrait Photographer 1		250 hours	27-4021
	PGY0184	Portrait Photographer 2		250 hours	
D	PGY0185	Commercial Photographer		450 hours	27-4021

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Perform laboratory skills.
- 02.0 Manage a photographic business.
- 03.0 Control exposures (35mm camera).
- 04.0 Take basic photographs (35mm camera).
- 05.0 Finish photographs.
- 06.0 Apply lighting techniques.
- 07.0 Reproduce photographic media.
- 08.0 Demonstrate appropriate communication skills.
- 09.0 Reproduce transparencies and internegatives.
- 10.0 Operate various format cameras.
- 11.0 Process color images.
- 12.0 Procure color photographs.
- 13.0 Take studio photographs.
- 14.0 Use digital imaging.
- 15.0 Produce media presentations.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Photography Technology
Career Certificate Program Number: I480204

Course Number: PGY0180
Occupational Completion Point: A
Photographic Imaging Specialist 1 – 250 Hours – SOC Code 51-9151

01.0	Perform laboratory skills – the student will be able to:
01.01	Mix developers and other chemicals.
01.02	Hand-process black and white film.
01.03	Print black and white photographs.
01.04	Process black and white paper.
01.05	Utilize modern processing machines for color printing.
02.0	Manage a photographic business – the student will be able to:
02.01	Apply communication skills.
02.02	Apply human relations skills.
02.03	Set rates for photographic work.
02.04	Maintain shop records and files.
02.05	Develop effective advertising.
02.06	Maintain a presentational portfolio.

Course Number: PGY0181
Occupational Completion Point: A
Photographic Imaging Specialist 2 – 250 Hours – SOC Code 51-9151

03.0	Control exposures (35mm camera) – the student will be able to:
03.01	Set appropriate f-stop and shutter speeds.

03.02	Select appropriate film type.
04.0	Take basic photographs (35mm camera) – the student will be able to:
04.01	Apply camera care and maintenance principles.
04.02	Compose photographs.
04.03	Take still photographs.
04.04	Take action photographs.
05.0	Finish photographs – the student will be able to:
05.01	Mount photographs.
05.02	Mat/frame photographs.
06.0	Apply lighting techniques – the student will be able to:
06.01	Take photographs utilizing available light.
06.02	Take photographs with an electronic strobe.
06.03	Take photographs using photo-flood lighting.
07.0	Reproduce photographic media – the student will be able to:
07.01	Copy prints.
08.0	Demonstrate appropriate communication skills – the student will be able to:
08.01	Write logical and understandable statements/phrases to accurately fill out forms/invoices commonly used in business and industry.
08.02	Read and understand graphs, charts, diagrams, and tables commonly used in the photography industry.
08.03	Read and follow written and oral instructions.
08.04	Answer and ask questions coherently and concisely.
08.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
08.06	Demonstrate appropriate telephone/communication skills.

Course Number: PGY0182
Occupational Completion Point: B
Photography Specialist/Lab Technician – 200 Hours – SOC Code 51-9151

09.0 Reproduce transparencies and internegatives – the student will be able to:

09.01 Scan transparencies.

09.02 Scan internegatives.

10.0 Operate various format cameras – the student will be able to:

10.01 Use view cameras.

11.0 Process color images – the student will be able to:

11.01 (Optional) Hand process color negatives and transparencies.

11.02 (Optional) Process color negatives and transparencies.

11.03 Download images to a computer.

11.04 Save images to a storage device.

11.05 Utilize modern processing machines for color printing.

12.0 Procure color photographs – the student will be able to:

12.01 (Optional) Process color paper.

12.02 (Optional) Print color negatives.

12.03 (Optional) Print color negatives using a color analyzer.

12.04 Purchase color mediums.

12.05 Calibrate a computer monitor.

12.06 Analyze a color print for correct color and contrast.

12.07 Utilize modern processing machines for color printing.

Course Number: PGY0183
Occupational Completion Point: C
Portrait Photographer 1 – 250 Hours – SOC Code 27-4021

10.0 Operate various format cameras – the student will be able to:

10.02 Use 2¼ format cameras.

13.0 Take studio photographs – the student will be able to:

13.01 Take portraits.

14.0 Use digital imaging – the student will be able to:

14.01 Use basic photographic computer skills

14.02 Use a professional imaging program.

14.03 Use a flatbed and a film scanner.

14.04 Output photographic-quality images using a digital printer.

14.05 Use a digital camera.

Course Number: PGY0184
Occupational Completion Point: C (Cont.)
Portrait Photographer 2 – 250 Hours – SOC Code 27-4021

10.0 Operate various format cameras – the student will be able to:

17.02 Use 2¼ format cameras.

13.0 Take studio photographs – the student will be able to:

13.01 Take portraits.

14.0 Use digital imaging – the student will be able to:

14.01 Use basic photographic computer skills

14.02 Use a professional imaging program.

14.03 Use a flatbed and film scanner.

14.04 Output photographic quality images using a digital printer.

14.05 Use digital camera.

Course Number: PGY0185
Occupational Completion Point: D
Commercial Photographer – 450 Hours – SOC Code 27-4021

13.0 Take studio photographs – the student will be able to:

13.02 Take commercial photographs.

14.0 Produce media presentations – the student will be able to:

14.01 Prepare a script for a slide presentation.

14.02 Shoot slides for a slide presentation.

14.03 Produce a slide presentation.

14.04 Prepare a script for a video presentation.

14.05 Shoot video tape.

14.06 Produce a video presentation.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Printing Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	I480205
CIP Number	0610030501
Grade Level	30, 31
Standard Length	990 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	51-5111 – Prepress Technicians and Workers 43-9031 – Desktop Publishers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The purpose of this program is to prepare students for initial employment in the Printing and Graphic Communications industry.

The course content includes, but is not limited to, administrative support operations, pre-press/imaging operations, press operations and finishing operations. The course content should also include training in communication, leadership, human relations, employability skills, and safe, efficient work practices.

This program also prepares individuals to set up, operate and maintain preparation, printing, binding and finishing equipment used in the Printing and Graphic Communications industry. Graduates of this program will be prepared for further specialized training and education in Graphic Arts Technology and other related technologies.

This program focuses on broad, transferable skills and stresses understanding and demonstration of elements of the Printing and Graphic Communications Industry: planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0020	Digital Publishing Assistant 1	PRINTING @7 7G	247 hours	51-5022
	GRA0021	Digital Publishing Assistant 2		248 hours	
B	GRA0022	Desktop Publishing Specialist 1		247 hours	43-9031
	GRA0023	Desktop Publishing Specialist 2		248 hours	

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate an understanding of safety and first aid practices.
- 02.0 Demonstrate an understanding of graphic communications occupations and processes.
- 03.0 Demonstrate proficiency in art and copy preparation.
- 04.0 Demonstrate an understanding of the use of image manipulation programs.
- 05.0 Demonstrate proficiency in basic electronic imaging competencies.
- 06.0 Demonstrate an understanding of the uses of type and typography.
- 07.0 Demonstrate an understanding of the use of page layout operations.
- 08.0 Demonstrate an understanding of scanning (image capture) operations.
- 09.0 Demonstrate an understanding of a vector based graphics programs.
- 10.0 Demonstrate an understanding of electronic pre-press operations.
- 11.0 Demonstrate proficiency in using image manipulation programs.
- 12.0 Demonstrate proficiency in advanced operation of digital production printing systems.
- 13.0 Demonstrate proficiency in the use of type and typography.
- 14.0 Demonstrate proficiency in using page layout operations.
- 15.0 Demonstrate proficiency in scanning (image capture) operations.
- 16.0 Demonstrate proficiency in the use of vector based graphics programs.
- 17.0 Demonstrate proficiency in electronic pre-press operations.
- 18.0 Demonstrate proficiency in making and using files in the Portable Document Format (PDF).
- 19.0 Demonstrate proficiency in performing basic finishing and distribution competencies.
- 20.0 Demonstrate understanding of color principles as applied to the preparation, production, evaluation, and correction of color printing.
- 21.0 Demonstrate the ability to maintain and troubleshoot normal operating problems on a digital printing system.

**Florida Department of Education
Student Performance Standards**

Program Title: Digital Printing Technology
Career CERTIFICATE PROGRAM Number: I480205

Course Number: GRA0020
Occupational Completion Point: A
Digital Publishing Assistant 1 – 247 Hours – SOC Code 51-5022

01.0 Demonstrate an understanding of safety and first aid practices – the student will be able to:

01.01 Discuss the importance of Material Safety Data Sheets (MSDS).

01.02 Practice proper safety procedures when operating equipment.

01.03 Pass a general lab safety test.

01.04 Demonstrate acceptable employee health habits.

01.05 Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.

01.06 Pass a safety test in an individual's specialty area(s).

01.07 Practice approved methods to dispose of waste materials.

01.08 Read, comprehend and follow instructions on warning labels.

01.09 Demonstrate industry standard behaviors when working with others.

01.10 Demonstrate a working knowledge of the safety color code.

02.0 Demonstrate an understanding of graphic communications occupations and processes – the student will be able to:

02.01 Define the global role of graphics.

02.02 Identify printing markets and types of printing businesses.

02.03 List printing's ranking among other industries.

02.04 Identify the major printing processes.

02.05 List the advantages of each major printing process.

02.06	List the disadvantages of each major printing process.
02.07	Identify the products produced by each major printing process.
02.08	List the flow of printing product from initial need to final product.
02.09	List the technical production flow from idea to a finished product.
02.10	Identify major occupations in the graphic arts.
02.11	List the major responsibilities for each occupation.
02.12	Identify basic salary/wage expectation ranges for the local area.
02.13	Explain the various processes used to produce digitally printed material.
02.14	Identify the various function screens on the user interface for a digital production printing system.
03.0	Demonstrate proficiency in art and copy preparation – the student will be able to:
03.01	Prepare comprehensive layouts, including finished working mock-ups.
03.02	Employ the use of printer's measurements to compute inches and fractions, points and picas, decimals, percentages, and proportions.
03.03	Use copy fitting and mark-up procedures to specify type sizes, styles, etc.
03.04	Follow a job ticket to program and run standard jobs using a digital production printing system.
03.05	Program and load stock needed for a standard job.
03.06	Demonstrate basic proficiency in the operation of the scanner component of a black and white digital production printing system.
03.07	Demonstrate basic proficiency in the operation of the printer component of a digital production printing system.
03.08	Demonstrate basic proficiency in the operation of the delivery and binding components of a digital production printing system.
04.0	Demonstrate an understanding of the use of image manipulation programs – the student will be able to:
04.01	Use a variety of paint/edit/selection tools and special effects filters to manipulate digital images.
04.02	Identify industry standards and practices for file image compression, storage, and retrieval.
04.03	Apply image correction and color correction procedures/tools to continuous tone files.
04.04	Control image editing software to incorporate tone reproduction characteristics into continuous tone files.

04.05 Use photo editing software to incorporate output requirements into continuous tone files.

Course Number: GRA0021
Occupational Completion Point: A
Digital Publishing Assistant 2 – 248 Hours – SOC Code 51-5022

05.0 Demonstrate proficiency in basic electronic imaging competencies – the student will be able to:

05.01 Read and comprehend production information on a job jacket/ticket.

05.02 Identify the various kinds of items that can be designed and produced using desktop publishing and digital production printing systems.

05.03 Demonstrate understanding of software capabilities.

05.04 Select appropriate software for word processing, graphics, scanning and page layout.

05.05 Organize a file management system for opening, copying, saving and deleting files.

05.06 Demonstrate file management operations for opening, copying, saving and deleting files.

05.07 Prepare a dummy for a multi-page signature.

05.08 Demonstrate an understanding of data exchange.

06.0 Demonstrate an understanding of the uses of type and typography – the student will be able to:

06.01 Measure copy/text in points and picas using a line gauge.

06.02 Identify x-height, mean line, baseline, ascenders, descenders, and their roles in measuring and designing with type.

06.03 Identify caps, lowercase, uppercase, small caps and ligatures.

06.04 Define dingbats, bullets, rules, and symbols and their uses in publications.

06.05 Distinguish between display (headline) type and body (text) type by point sizes and styles.

06.06 Identify the basic type styles and their uses.

06.07 Define the "weight" and "posture" of type.

06.08 Distinguish between serif and sans-serif type styles.

06.09 Define letter spacing and kerning of type characters.

06.10 Define word spacing and the relationship of *em* and *en* in paragraph spacing.

06.11	Define line spacing and explain the measurement principles for the leading of text.
06.12	Define type arrangements (flush left, ragged right, flush right, ragged left, centered, justified, and forced justified).
06.13	Define and demonstrate copy fitting.
07.0	Demonstrate an understanding of the use of page layout operations – the student will be able to:
07.01	Demonstrate how to markup a copy for production of a printed piece.
07.02	Select appropriate page layout software for a given job.
07.03	Demonstrate functional knowledge of computer commands/codes/menus/palette for the software in use.
07.04	Demonstrate text alignment, element positioning and rules of page design for printed matter.
07.05	Demonstrate a proficiency in conducting basic search operations.
07.06	Place copy from a word processing program to a page layout program according to job specifications.
07.07	Proofread, edit and make corrections/adjustment to copy on screen.
07.08	Download fonts.
07.09	Place graphics, rules, and dingbats from an existing file into a publication.
07.10	Demonstrate the procedure for cropping graphics electronically.
07.11	Create a 2-sided, 3-panel brochure using graphics and text for publication.
07.12	Create a 4-page newsletter using windows, blocks, text, graphics, frames and headings.
07.13	Create a 2-page newsletter using drop caps for paragraph openings, wraparound (runaround) and graphics.
07.14	Create a printed piece using tints, reverses and manipulated type for effect.
07.15	Produce a multicolor flyer using electronic spot color separations.
07.16	Demonstrate knowledge of available page layout programs - capabilities, advantages, and disadvantages.
07.17	Use electronic dictionaries, spell checker, and automatic hyphenation.
08.0	Demonstrate an understanding of scanning (image capture) operations – the student will be able to:
08.01	Identify scanner hardware and its basic components and operations.

08.02	Identify basic scanner software, its uses and limitations.
08.03	Demonstrate appropriate scanner/program operations for continuous tone copy.
08.04	Place scanned graphics/photos into an existing page layout program.
08.05	Use a camera for capturing images intended for print reproduction.
08.06	Clean and prepare prints for final scans.
08.07	Properly handle customer's original art.
09.0	Demonstrate an understanding of a vector based graphics programs – the student will be able to:
09.01	Log-on/boot-up a vector-based graphics program and demonstrate a functional knowledge of commands/codes/menus/tools and procedures for their uses.
09.02	Draw a design appropriate for a given job using a graphics program.
09.03	Create a design using tints, fills and paint for a given job using a graphics program.
09.04	Create a design using manipulated type (rotated, circled, extended, etc.) for a publication.
09.05	Trace a drawing/photograph using a graphics program.
09.06	Create a design/publication using electronic clip art.
10.0	Demonstrate an understanding of electronic pre-press operations – the student will be able to:
10.01	Define the application of digital photography in electronic imaging.
10.02	Identify and compare digital proofs.
10.03	Demonstrate an understanding of the PostScript page description language.
10.04	Describe the strengths and weaknesses of TIFF, EPS, PICT, JPEG, PNG, GIF, and DCS image formats.
10.05	Use a file compression utility for file transfer or storage.
10.06	Create a single color layout using clip art.
10.07	Create a single color layout using work and turn.
10.08	Change contrast using tint screens and shading techniques.
10.09	Create a logo design and integrate it into a brochure design.

10.10	Produce special effects type using a graphics application.
10.11	Produce a multicolor job that includes scans, text and spot color artwork.
10.12	Prepare page layout files containing graphic images for remote output.
10.13	Follow instructions to produce, modify or output files according to a customer supplied criteria.
10.14	Produce a color scan.
10.15	Use a photo manipulation program to perform basic color correction and basic image cloning.
10.16	Describe the characteristics of output devices.
10.17	Configure software and hardware for output to devices.
10.18	Evaluate image (output) quality.
10.19	Submit files to and use network, non-network and remote output devices.
11.0	Demonstrate proficiency in using image manipulation programs – the student will be able to:
11.01	Use a variety of paint/edit/selection tools and special effects filters to manipulate digital images.
11.02	Identify and apply industry standards and practices in file image compression, storage, and retrieval.
11.03	Apply image correction and color correction procedures/tools to continuous tone files.
11.04	Control image editing software to incorporate tone reproduction characteristics into continuous tone files.
11.05	Use photo editing software to incorporate output requirements into continuous tone files.

Course Number: GRA0022	
Occupational Completion Point: B	
Desktop Publishing Specialist 1 – 247 Hours – SOC Code 43-9031	
12.0	Demonstrate proficiency in advanced operation of digital production printing systems – the student will be able to:
12.01	Use the system interface to adjust image tone reproduction quality.
12.02	Use the system interface to modify page images through the functions of copy, mask, duplicate, delete, move, add, replace, rotate, and overlay images.
12.03	Use the merge library function.
12.04	Program and run a job with tab stock.

12.05	Program and run a job with folded signatures.
12.06	Program and set-up the various in-line finishing and binding options.
12.07	Program and run productivity features including cover sheets, job separator sheets, and the use of saved job tickets.
12.08	Program and run jobs on a digital color printing system.
12.09	Evaluate and adjust color print quality.
12.10	Apply troubleshooting and problem solving strategies on digital printing systems.
13.0	Demonstrate proficiency in the use of type and typography – the student will be able to:
13.01	Identify strategies and software used for font management in desktop publishing.
13.02	Set-up and use font management software.
13.03	Use the type scaling, kerning, tracking, and baseline shift typographic functions.
13.04	Demonstrate the comparative typography weaknesses and strengths of word processing software and page layout software.
13.05	Identify the differences between formatted and unformatted text files.
13.06	Demonstrate the correct use of paragraph and character style definitions in page layout software applications.
14.0	Demonstrate proficiency in using page layout operations – the student will be able to:
14.01	Set up column grids for electronic page layout according to job specifications.
14.02	Set up/select appropriate pagination for a given job.
14.03	Demonstrate the uses of footers and headers.
14.04	Set text with appropriate margins, formatting, gutters, leading, headings, etc.
14.05	Define and apply multiple master pages to a long document.
14.06	Merge documents in part or in their entirety.
14.07	Use paths for type and for image clipping.
14.08	Modify and redefine page and document specifications.
14.09	Apply section numbering for long documents.

14.10	Prepare a document index page.
14.11	Save a document in various file formats.
14.12	Determine and set preferences for specific document production requirements.
15.0	Demonstrate proficiency in advanced scanning (image capture) operations – the student will be able to:
15.01	Clean and prepare prints and slides for final scans.
15.02	Calculate required scan resolution.
15.03	Demonstrate how to calculate required percentage of enlargement/reduction.
15.04	Properly handle customer's original art.
15.05	Scan reflection and transmission originals, to include following customer specifications for cropping, sizing, file formatting, and resolution.
15.06	Acquire files from disks.
15.07	Set-up and use Optical Character Recognition (OCR) software to capture text pages and prepare a document for editing in a word processing application.
15.08	Locate and download specified files from the WWW/Internet.

Course Number: GRA0023
Occupational Completion Point: B
Desktop Publishing Specialist 2 – 248 Hours – SOC Code 43-9031

16.0	Demonstrate proficiency in the use of vector based graphics programs – the student will be able to:
16.01	Draw a design appropriate for a given job using a graphics program.
16.02	Create a design using tints, fills and paint for a given job using a graphics program.
16.03	Create a design using manipulated type (e.g., rotated, circled, extended) for a publication.
16.04	Trace a drawing/photograph using a graphics program.
16.05	Organize and use typography, photography and illustration elements to communicate information in print.
17.0	Demonstrate proficiency in electronic pre-press operations – the student will be able to:
17.01	Calibrate a scanner.
17.02	Calibrate a color monitor.

17.03	Follow instructions to produce, modify or output files according to specified production workflow standards.
17.04	Describe the characteristics of output devices.
17.05	Configure software and hardware for output to devices.
17.06	Define data fields and publish contents of a database.
17.07	Submit files to and use servers, spoolers; queues, and software and hardware RIPs.
18.0	Demonstrate proficiency in making and using files in the Portable Document Format (PDF) – the student will be able to:
18.01	Define the relationship between PostScript and PDF files.
18.02	Identify and define the attributes and advantages of a PDF file.
18.03	Identify and define the uses of a PDF file in the digital printing workflow.
18.04	Identify and define ways to distribute PDF files.
18.05	Make a PDF file from a PostScript file to meet given production specifications.
18.06	Edit, modify, and annotate a PDF file using appropriate software.
18.07	Use the PDF file format to make a multi-purposed document for both digital printing and interactive media.
18.08	Make a searchable digital catalog of a collection of PDF files.
18.09	Define and apply security and job options to PDF files.
18.10	Organize and embed fonts in a PDF file.
19.0	Demonstrate proficiency in performing basic finishing and distribution competencies – the student will be able to:
19.01	Read and comprehend production information on a job jacket/ticket.
19.02	Apply basic math skills to binding and distribution operations.
19.03	Prepare a folding dummy from a press sheet in accordance with job ticket specifications and an approved proof.
19.04	Setup and operate a folder in accordance with job ticket specifications and the folding dummy.
19.05	Apply basic principles of finishing and distribution following folded bound signature impositions to allow for lips, trims and bleeds according to saddle-stitch and side-stitch binding methods.
19.06	Define how to setup and use cutters.

19.07	Prepare rule-out of press sheet for finishing operations according to job ticket specifications and the approved proof.
19.08	Setup and operate a cutter in accordance with rule-out.
19.09	Square substrate.
19.10	Define and identify problems with substrate.
19.11	Define the proper maintenance procedures for paper cutters.
19.12	Understand and define how to change the blade on a paper cutter.
19.13	Select and identify the most commonly used types of paper.
19.14	Demonstrate knowledge of paper types related to the printing, folding and binding characteristics of each type.
19.15	Hand-jog 8 1/2" x 11" substrate.
19.16	Machine-jog substrate.
19.17	Define and identify off-line finishing systems.
19.18	Define the fundamentals of saddle stitching and perfect binding.
19.19	Identify the components of case, spiral, and perfect bound books.
19.20	Estimate the cost of materials and production for performing bindery operations (cutting, scoring, folding, packaging and coating).
19.21	Setup and operate a stitcher (side and saddle).
19.22	List the techniques used to control waste production and disposal in a modern bindery.
19.23	Define and identify spiral, comb, and wire binding equipment and supplies.
19.24	Define tipping procedures.
19.25	Perform preventive maintenance on binding and finishing equipment.
19.26	Demonstrate methods of counting substrate (machine, measurement, weight and rapid multiple-sheet manual counting by fives).
19.27	Define collating flat sheets.
19.28	Setup and operate a paper drill for a standard loose-leaf binder.
19.29	Define and identify packaging and shrink-wrapping equipment.

19.30	Demonstrate how to package and identify a completed job according to job specifications.
20.0	Demonstrate understanding of color principles as applied to the preparation, production, evaluation, and correction of color printing – the student will be able to:
20.01	Describe the concepts of color theory and color temperature.
20.02	Describe factors affecting the perception and recognition of color.
20.03	Identify and apply industry standard criteria to the evaluation of color in imaging and publishing.
20.04	Describe and identify the components and processes of color publishing systems.
20.05	Evaluate and color correct the quality of color publishing images.
20.06	Identify and describe models used to specify color.
20.07	Describe and identify color output devices of digital imaging systems.
20.08	Evaluate the quality of digital imaging color output devices.
20.09	Identify and describe the purposes of a Color Management System.
21.0	Demonstrate the ability to maintain and troubleshoot normal operating problems on a digital printing system – the student will be able to:
21.01	Perform the preventive maintenance procedures for cleaning sensors, camming motor, and binder.
21.02	Adjust paper path to handle various papers.
21.03	Determine source of machine-based printing problems and how to apply correction strategies.
21.04	Determine when to appropriately contact vendor technical support.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Cinema Production
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K100100
CIP Number	0650060211
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-2012 – Producers and Directors 27-4011 – Audio and Video Equipment Technicians 27-4031 – Camera Operators, Television, Video, and Motion Picture 27-4032 – Film and Video Editors
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment in the Digital Cinema Production field as equipment operators, camera assistants, sound equipment operators, editing equipment operators, set builders, grips and lighting equipment operators and visual effect artists.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, the history of cinema, the use of photo editing software, production writing and management, art direction, lighting, cinematography, audio production, post production and stereography.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of five occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	FIL0085	Video Production Manager	TEC ED 1 @ 2 ENG&TEC ED1@2 TV PRO TEC @7 7G	300 hours	27-2012
B	FIL0086	Grip and Lighting Technician		150 hours	27-4011
C	FIL0087	Motion Picture Projectionists/Digital Cinematographer		300 hours	27-4031
D	FIL0088	Digital Video Editor		150 hours	27-4032
E	FIL0089	Visual Effects Artist		150 hours	27-2012

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Understand the history of cinema.
- 02.0 Understand the production process.
- 03.0 Understand intellectual property rights, copyright laws and plagiarism as each applies to creative assets.
- 04.0 Demonstrate proficiency in computer skills.
- 05.0 Demonstrate knowledge of photo editing software.
- 06.0 Demonstrate knowledge of production writing as it relates to narrative filmmaking.
- 07.0 Demonstrate knowledge of production management.
- 08.0 Demonstrate knowledge of art direction.
- 09.0 Demonstrate knowledge of character development.
- 10.0 Demonstrate knowledge of storyboarding.
- 11.0 Demonstrate knowledge of funding presentations and pitches.
- 12.0 Demonstrate understanding of lighting principles.
- 13.0 Demonstrate understanding of production set protocol.
- 14.0 Demonstrate understanding of lighting fixtures.
- 15.0 Demonstrate understanding of electricity.
- 16.0 Demonstrate understanding of special effects lighting techniques and equipment.
- 17.0 Demonstrate understanding of grip principles.
- 18.0 Demonstrate understanding of basic grip equipment.
- 19.0 Demonstrate understanding of dollies.
- 20.0 Demonstrate understanding of cranes, jibs and arms.
- 21.0 Demonstrate knowledge of cinematography.
- 22.0 Demonstrate knowledge of cameras.
- 23.0 Demonstrate basic audio production.
- 24.0 Interpret and implement audio requirements for film production.
- 25.0 Formulate strategies for audio recording and playback.
- 26.0 Demonstrate knowledge of the post-production process.
- 27.0 Demonstrate knowledge of video editing software.
- 28.0 Demonstrate knowledge of audio editing software.
- 29.0 Demonstrate knowledge of DVD authoring software.
- 30.0 Demonstrate knowledge of color correction software.
- 31.0 Demonstrate knowledge of compositing software.
- 32.0 Demonstrate knowledge of stereography.

Florida Department of Education
Student Performance Standards

Program Title: Digital Cinema Production
Career Certificate Program Number: K100100

Course Number: FIL0085	
Occupational Completion Point: A	
Video Production Manager – 300 Hours – SOC Code 27-1012	
01.0	Understand the history of cinema – the student will be able to:
01.01	Understand the history of cinema (silent, sound, color).
02.0	Understand the production process – the student will be able to:
02.01	Identify the job titles associated with the filmmaking process.
02.02	Identify various tools and equipment used to produce narrative productions.
02.03	Understand speed and efficiency concepts.
02.04	Understand a production pipeline.
02.05	Identify the departments of a production studio.
02.06	Understand the interrelationships between departments.
02.07	Understand basic communication concepts (verbal, memos, paperwork).
02.08	Identify the stages of production.
02.09	Understand studio terms and jargon.
02.10	Create and organize production paperwork into production bibles or prepare for presentations.
02.11	Demonstrate the proper use of standard filmmaking forms.
03.0	Understand intellectual property rights, copyright laws and plagiarism as each applies to creative assets – the student will be able to:
03.01	Understand the limits and expectations of copyright protection.
03.02	Understand the use of “fair use” and “fair dealing.”

03.03	Understand the transfer and licensing of creative works.
03.04	Understand the use of “exclusive rights” to intellectual creations.
03.05	Demonstrate the use of digital watermarking.
04.0	Demonstrate proficiency in computer skills – the student will be able to:
04.01	Identify all computer parts.
04.02	Demonstrate understanding of computer performance specifications.
04.03	Compare and contrast differences between business machines and workstations.
04.04	Demonstrate best practices of computer safety and ergonomics.
04.05	Demonstrate understanding of operating systems.
04.06	Perform software installation and setup.
04.07	Perform peripheral device installation and setup.
04.08	Perform computer upgrades (memory/hard disk/cards).
04.09	Perform storage management operations (project/file).
04.10	Demonstrate knowledge of computer maintenance.
04.11	Demonstrate ability to troubleshoot computer hardware and software issues.
05.0	Demonstrate knowledge of photo editing software – the student will be able to:
05.01	Demonstrate understanding of file formats and storage options.
05.02	Identify parts of the software interface (menus/palettes).
05.03	Demonstrate ability to use each of the basic tool sets.
05.04	Demonstrate ability to import, export and save images.
05.05	Demonstrate understanding of layers and channels.
05.06	Demonstrate understanding of filters, effects and plug-ins.
05.07	Demonstrate understanding of file presets.

05.08	Demonstrate ability to select portions of an image for manipulation.
05.09	Demonstrate ability to transform selections and images (crop, scale).
05.10	Demonstrate ability to color correct images (brightness, hue, contrast).
05.11	Demonstrate ability to use brushes for image creation and correction.
05.12	Understand non-destructive and destructive operations.
05.13	Demonstrate the basic use of video in photo editing software.
05.14	Design and print a business card.
06.0	Demonstrate knowledge of production writing as it relates to narrative filmmaking – the student will be able to:
06.01	Understand the job of a scriptwriter.
06.02	Identify target audiences, markets, and demographics.
06.03	Identify the elements of a script.
06.04	Develop the intended message of a script.
06.05	Demonstrate ability to write a treatment.
06.06	Demonstrate ability to write a professionally formatted (submission) script.
06.07	Identify the genre of a story.
06.08	Define characters and setting for a story.
07.0	Demonstrate knowledge of production management – the student will be able to:
07.01	Demonstrate ability to breakdown a script into production elements (cast, props).
07.02	Understand the job of a production manager.
07.03	Create a production board.
07.04	From a script - create a budget (quote) from local vendors.
07.05	Ability to write a casting call.
07.06	Participate in the casting process.

07.07	Scout a location and perform a site survey.
07.08	Acquire a permit for shooting on location.
08.0	Demonstrate knowledge of art direction – the student will be able to:
08.01	Develop the overall visual appearance of an animation.
08.02	Demonstrate the ability to create moods with style.
08.03	Determine the geographic location and time period of the story.
08.04	Understand the importance of art direction as it pertains to the message.
08.05	Understand the use of color in art direction.
08.06	Document the technical aspects of art direction for use in production.
08.07	Perform the various assignments in a professional manner according to industry standards.
09.0	Demonstrate knowledge of character development – the student will be able to:
09.01	Demonstrate and understanding of character profiles.
09.02	Demonstrate the ability to develop character résumés/profiles.
10.0	Demonstrate knowledge of storyboarding – the student will be able to:
10.01	Demonstrate understanding of visual storytelling and how storyboards are used during production.
10.02	Identify common aspect ratios and how to calculate ratios.
10.03	Demonstrate understanding of camera framing and camera movement.
10.04	Develop a visual style using art direction.
10.05	Break down a script into the various camera shots and character action.
10.06	Demonstrate understanding of perspective and depth of field.
10.07	Demonstrate knowledge of lighting and color use.
10.08	Demonstrate ability to sketch a storyboard, including characters.
10.09	Demonstrate ability to use storyboarding software or illustration software.

10.10	Demonstrate the ability to create slides (storyboard thumbnail pages).
11.0	Demonstrate knowledge of funding presentations and pitches – the student will be able to:
11.01	Understand the network associated with product distribution.
11.02	Identify the job titles and roles of the distributors.
11.03	Identify potential markets, target audiences, and products.
11.04	Develop the materials needed to effectively convey the message.
11.05	Effectively communicate a message or pitch.
11.06	Attend an educational seminar outside of class.
11.07	Attend a film festival.
11.08	Acquire a domain name.
11.09	Understand the process of incorporating a business.

Course Number: FIL0086	
Occupational Completion Point: B	
Grip and Lighting Technician – 150 Hours – SOC Code 27-4011	
12.0	Demonstrate understanding of lighting principles – the student will be able to:
12.01	Identify the descriptions of the lighting crew.
12.02	Identify relevant lighting cues from production notes.
12.03	Create a lighting plan based on production notes.
12.04	Demonstrate understanding of foot-candles.
12.05	Demonstrate understanding of F-Stops, ISO/ASA and gain.
12.06	Demonstrate understanding of depth of field (DOF).
12.07	Demonstrate understanding of contrast ratio.
12.08	Demonstrate color theory and correction.
12.09	Demonstrate use of a light meter.

12.10	Understand the photographic lighting principle.
12.11	Analyze production requirements to determine lighting equipment needs.
13.0	Demonstrate understanding of production set protocol – the student will be able to
13.01	Demonstrate ability to stage an area for lights.
13.02	Demonstrate ability to set lights.
13.03	Demonstrate ability to use common hand and radio signals.
13.04	Demonstrate ability to wrap a cable.
13.05	Demonstrate proper cabling methods (layout/securing).
13.06	Demonstrate proper cable labeling methods.
13.07	Demonstrate safety.
13.08	Differentiate the working relationships that exist between various participants involved in the filmmaking process.
13.09	Perform as a member of a technical team within the framework of an organized production.
13.10	Create a safe working environment.
14.0	Demonstrate understanding of lighting fixtures – the student will be able to:
14.01	Demonstrate understanding of tungsten lights.
14.02	Demonstrate use of Fresnel, area, and open-faced lights.
14.03	Demonstrate understanding of PAR lights.
14.04	Demonstrate understanding of HMI lights.
14.05	Demonstrate understanding of fluorescent lights.
14.06	Demonstrate understanding of LED lights.
14.07	Demonstrate an understanding of ambient and practical lighting.
15.0	Demonstrate understanding of electricity – the student will be able to:
15.01	Demonstrate understanding of electrical units of measure.

15.02	Calculate amperage of lights.
15.03	Demonstrate understanding of Ohm's Law.
15.04	Demonstrate use of circuit protection.
15.05	Understand types of distribution circuits (direct current or alternating current).
15.06	Demonstrate understanding of single- and three-phase systems.
15.07	Demonstrate use of proper grounding techniques.
15.08	Demonstrate use of voltmeter.
15.09	Demonstrate use of portable and full-size generators.
16.0	Demonstrate understanding of special effects lighting techniques and equipment – the student will be able to:
16.01	Understand lightning effects.
16.02	Understand the challenges of lighting a green/blue screen.
16.03	Demonstrate the proper use of fog machines.
16.04	Demonstrate both high-key and low-key lighting techniques.
16.05	Demonstrate how to incorporate lighting into exterior day setups.
16.06	Supervise hanging, circuiting, and focusing lights for production.
16.07	Demonstrate use of gels and diffusions.
16.08	Demonstrate use of neutral density filters.
16.09	Demonstrate use of daylight conversion filters.
17.0	Demonstrate understanding of grip principles – the student will be able to:
17.01	Identify the descriptions of the grip crew.
17.02	Translate script needs into creative uses of dollies, cranes and other camera mounts as required for production.
17.03	Identify relevant grip cues from production notes.
17.04	Analyze production requirements to determine grip equipment needs.

17.05	Demonstrate proper and safe use of equipment.
17.06	Appraise maintenance needs for equipment.
18.0	Demonstrate understanding of basic grip equipment – the student will be able to:
18.01	Demonstrate proper use of stands and stand extensions.
18.02	Demonstrate use of small and large butterflies.
18.03	Demonstrate proper use of sandbags.
18.04	Demonstrate use of apple boxes and risers.
18.05	Demonstrate ability to identify and use clamps and clips.
18.06	Demonstrate ability to use specialty knots (bowline, clove hitch, square).
18.07	Demonstrate ability to identify and use flags, dots, and fingers.
18.08	Demonstrate ability to identify and use silks and nets.
18.09	Demonstrate ability to identify and use reflectors and bounce boards.
19.0	Demonstrate understanding of dollies – the student will be able to:
19.01	Demonstrate understanding of dolly uses and limitations.
19.02	Demonstrate understanding of dolly safety.
19.03	Identify commonly used dolly types and manufacturers.
19.04	Demonstrate ability to assemble dollies.
19.05	Demonstrate effective use of track dollies during production.
20.0	Demonstrate understanding of cranes, jibs and arms – the student will be able to:
20.01	Demonstrate understanding of crane, jib and arm uses and limitations.
20.02	Demonstrate understanding of crane, jib and arm safety.
20.03	Demonstrate ability to assemble cranes, jibs, and arms.
20.04	Identify commonly used crane, jib and arm types and manufacturers.

20.05 Demonstrate effective use of cranes, jibs, and arms during a production.

Course Number: FIL0087
Occupational Completion Point: C
Motion Picture Projectionists/Digital Cinematographer – 300 Hours – SOC Code 27-4031

21.0 Demonstrate knowledge of cinematography – the student will be able to:

21.01 Identify the psychological effects of different types of angles (composition).

21.02 Analyze a script for camera lens and shot requirements.

21.03 Demonstrate understanding of different responsibilities within the camera department.

21.04 Demonstrate knowledge of camera blocking and screen direction.

21.05 Design a lighting plot.

21.06 Understand the principals of photography.

21.07 Compare the techniques used in film and video production.

21.08 Manage resources and personnel in order to meet production deadlines.

22.0 Demonstrate knowledge of cameras – the student will be able to:

22.01 Demonstrate knowledge of mechanics and parts of the camera (shutter, f/stops, lenses, etc.).

22.02 Analyze the aesthetic needs of a shot and accomplish them by using standard industry equipment.

22.03 Analyze production requirements to determine camera equipment needs.

22.04 Understand the difference between zoom and prime lenses and what lens speeds are.

22.05 Program and use a light meter for taking spot, reflected, and incident readings.

22.06 Demonstrate the proper use of filters and polarizers.

22.07 Control lens, focal length, aperture and exposure to obtain required effects.

22.08 Control camera movement to obtain required effects.

22.09 Perform basic routine, preventive and repair maintenance on video equipment.

22.10 Define various recording formats and media.

22.11	Define appropriate digital compression and signal (file) types.
23.0	Demonstrate basic audio production – the student will be able to:
23.01	Demonstrate how to set up a recording environment.
23.02	Demonstrate understanding of digital audio recording hardware.
23.03	Demonstrate understanding of the proper use of microphones.
23.04	Demonstrate knowledge of audio codecs and media.
23.05	Understand the history of Foley and sound effects production.
23.06	Demonstrate the ability to record location sounds.
24.0	Interpret and implement audio requirements for film production – the student will be able to:
24.01	Formulate sound design for required sound effects and dialogue replacement to complete a motion picture soundtrack.
24.02	Record dialogue replacement lines.
24.03	Record live sound effects.
25.0	Formulate strategies for audio recording and playback – the student will be able to:
25.01	Demonstrate the use of microphones, recorders, speakers, mixers, boom poles, other recording and playback equipment.
25.02	Demonstrate basic knowledge of acoustics.
25.03	Evaluate recording needs.
25.04	Evaluate technical resources as appropriate to given spaces.
25.05	Configure and operate sound recording and playback systems to meet performance needs.
25.06	Analyze various audio qualities to achieve proper sound mix on an audio mixer.
25.07	Design a plot for proper microphone placement.
25.08	Demonstrate understanding of the proper use of microphones.
25.09	Demonstrate knowledge of audio codecs and media.
25.10	Understand the history of Foley and sound effects production.

25.11 Demonstrate the ability to record location sounds.

Course Number: FIL0088
Occupational Completion Point: D
Digital Video Editor – 150 Hours – SOC Code 27-4032

26.0 Demonstrate knowledge of the post-production process – the student will be able to:

26.01 Identify the psychological effects of different types of edits.

26.02 Demonstrate understanding of picture and sound editing techniques (e.g., continuity, screen direction, and transitions).

26.03 Sync dailies by synchronizing sound elements to picture elements.

26.04 Formulate sound design for required sound effects and dialogue replacement to complete a motion picture soundtrack.

26.05 Create sound effects using live Foley techniques.

26.06 Edit and synchronize pre-recorded sound effects in sync with picture.

27.0 Demonstrate knowledge of video editing software – the student will be able to:

27.01 Demonstrate understanding of file formats and storage options.

27.02 Identify parts of the software interface (menus/palettes).

27.03 Demonstrate ability to use each of the basic tool sets.

27.04 Demonstrate ability to import, export, and save video projects.

27.05 Demonstrate understanding of layers and compositing.

27.06 Demonstrate understanding of filters, effects and plug-ins.

27.07 Demonstrate understanding of file presets.

27.08 Demonstrate understanding of the rendering process.

27.09 Demonstrate ability to transform video (crop, scale).

27.10 Demonstrate ability to color-correct images (brightness, hue, contrast).

27.11 Demonstrate ability to use brushes for image creation and correction.

27.12 Understand non-destructive and destructive operations.

27.13	Understand principles of stereo-editing
28.0	Demonstrate knowledge of audio editing software – the student will be able to:
28.01	Demonstrate understanding of file formats and storage options.
28.02	Identify parts of the software interface (menus/palettes).
28.03	Demonstrate ability to use each of the basic tool sets.
28.04	Demonstrate ability to import, export and save audio.
28.05	Demonstrate understanding of multiple tracks.
28.06	Demonstrate understanding of filters, effects and plug-ins.
28.07	Demonstrate understanding of file presets.
28.08	Demonstrate understanding of the audio rendering process.
28.09	Demonstrate ability to edit, cut, and delete.
28.10	Understand non-destructive and destructive operations.
28.11	Transfer location sound from location recording format to display format.
28.12	Synchronize sound elements to picture elements.
28.13	Demonstrate basic sound-editing skills.
28.14	Mix multiple tracks of dialogue, sound effects, and music into a finished soundtrack according to industry quality standards.
29.0	Demonstrate knowledge of DVD authoring software – the student will be able to:
29.01	Identify parts of the software interface (menus/palettes).
29.02	Demonstrate ability to use each of the basic tool sets.
29.03	Understand mapping to design menu layouts and navigation.
29.04	Demonstrate ability to import media (stills, video, and audio).
29.05	Demonstrate ability to create chapters.
29.06	Understand the process of encoding and compression.

29.07 Author and burn a DVD demo reel.

Course Number: FIL0089
Occupational Completion Point: E
Visual Effects Artist – 150 Hours – SOC Code 27-2012

30.0 Demonstrate knowledge of color correction software – the student will be able to:

30.01 Identify parts of the software interface (menus/palettes).

30.02 Demonstrate ability to use each of the basic tool sets.

30.03 Demonstrate ability to import, export and save video.

30.04 Understand color balance, color theory, and channels.

30.05 Demonstrate ability to create masks and mattes.

30.06 Understand the use and operation of scopes and waveforms.

30.07 Demonstrate how to calibrate a monitor.

30.08 Understand the process of color grading.

30.09 Demonstrate tracking as it relates to color correction.

30.10 Demonstrate the process to render and output color-corrected content.

31.0 Demonstrate knowledge of compositing software – the student will be able to:

31.01 Identify parts of the software interface (menus/palettes).

31.02 Demonstrate ability to use each of the basic tool sets.

31.03 Demonstrate ability to import, export and save video.

31.04 Understand basic animation using effects presets.

31.05 Demonstrate ability to animate text and layers.

31.06 Understand the use of rotoscoping tools.

31.07 Demonstrate how to animate masks.

31.08 Understand the process of color correction.

31.09	Demonstrate both single point and multipoint motion tracking.
31.10	Demonstrate the process to render and output content.
32.0	Demonstrate knowledge of stereography – the student will be able to:
32.01	Understand the challenges and limitations of stereography (3D photography).
32.02	Demonstrate an understanding of a 3D workflow.
32.03	Demonstrate understanding of parallax and convergence.
32.04	Demonstrate and understanding of inter-axial/inter-pupillary distance.
32.05	Demonstrate an understanding of 3D eyewear (polarized, active shutter, and anaglyph).
32.06	Demonstrate the compositing integration of rendered 3D animation with video.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9 and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Media/Multimedia Design
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K100200
CIP Number	0609070208
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 – Multimedia Artists and Animators
Basic Skills Level	Mathematics: 10 Language: 10 Reading: 10

Purpose

The purpose of this program is to prepare students for careers as multimedia artists and animators.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, practical experiences in webpage design and interactive presentation development, testing and production. Specialized skills in multimedia presentations such as video editing, audio features, and simple animation and authoring software are used to produce a variety of interactive multimedia presentations.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	DIG0081	Theory and Foundations of Design	BUS ED 1 @2	150 hours	27-1014
B	DIG0082	Multimedia Digital/Print Designer	COMM ART @7 7G	300 hours	27-1014
C	DIG0083	Multimedia Web Interactive Designer	COMPU SCI 6	300 hours	27-1014
D	DIG0084	Multimedia Integrated Producer Designer	DIGI MEDIA 7G	300 hours	27-1014
			PRINTING @7 7G		
			SECRETAR 7 G		
			TEC ED 1 @2		
			ENG&TEC ED1@2		
			TEC ELEC @7		
			TV PRO TEC @7 7G		
			VOE @7		

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate knowledge of presentation production issues.
- 02.0 Demonstrate basic computer knowledge.
- 03.0 Demonstrate knowledge of digital still photography.
- 04.0 Demonstrate knowledge of photo editing software.
- 05.0 Demonstrate proficiency in advanced design.
- 06.0 Demonstrate understanding of color modes.
- 07.0 Demonstrate proficiency in using fonts for advanced design.
- 08.0 Demonstrate proficiency in using illustration software.
- 09.0 Demonstrate knowledge of design layout software.
- 10.0 Demonstrate proficiency in using presentation software and equipment to produce a complex presentation.
- 11.0 Demonstrate proficiency in webpage design.
- 12.0 Demonstrate understanding of HTML and CSS.
- 13.0 Demonstrate proficiency in authoring software for webpage design.
- 14.0 Demonstrate proficiency in animated webpage design.
- 15.0 Demonstrate understanding of object-oriented scripting and website animation.
- 16.0 Demonstrate proficiency in the use of interactive design software for webpage design, interactive presentations and banners.
- 17.0 Demonstrate proficiency using video editing software and equipment.
- 18.0 Develop proficiency in using authoring software.
- 19.0 Demonstrate proficiency using all media to create an advertising campaign.
- 20.0 Participate in work-based learning experiences.
- 21.0 Apply job readiness, career planning and job seeking skills to meet personal and professional goals.

Florida Department of Education
Student Performance Standards

Program Title: Digital Media/Multimedia Design
Career Certificate Program Number: K100200

Course Number: DIG0081	
Occupational Completion Point: A	
Theory and Foundations of Design – 150 Hours – SOC Code 27-1014	
01.0	Demonstrate knowledge of presentation production issues – the student will be able to:
01.01	Identify characteristics of design for digital media (e.g., web, animation, video, audio).
01.02	Identify presentation materials (slides, handouts) and presentation marketing formats (social media, print media, newspaper, billboards, posters, magazines, television, movies, computer presentations, interactive CD ROM, kiosks, webpages).
01.03	Identify design characteristics (e.g., fonts, size, color modes, backgrounds) that are suited for each type of design format and material.
01.04	Demonstrate knowledge of copyright laws (e.g., copyright statutes, disclaimers, filing procedures).
01.05	Research and identify job titles and skills needed for career positions in multimedia design using information from the U.S. Bureau of Labor Statistics.
01.06	Demonstrate understanding of multimedia file formats (e.g., EPS, PDF, TIFF, JPEG, PNG, ASCII, MPEG, MIDI, AVI, WAV) and knowledge of image size when scanning and saving files for use in different design types (print, web, computer, television, mobile devices).
01.07	Demonstrate knowledge of presentation vocabulary and terms.
02.0	Demonstrate basic computer knowledge – the student will be able to:
02.01	Identify basic computer components (e.g., CPU, monitor, keyboard, resolution).
02.02	Demonstrate understanding of computer specifications.
02.03	Demonstrate best practices of computer safety and ergonomics.
02.04	Demonstrate knowledge of computer operating systems and platforms.
02.05	Demonstrate use of internal and external drives/storage and data backup.
02.06	Identify possible software and hardware malfunctions and perform basic troubleshooting operations.
02.07	Identify characteristics of software for print, photography, web, animation, video and audio.

03.0	Demonstrate knowledge of digital still photography – the student will be able to:
03.01	Demonstrate knowledge of digital camera types and uses.
03.02	Demonstrate knowledge of digital photography composition.
03.03	Demonstrate knowledge of digital camera supports (e.g., tripod, grips, holds).
03.04	Identify parts of a digital camera (e.g., lens, sensor, battery).
03.05	Understand digital camera menus and navigation.
03.06	Demonstrate knowledge of auto modes and settings (e.g., F-stops, speed, ISO).
03.07	Demonstrate knowledge of manual modes and settings (e.g., F-stops, speed, ISO).
03.08	Demonstrate understanding of white balance and lighting.
03.09	Demonstrate proper care, use, and storage of digital cameras.
03.10	Create both a digital and printed photography portfolio that includes portraits and landscapes in studio and field settings.
04.0	Demonstrate knowledge of photo editing software – the student will be able to:
04.01	Demonstrate understanding of file formats and storage options.
04.02	Identify the parts of the software interface.
04.03	Demonstrate the ability to use each of the basic tool sets.
04.04	Demonstrate the ability to import, export and save images.
04.05	Demonstrate understanding of layers and channels.
04.06	Demonstrate understanding of filters, effects and plug-ins.
04.07	Demonstrate understanding of file presets.
04.08	Demonstrate the ability to select portions of an image for manipulation.
04.09	Demonstrate the ability to transform selections and images (e.g., crop, scale).
04.10	Demonstrate the ability to color-correct images (e.g., brightness, hue, contrast).
04.11	Demonstrate the ability to use brushes for image creation and correction.

04.12 Understand non-destructive and destructive operations.

04.13 Demonstrate the ability to import, paint and export 3D objects.

04.14 Demonstrate the basic uses of video in photo editing software.

Course Number: DIG0082

Occupational Completion Point: B

Multimedia Digital/Print Designer – 300 Hours – SOC Code 27-1014

05.0 Demonstrate proficiency in advanced design – the student will be able to:

05.01 Demonstrate knowledge of advanced design.

05.02 Identify design strategies to reach the intended audience.

05.03 Use storyboarding or sketches to plan a design.

05.04 Create formal or informal design layouts using guidelines, colors, fonts, graphics and logos.

05.05 Demonstrate use of authoring software integration.

05.06 Identify compatibility formats (extensions) for authoring software integration.

06.0 Demonstrate understanding color modes – the student will be able to:

06.01 Demonstrate knowledge of the color process for printing purposes.

06.02 Demonstrate knowledge of color conversion from display to print.

06.03 Demonstrate knowledge of spot colors.

06.04 Demonstrate knowledge of web-safe colors.

06.05 Explain color mode differences (e.g., RGB, CMYK, HSB).

06.06 Understand accessing color modes from authoring software.

07.0 Demonstrate proficiency in using fonts for advanced design – the student will be able to:

07.01 Identify *serif* and *sans-serif* fonts.

07.02 Demonstrate knowledge of conversion of fonts to outlines.

07.03 Understand the proprietary copyrights of fonts.

07.04	Demonstrate knowledge of standard font formats (e.g., TrueType, PostScript, OpenType).
07.05	Design and develop a print and a digital portfolio that includes business cards, posters, billboards, magazines, and brochures.
08.0	Demonstrate proficiency in using illustration software – the student will be able to:
08.01	Evaluate industry standard illustration software packages.
08.02	Identify characteristics of vector and bitmap images.
08.03	Demonstrate understanding of the software workspace.
08.04	Demonstrate software navigation (e.g., views, tabs, zoom).
08.05	Demonstrate use of drawing tools to create, combine and edit basic shapes.
08.06	Demonstrate the ability to transform content (e.g., scale, rotation, position).
08.07	Demonstrate use of pen and pencil tools to draw/edit straight and curved paths.
08.08	Demonstrate use of color and painting tools (e.g., patterns, gradients, color palettes).
08.09	Demonstrate the ability to work with type (e.g., formatting, font palette, character panels, paths).
08.10	Demonstrate use of layers by creating, locking, viewing, pasting, merging.
08.11	Demonstrate use of blending (e.g., gradients, objects).
08.12	Demonstrate use of brushes; download new brushes.
08.13	Explore file exporting options and round trip workflows with page layout software.
08.14	Demonstrate knowledge of bleed for vector and bitmap design software.
08.15	Demonstrate knowledge of bleed for vector and image editing software.
09.0	Demonstrate knowledge of design layout software – the student will be able to:
09.01	Demonstrate understanding of file formats and storage options.
09.02	Identify parts of the software interface.
09.03	Demonstrate the ability to customize and navigate the workspace.
09.04	Demonstrate understanding of pre-flighting.

09.05	Work with styles, graphics and objects in a design.
09.06	Set up a document and manage pages within the document.
09.07	Demonstrate use of layers, text frames and graphic frames.
09.08	Demonstrate the ability to align, transform and group objects.
09.09	Understand typography and text editing.
09.10	Demonstrate understanding of color (e.g., applying, gradients, tint, spot, management).
09.11	Import and modify graphics (e.g., links, vector/bitmap images, quality, alpha channels).
09.12	Understand output and exporting functions (e.g., proofs, separations, prepress).
10.0	Demonstrate proficiency in using presentation software and equipment to produce a complex presentation – the student will be able to:
10.01	Using authoring/editing software, create a multimedia presentation that incorporates graphics, video, animation, music, and narration and that adheres to good design principles.
10.02	Demonstrate knowledge of the roles and responsibilities of a multimedia production team (e.g., project manager, creative or design director, content experts, writers, graphic designers, animators, sound designers, videographers, interface designers/programmers).

Course Number: DIG0083	
Occupational Completion Point: C	
Multimedia Web Interactive Designer – 300 Hours – SOC Code 27-1014	
11.0	Demonstrate proficiency in webpage design– the student will be able to:
11.01	Determine the objectives and the audience for webpages.
11.02	Identify design strategies to reach and keep an audience.
11.03	Use storyboarding to plan a website.
11.04	Create styles and other design elements (e.g., backgrounds, colors, fonts, buttons).
12.0	Demonstrate understanding of HTML and CSS – the student will be able to:
12.01	Interpret HTML coding on an existing webpage.
12.02	Interpret HTML commands to write a webpage.
12.03	Demonstrate understanding of Cascading Style Sheets (CSS) on an existing webpage.
12.04	Demonstrate compliance with ADA recommendations for all websites created.

12.05	Utilize markup validity to ensure compliance with the W3C for all websites created.
13.0	Demonstrate proficiency in authoring software for webpage design – the student will be able to:
13.01	Demonstrate understanding of photograph compression factors such as transmission speed, color reduction, and browser support.
13.02	Save and export a photograph to the web in the best format for image quality and file size.
13.03	Demonstrate knowledge of image formats related to photos and graphics on the Internet.
13.04	Demonstrate understanding of pixels for web design.
13.05	Create webpages for publication.
13.06	Apply style sheets for consistent website design.
13.07	Format text for webpages (e.g., font families, sizes).
13.08	Create and edit images and photographs for webpages using digital imaging software.
13.09	Create and insert buttons into a webpage and test for accuracy.
13.10	Create navigational links.
13.11	Insert audio files into a webpage.
13.12	Create, edit and integrate video files into a webpage.
13.13	Create, edit and integrate animation files into a webpage.
13.14	Create meta-commands and keywords for search engines.
13.15	Optimize page size for effective downloading to browsers.
13.16	Create and incorporate a form into a webpage.
13.17	Edit and test links for accuracy and validity.
13.18	Create several webpages for a portfolio.
14.0	Demonstrate proficiency in animated webpage design – the student will be able to:
14.01	Determine the objectives and the audience for interactive animated webpages.
14.02	Identify design strategies to reach and keep an audience.

14.03	Use storyboarding to plan an interactive animated website.
14.04	Demonstrate understanding of the correct use of authoring design software to create animated webpage layouts.
14.05	Demonstrate understanding of pixels in relation to animated webpages, interactive presentations, banners, etc.
14.06	Save and export photographs and graphics to the web in the best format for image quality and file size.
15.0	Demonstrate understanding of object-oriented scripting and website animation – the student will be able to:
15.01	Interpret object-oriented scripts and animation for an existing webpage.
15.02	Understand the use of object-oriented scripting and animation for webpages.
16.0	Demonstrate proficiency in the use of interactive design software for webpage design, interactive presentations and banners – the student will be able to:
16.01	Demonstrate knowledge of image formats related to photos and graphics on the Internet.
16.02	Optimize page size for effective downloading to the browser.
16.03	Use scripting to create an interactive webpage, interactive presentation and web banner for publication.
16.04	Demonstrate knowledge of timelines, scenes, and other features.
16.05	Insert audio files into an interactive webpage, interactive presentation and web banner.
16.06	Integrate video files into an interactive webpage, interactive presentation, and web banner.

Course Number: DIG0084
Occupational Completion Point: D
Multimedia Integrated Producer Designer – 300 Hours – SOC Code 27-1014

17.0	Demonstrate proficiency using video editing software and equipment – the student will be able to:
17.01	Demonstrate knowledge of non-linear editing software.
17.02	Identify components of non-linear video editing equipment.
17.03	Set up non-linear video editing equipment.
17.04	Compare offline editing to linear video editing.
17.05	Use storyboarding to plan a short non-linear video project that includes existing video footage with a title, transitions, background sound, voice-over, animation, and rolling credits.
17.06	Use video editing software to create and edit a movie that includes video footage with a title, transitions, background sound, voice-over, and rolling credits and output to video.

17.07	Collaborate with team members to plan, edit, and shoot video footage utilizing advanced video editing techniques and output to video.
17.08	Discuss the use of batch processing and project trimming.
17.09	Plan, create, edit and present a short non-linear movie with title, transitions, sub and virtual clips, sound, background music, voice-over, and credits.
18.0	Develop proficiency in using authoring software – the student will be able to:
18.01	Plan interactive projects for use at a kiosk, CD, DVD, e-merchandising, computer-based presentation, training or corporate presentation.
18.02	Use authoring software to create an interactive project for use in a kiosk, CD, DVD, merchandising applications, computer-based training or corporate presentation.
18.03	Have the created interactive project evaluated and tested by users and make modifications to improve the project.
18.04	Collaborate with team members to plan, edit, evaluate, and present a multimedia interactive presentation or product.
19.0	Demonstrate proficiency using all media to create an advertising campaign – the student will be able to:
19.01	Use authoring software to plan and create an advertising campaign that includes collateral materials, digital photography, webpages, animation, video, and audio.
20.0	Participate in work-based learning experiences – the student will be able to:
20.01	Participate in work-based learning experiences in a digital media/multimedia environment.
21.0	Apply job readiness, career planning and job seeking skills to meet personal and professional goals – the student will be able to:
21.01	Create a digital résumé and print it.
21.02	Create and publish a digital portfolio.
21.03	Market digital media/multimedia design skills for employment.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 10, and Reading 10. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Photography Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K100300
CIP Number	0650060502
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4021 – Photographers 27-4032 – Film and Video editors
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for careers in the photography industry.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills, safe and efficient work practices, and the use of digital cameras techniques, commercial and industrial applications with emphasis on composition and color dynamics, printing, workflow, software and use, care, and maintenance of photographic equipment.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	PGY0190	Photographic Specialist	PHOTOG @7 G	150 hours	27-4021
B	PGY0191	Photography Technician		300 hours	27-4021
C	PGY0192	Studio Photographer		300 hours	27-4032
D	PGY0193	Digital Photographer		300 hours	27-4021

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate understanding of the history of photography.
- 02.0 Evaluate the production process.
- 03.0 Demonstrate understanding of intellectual property rights, copyright laws and plagiarism as each applies to creative assets.
- 04.0 Operate parts of a camera system.
- 05.0 Demonstrate use of camera support equipment.
- 06.0 Take basic photographs.
- 07.0 Use photographic workflow applications.
- 08.0 Develop a production plan.
- 09.0 Demonstrate knowledge of art/creative direction.
- 10.0 Demonstrate proficiency in computer skills.
- 11.0 Use photo editing software.
- 12.0 Use photographic lights.
- 13.0 Use photography sets, backgrounds and stages.
- 14.0 Process and print photographs.
- 15.0 Demonstrate knowledge of photo/video journalism.
- 16.0 Demonstrate knowledge of digital single-lens reflex (DSLR) video production.
- 17.0 Demonstrate knowledge of video software.
- 18.0 Practice the business of commercial digital photography.
- 19.0 Operate various format cameras.
- 20.0 Demonstrate knowledge of High Dynamic Range (HDR) photography.
- 21.0 Develop a professional portfolio of work.

Florida Department of Education
Student Performance Standards

Program Title: Digital Photography Technology
Career Certificate Program Number: K100300

Course Number: PGY0190	
Occupational Completion Point: A	
Photography Specialist – 150 Hours – SOC Code 27-1019	
01.0	Demonstrate understanding of the history of photography – the student will be able to:
01.01	Demonstrate knowledge of photography as an invention.
01.02	Demonstrate knowledge of early uses of photography.
01.03	Describe the mechanics of early photographic systems.
01.04	Identify photography as art.
01.05	Show the concept of the “decisive moment.”
01.06	Demonstrate knowledge of pictorial photography.
01.07	Demonstrate knowledge of straight photography.
01.08	Demonstrate knowledge of documentary photography.
01.09	Define aspects of photojournalism.
02.0	Evaluate the production process – the student will be able to:
02.01	Identify the job titles associated with digital photography.
02.02	Identify various tools and equipment used in digital photography.
02.03	Use speed and efficiency concepts (workflow).
02.04	Identify the different types of photographic media (photojournalism, fine art, event, family portrait, fashion, sports, magazine and product).
02.05	Identify the interrelationships between artists.
02.06	Use basic communication concepts (e.g., verbal, memos, paperwork and purchase orders).

02.07	Identify the stages of production.
02.08	Examine photographic terms and jargon.
02.09	Create and organize contact sheets or prepare for presentations online and in person.
03.0	Demonstrate understanding of intellectual property rights, copyright laws and plagiarism as each applies to creative assets – the student will be able to:
03.01	Examine the limits and expectations of copyright protection.
03.02	Analyze the rights of “fair use” and “fair dealing.”
03.03	Demonstrate understanding of the transfer and licensing of creative works.
03.04	Articulate the use of “exclusive rights” to intellectual creations.
03.05	Demonstrate the use of digital watermarking and embedding file information.
04.0	Operate parts of a camera system – the student will be able to:
04.01	Identify basic camera anatomy (e.g., lens, battery, flash, shutter and display).
04.02	Remove and attach standard lenses.
04.03	Charge and connect batteries.
04.04	Identify, insert and format recording media.
04.05	Use basic camera functions (e.g., power, date/time and menu navigation).
04.06	Set image format and size.
04.07	Use camera auto, program and scene modes.
04.08	Use camera viewfinder and LCD displays for image review.
04.09	Use basic lens controls (auto, manual focus and zoom).
04.10	Use image International Standards Organization (ISO) and metering functions.
04.11	Use white balance operations.
04.12	Use shutter and aperture priority modes.
04.13	Set proper f-stop and shutter speeds.

04.14	Use camera drive modes such as delayed, multiple and remote.
04.15	Operate a camera mounted flash and use fill and red-eye reduction.
05.0	Demonstrate use of camera support equipment – the student will be able to:
05.01	Perform basic handholds of camera in portrait and landscape.
05.02	Identify basic components of a tripod (head, sticks and spreader).
05.03	Assemble fluid head and friction head tripod components.
05.04	Setup and level tripod for use in portrait and landscape.
05.05	Attach camera to support equipment.
05.06	Identify auxiliary support devices.
06.0	Take basic photographs – the student will be able to:
06.01	Apply camera care and maintenance principles.
06.02	Define the subject of a photograph.
06.03	Identify available light sources.
06.04	Demonstrate understanding of photo composition (rule of thirds).
06.05	Select an appropriate lens for subject (wide, tight, macro).
06.06	Take still life photographs using available light.
06.07	Take portrait photographs using available light.
06.08	Take action photographs using available light.
06.09	Create a series (picture study) of photographs around a defined subject.
07.0	Use photographic workflow applications – the student will be able to:
07.01	Establish system requirements for workflow application software.
07.02	Install and configure workflow application software.
07.03	Identify parts of the software interface (menus and palettes).

07.04	Import photographs from various media sources (CF, SD and DVD formats).
07.05	Define and create keyword tags for imported images.
07.06	Organize, rate, label and rename image collections.
07.07	Create and modify image metadata.
07.08	Perform image post-processing (white balance, color, tone and crop).
07.09	Export images to disk or photo editing software.
07.10	Create and upload a web gallery to online photo sharing sites.

Course Number: PGY0191	
Occupational Completion Point: B	
Photographic Technician – 300 Hours – SOC Code 27-4021	
08.0	Develop a production plan – the student will be able to:
08.01	Work with the client to define the scope of work.
08.02	Work with the client to identify the message.
08.03	Determine distribution requirements and client deliverables.
08.04	Identify the stages of production.
08.05	Create basic communication concepts verbally and through memos and paperwork.
08.06	Develop a production schedule.
08.07	Define roles and coordinate needed production crew.
08.08	Evaluate the scope and use of model releases.
08.09	Evaluate the scope and use of property releases.
08.10	Evaluate the scope and use of liability releases.
08.11	Identify need and use for production insurance.
08.12	Determine and secure equipment.
08.13	Examine industry terms and jargon.

09.0	Demonstrate knowledge of art/creative direction – the student will be able to:
09.01	Develop the overall visual appearance of a photograph/video.
09.02	Demonstrate the ability to create moods with style.
09.03	Describe the importance of art direction as it pertains to the message to be conveyed.
09.04	Identify the use of color in art direction.
09.05	Document the technical aspects of art direction for use in production.
09.06	Perform the various assignments in a professional manner according to industry standards.
10.0	Demonstrate proficiency in computer skills – the student will be able to:
10.01	Identify all computer parts.
10.02	Demonstrate understanding of computer performance specifications.
10.03	Compare and contrast differences between business machines and workstations.
10.04	Demonstrate best practices of computer safety and ergonomics.
10.05	Demonstrate understanding of operating systems.
10.06	Perform software installation and setup.
10.07	Perform peripheral device installation and setup.
10.08	Perform computer upgrades (memory, hard disks and cards).
10.09	Perform storage management operations (project/file).
10.10	Demonstrate knowledge of computer maintenance.
10.11	Troubleshoot computer hardware and software issues.
11.0	Use photo editing software – the student will be able to:
11.01	Identify the computer requirements for photographic software.
11.02	Demonstrate understanding of file formats and storage options.
11.03	Compare and contrast available photographic software.

11.04	Identify parts of the software interface (menus and palettes).
11.05	Use each of the basic tool sets.
11.06	Import, export and save images.
11.07	Develop a software and file backup plan.
11.08	Demonstrate understanding of layers and channels.
11.09	Demonstrate understanding of filters, effects and plug-ins.
11.10	Demonstrate understanding of file presets.
11.11	Select portions of an image for manipulation.
11.12	Transform selections and images (crop, scale).
11.13	Color-correct images (brightness, hue and contrast).
11.14	Use brushes for image creation and correction.
11.15	Identify non-destructive and destructive operations.
11.16	Import, edit and export raw files.
11.17	Demonstrate the basic uses of video.
11.18	Implement the undo/redo history and cache system.
11.19	Use keyboard shortcuts to improve efficiency.
11.20	Locate and effectively use the help menu system.
12.0	Use photographic lights – the student will be able to:
12.01	Demonstrate understanding of light (direction, intensity, color, contrast, hardness).
12.02	Demonstrate understanding of natural, artificial, available and ambient light sources.
12.03	Demonstrate understanding and use of sunlight (time of day, color temperature, color correcting, blocking and shade).
12.04	Use continuous lighting setups and equipment.
12.05	Use flash and strobe light setups and systems.

12.06	Use onboard flash systems.
12.07	Demonstrate understanding of three-point lighting.
12.08	Use a light meter.
12.09	Use light modifiers such as scrim, reflectors and flags.
12.10	Use lights on location.
13.0	Use photography sets, backgrounds and stages – the student will be able to:
13.01	Coordinate with creative director on set plan.
13.02	Define the intended look and materials to be used.
13.03	Erect background stands and hang background material.
13.04	Build hard and soft cyclorama product stages.
13.05	Adjust available seating for studio portraits.
13.06	Safely secure all grip equipment including reflector stands, c-stand, light stands and sand bags.
14.0	Process and print photographs – the student will be able to:
14.01	Prepare photos for print using photo editing software.
14.02	Adjust the crop, bleed and trim of a photo.
14.03	Adjust the color mode and resolution of a photo.
14.04	Calibrate computer monitor and software for printing system.
14.05	Compare and contrast available papers, printers and inks.
14.06	Compare and contrast available printing services based on quality, speed, price, reliability, location.
14.07	Demonstrate understanding of International Color Consortium (ICC) profiles.
14.08	Demonstrate understanding of archival inks and papers.
14.09	Work with color and black and white images.
14.10	Analyze color prints for correct color and contrast.

14.11 Mount, mat and frame photographs.

Course Number: PGY0192
Occupational Completion Point: C
Studio Photographer – 300 Hours – SOC Code 27-4032

15.0 Demonstrate knowledge of photo/video journalism – the student will be able to:

15.01 Demonstrate understanding of the history of photo/video journalism.

15.02 Identify the jobs and roles related to photo/video journalism.

15.03 Analyze the legal and ethical issues related to photo/video journalism.

15.04 Describe the elements that make up a photo story.

15.05 Sequence a photo story and write captions.

15.06 Imbed metadata as needed.

15.07 Shoot correct length of video to tell story and provide coverage.

15.08 Prepare media for and identify distribution sources.

16.0 Demonstrate knowledge of digital single-lens reflex (DSLR) video production – the student will be able to:

16.01 Compare photography and video on DSLR.

16.02 Compose shots for movement.

16.03 Choose the appropriate video format (standard/codec and frame rate).

16.04 Compare and contrast DSLR video with traditional video cameras.

16.05 Choose appropriate recording media based on card speed and size.

16.06 Select appropriate video-friendly lenses and focusing aids.

16.07 Select appropriate lighting gear.

16.08 Set appropriate exposure, white balance and shutter speed.

16.09 Connect and setup audio interface.

16.10 Identify video compression picture quality loss.

16.11	Demonstrate the use of full and cropped sensors (e.g., rolling shutter).
16.12	Establish the use of action-safe and title-safe areas.
16.13	Set appropriate focus.
16.14	Use microphones and audio devices.
16.15	Understand the use of matte boxes.
16.16	Demonstrate use of stabilization rigs.
16.17	Transfer footage to content management software.
17.0	Demonstrate knowledge of video software – the student will be able to:
17.01	Demonstrate understanding of file formats and storage options.
17.02	Identify parts of the software interface.
17.03	Use each of the basic tool sets.
17.04	Import file and video to be composited.
17.05	Use layers and compositing.
17.06	Use filters, effects and plug-ins.
17.07	Use motion paths.
17.08	Use lighting effects.
17.09	Use rendering functions.
17.10	Mask video.
17.11	Color-correct video using brightness, hue and contrast adjustments.
17.12	Use vector and color keying tools.
17.13	Demonstrate understanding of time correction.
17.14	Export final video to be used with video editing software.
18.0	Practice the business of commercial digital photography – the student will be able to:

18.01	Identify business aspects of commercial digital photography.
18.02	Apply appropriate communication and human relations skills.
18.03	Understand the photography industry's various market sectors (events, family portrait, public relations, product/studio, fashion, catalog, magazine and food).
18.04	Develop a business plan for a commercial photography business.
18.05	Identify and understand the importance of industry associations related to commercial photography.
18.06	Describe the role of special interest groups.
18.07	Research market rates for photographic work.
18.08	Compare and contrast available stock photography sites.
18.09	Research online portfolio sites.
18.10	Develop effective advertising.

Course Number: PGY0193	
Occupational Completion Point: D	
Digital Photographer – 300 Hours – SOC Code 27-1021	
19.0	Operate various format cameras – the student will be able to:
19.01	Use alternative format cameras.
19.02	Use a medium format camera.
19.03	Use a point and shoot camera (fixed lens).
19.04	Use a mobile phone camera.
19.05	Use a digital single-lens reflex (DSLR) camera.
19.06	Use a mirrorless camera.
20.0	Demonstrate knowledge of High Dynamic Range (HDR) photography – the student will be able to:
20.01	Explain HDR photography.
20.02	Demonstrate HDR workflow and operation.
20.03	Select appropriate HDR subject.

20.04	Select appropriate camera support equipment (tripod, monopod, grips).
20.05	Configure camera for HDR photography.
20.06	Acquire an HDR image.
20.07	Process and create HDR images with photo editing software.
20.08	Reduce ghosting effect using photo editing software.
20.09	Reduce noise and correct chromatic aberrations.
20.10	Export finished image as flat image or HDR format image.
21.0	Develop a professional portfolio of work – the student will be able to:
21.01	Identify elements of a professional portfolio and résumé.
21.02	Examine and determine student work to include in a portfolio and résumé.
21.03	Gather cohesive photographs and information to include in a portfolio and résumé.
21.04	Explore the use of Internet websites for portfolio distribution.
21.05	Determine the format for portfolio and résumé.
21.06	Research local galleries for portfolio exhibition.
21.07	Produce résumé for final review.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Video Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K100400
CIP Number	0610010524
Grade Level	30, 31
Standard Length	900 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4011 – Audio and Video Equipment Technicians 27-4031 – Camera Operators, Television, Video, and Motion Picture
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment as production assistants, audio/video equipment technicians, video/TV camera operators, video editors, multimedia artists/animators and broadcast technicians.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not be limited to, communication skills, leadership skills, human relations and employability skills, safe and efficient work practices, and preparation to assume responsibility for the overall production of digital video activities (e.g., scripts, lighting, camera operation, electronic news gathering, field/studio production, video editing).

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of three occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	RTV0015	Digital Videography	TEC ED 1 @ 2	450 hours	27-4011
B	RTV0016	Digital Audio-Video Technology	ENG&TEC ED1@2	300 hours	27-4011
C	RTV0017	Digital Video Direction and Production	TV PRO TEC @7 7G	150 hours	27-4031

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate safe and efficient work practices.
- 02.0 Demonstrate the ability to execute the steps in the digital video pre-production process.
- 03.0 Demonstrate the ability to successfully complete the digital video production process.
- 04.0 Create appropriate lighting for location and/or set productions.
- 05.0 Record, mix, and edit audio resources.
- 06.0 Demonstrate the ability to complete the digital video post-production process.
- 07.0 Design and generate graphic elements.
- 08.0 Demonstrate professionalism and personal responsibility.
- 09.0 Develop interviewing skills.
- 10.0 Demonstrate the ability to perform on camera.
- 11.0 Demonstrate the ability to complete the pre-production process for an advanced video production project.
- 12.0 Demonstrate the ability to complete the production process for an advanced video production project.
- 13.0 Demonstrate the ability to complete the post-production process for an advanced video production project.
- 14.0 Plan, coordinate, and manage a video or webcast production.
- 15.0 Demonstrate awareness of industry-related ethics and laws.
- 16.0 Demonstrate knowledge of the marketing and distribution phase of digital video production.
- 17.0 Demonstrate an understanding of employability in the digital video production industry.

Florida Department of Education
Student Performance Standards

Program Title: Digital Video Production
Career Certificate Program Number: I100240

Course Number: RTV0015
Occupational Completion Point: A
Digital Videography – 450 Hours – SOC Code 27-4011

01.0	Demonstrate safe and efficient work practices – the student will be able to:
01.01	Follow industry safety rules, regulations and policies.
01.02	Demonstrate awareness of appropriate ergonomics.
01.03	Demonstrate proper care of equipment.
01.04	Demonstrate the appropriate and efficient use of equipment.
01.05	Identify and locate safety equipment in media labs and on location (e.g., first aid kit, fire extinguisher).
01.06	Determine the appropriate safety precautions and practices required for a specified production.
01.07	Incorporate safety precautions and practices into the production process.
02.0	Demonstrate the ability to execute the steps in the digital video pre-production process – the student will be able to:
02.01	Identify the format/segment type, audience, and genre.
02.02	Produce a video treatment.
02.03	Create a script and storyboard appropriate to the needs of the production.
02.04	Define the set requirements for a specific program type.
02.05	Determine the props, costumes, and other resources required for a production.
02.06	Select the appropriate location(s) for the specified program type.
02.07	Establish feasible production timeframe targets.
02.08	List the components of the pre-production phase (e.g., purpose, script writing, target audience, budget, schedule, script writing, output medium).

02.09	Participate in a pre-production meeting to create a production plan.
02.10	Develop appropriate script writing formats for specified production types (e.g., news story, commercial, sports, PSA, narrative).
02.11	Write stories/scripts that contain a logical beginning, middle, and end.
02.12	Write scripts that convey a variety of desired story elements.
02.13	Describe the components of a two-column script.
02.14	Explain the components of a storyboard.
03.0	Demonstrate the ability to successfully complete the digital video production process – the student will be able to:
03.01	Utilize current industry standard video production equipment.
03.02	Operate a video camera in studio and location (field) production environments.
03.03	Identify commonly used camera angles.
03.04	Plan a shot to obtain the required action/footage.
03.05	Control camera movement to obtain the required effect(s).
03.06	Control the lens, focal length, aperture, and exposure to obtain the required effect(s).
03.07	Set up the camera and recording equipment sequence.
03.08	Identify the components of the production phase (e.g., selecting equipment, operating equipment, interviewing, directing, lighting, audio).
03.09	Summarize the roles of the various personnel for video production projects (e.g., producer, director, editor, camera operator).
03.10	Perform field production tasks that include camera, lighting, and sound responsibilities.
03.11	Demonstrate basic field camera operations.
03.12	Demonstrate the set up and operation of basic studio equipment.
03.13	Demonstrate basic studio camera operation.
04.0	Create appropriate lighting for location and/or set productions – the student will be able to:
04.01	Determine the appropriate lighting needs for production settings.
04.02	Identify location and studio lighting types and the methods of use and applications of each type.

04.03	Use lighting equipment according to industry safety standards.
04.04	Define light quality in terms of intensity, color, direction, and characters.
04.05	Explain the use of basic lighting equipment.
04.06	Demonstrate one-, two-, and three-point lighting techniques.
04.07	Utilize the appropriate studio lighting for a production.
04.08	Evaluate the lighting requirements of potential shooting locations for a project.
05.0	Record, mix, and edit audio resources – the student will be able to:
05.01	Identify and select microphones for production needs.
05.02	Determine optimal microphone placement.
05.03	Establish appropriate recording conditions.
05.04	Set up audio recording equipment.
05.05	Perform pre-production sound checks.
05.06	Record production sound; organize and edit video resources.
05.07	Perform basic routine, preventative, and repair maintenance on audio equipment.
05.08	Identify the types, uses, and pick-up patterns of various microphones.
05.09	Compare and contrast various microphone types.
05.10	Demonstrate the proper placement of microphones for the effective recording of audio.
05.11	Connect microphones to ancillary audio equipment using the correct cables and/or adapters.
06.0	Demonstrate the ability to successfully complete the digital video post-production process – the student will be able to:
06.01	Log (input) and organize video and audio sources into post-production equipment and workflow.
06.02	Operate editing hardware and software.
06.03	Perform assemble edits and insert edits for the appropriate effects.
06.04	Maintain continuity and production values.

06.05	Mix audio and video resources in appropriate sequence for the final cut.
06.06	Perform sound and video edits and enhancements.
06.07	Apply color correction to video footage.
06.08	Define appropriate audio and video digital compression and signal types.
06.09	List the components of the post-production phase (e.g., video and audio editing, graphics, output medium).
06.10	List the steps required to successfully conduct a post-production meeting.
06.11	Explain the need for data management.
06.12	Organize and evaluate materials for editing.
06.13	Capture/import source materials.
06.14	Manipulate video (e.g., color, motion, filters, transitions).
07.0	Design and generate graphic elements – the student will be able to:
07.01	Determine the graphic requirements for a production.
07.02	Operate graphic production software.
07.03	Produce broadcast graphic elements for titling, credits, and graphic transitions.
07.04	Determine the special effects needed for a specified production.
07.05	Demonstrate an understanding of graphic image types, file formats, and technical requirements for a production.
07.06	Edit graphics into a program or segment.
07.07	Demonstrate the ability to use type, color, composition, and graphic elements for a specified production effect.
07.08	Discuss <i>text, font, colors, title safe area, lower thirds, and placement.</i>
07.09	Determine the most effective use of graphic elements for a specific production.
07.10	Utilize effective visual techniques to enhance a production.

Course Number: RTV0016
Occupational Completion Point: B
Digital Audio-Video Technology – 300 Hours – SOC 27-4011

01.0 Demonstrate safe and efficient work practices – the student will be able to:

01.08 Demonstrate the ability to maintain a safe and orderly work environment.

01.09 Maintain and troubleshoot tools and equipment.

02.0 Demonstrate the ability to execute the steps in the digital video pre-production process – the student will be able to:

02.15 Conduct research for a specified project.

02.16 Demonstrate knowledge of casting for a production; conduct an audition.

03.0 Demonstrate the ability to successfully complete the digital video production process – the student will be able to:

03.14 Create a project on location using field equipment and techniques.

03.15 Produce a studio-based project.

04.0 Create appropriate lighting for location and/or set productions – the student will be able to:

04.09 Design a lighting plan for specified productions.

05.0 Record, mix, and edit audio resources – the student will be able to:

05.09 Utilize multiple audio sources to complete a project (e.g., sound effects, room tone, music).

06.0 Demonstrate the ability to successfully complete the digital video post-production project – the student will be able to:

06.15 Apply the principles of editing to a production project.

07.0 Design and generate graphic elements – the student will be able to:

07.11 Incorporate multiple graphic elements into a production to increase effectiveness.

08.0 Demonstrate professionalism and personal responsibility – the student will be able to:

08.01 Exhibit professional conduct and work ethics in the development of video productions.

08.02 Discuss appropriate responses to criticism.

09.0 Develop interviewing skills – the student will be able to:

09.01 Develop open-ended questions to elicit detailed responses.

09.02	Select appropriate subjects to interview based on a specific topic.
09.03	Select an effective location that complements the interview.
09.04	Contact potential subjects and schedule an interview.
09.05	Conduct an interview using coherent and concise language and correct grammar.
10.0	Demonstrate the ability to perform on camera – the student will be able to:
10.01	Demonstrate appropriate speaking skills for an on-camera performance (e.g., pitch, tone, emphasis, inflection, enunciation, timing).
10.02	Practice appropriate on-camera performance skills (e.g., appearance, gestures, posture).
10.03	Perform as talent in a production.
10.04	Deliver material without bias.
10.05	Select clothing, makeup, and accessories for use on camera in a specified production.
11.0	Demonstrate the ability to complete the pre-production process for an advanced video production project – the student will be able to:
11.01	Define the objective and intended audience for an advanced video production project (e.g., music video, documentary).
11.02	Determine a budget (real or simulated) for the production project.
11.03	Understand the role of planned distribution in the video production process.
11.04	Prepare a detailed treatment, create a storyboard, and write a full script for an advanced video production project (e.g., music video, documentary).
11.05	Designate cast and crew members for the production.
11.06	Plan and hold a pre-production meeting.
11.07	Create a schedule for the production project; scout and select the location, secure any required permits (real or simulated), request equipment, and set a contingency plan in case of weather or other delays.
12.0	Demonstrate the ability to complete the production process for an advanced video production project – the student will be able to:
12.01	Demonstrate knowledge of camera systems and functions and camera support systems.
12.02	Operate current industry-standard video production equipment in studio and location (field) production environments.
12.03	Plan and execute a video shoot to obtain the required action/footage and effects.
12.04	Plan and record the required audio and video for a video production project.

12.05	Perform production tasks that include camera, lighting, and sound responsibilities.
13.0	Demonstrate the ability to complete the post-production process for an advanced video production project – the student will be able to:
13.01	Demonstrate knowledge of encoding and transcoding (direct conversion).
13.02	Demonstrate the ability to encode and/or transcode raw video for web-based delivery and other platforms.
13.03	Demonstrate the ability to mix multiple sources in a post-production setting.
13.04	Perform sound edits and enhancements.
13.05	Enhance a digital video project by using appropriate graphics and visual effects.

Course Number: RTV0017
Occupational Completion Point: C
Digital Video Direction and Production – 150 Hours -- SOC 27-4031

08.0	Demonstrate professionalism and personal responsibility – the student will be able to:
08.03	Demonstrate appropriate professional dress and demeanor.
08.04	Exhibit the ability to give and follow instructions.
09.0	Develop interviewing skills – the student will be able to:
09.06	Recognize the differences between biased and unbiased questions and answers.
09.07	Demonstrate effective listening skills.
09.08	Improvise questions and/or discussion based on the subject's responses.
14.0	Plan, coordinate, and manage a video or webcast production – the student will be able to:
14.01	Understand how to develop a budget for a digital video project.
14.02	Produce and direct high-quality digital video production projects.
14.03	Utilize the equipment and technology appropriate for pre-production, production, and post-production of a digital video project.
14.04	Demonstrate knowledge of graphic image types, file formats, and the technical requirements for a production.
14.05	Demonstrate the ability to use type, color, composition and graphic elements for a specific production effect.
15.0	Demonstrate awareness of industry-related ethics and laws – the student will be able to:

15.01	Define terminology related to ethics and laws (e.g., plagiarism, copyright law, libel, slander).
15.02	Discuss how to legally obtain and use source materials.
15.03	Explain copyright laws and issues related to digital video production.
15.04	Summarize and explain the legal and ethical acquisition and use of digital materials; appropriately cite sources.
15.05	Research Federal Communications Commission (FCC) regulations related to digital video production and distribution.
16.0	Demonstrate knowledge of the marketing and distribution phase of digital video production – the student will be able to:
16.01	Understand the variations in creating video for different delivery methods (e.g., web delivery, broadcast, presentation at an event).
16.02	Create a demo reel to showcase work samples to potential customers/clients.
16.03	Understand the differences in terms of content and identify what works best for web-based distribution.
16.04	Determine the role of social media in the marketing and distribution of digital videos.
16.05	Understand industry standards related to video usage and metrics (e.g., view time, popular content types, social implications, click-to-action data).
16.06	Conduct market research.
16.07	Demonstrate the ability to network with customers/clients and others in the industry.
16.08	Market a finished digital video product.
17.0	Demonstrate an understanding of employability in the digital video production industry – the student will be able to:
17.01	Create a résumé, a list of references, and a letter of interest.
17.02	Identify common industry-related interview questions.
17.03	Conduct a job search.
17.04	Finalize a professional portfolio.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

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Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Stage Production
Program Type: Career Preparatory
Career Cluster: Arts A/V Technology and Communication

Career Certificate Program

Program Number	K200200
CIP Number	0647010305
Grade Level	30,31
Standard Length	300 Hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27- 4011 Audio/Video Equipment Technicians 47- 3019 Helpers, Construction Trades, All Other
Basic Skills Level	N/A

Purpose

The purpose of this program is to prepare students for work in stage production.

This program offers a course that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster and; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	TPA0390	Stage Production Assistant	BLDG CONST @7 7G ELECTRICAL @7 7G	150 Hours	47- 3019
B	TPA0391	Stage Production Technician	TEC CONSTR @7 7G TEC ED 1@2 ENG&TEC ED1@2	150 Hours	27- 4011

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Understand and use appropriate theater terminology and language.
- 02.0 Demonstrate appropriate understanding of basic science.
- 03.0 Demonstrate appropriate math skills.
- 04.0 Demonstrate appropriate communication skills.
- 05.0 Demonstrate an understanding of Ohm's Law.
- 06.0 Demonstrate safe work practices.
- 07.0 Demonstrate proficiency in forklift operation, crane safety, rigging, fall protection, scaffolding and aerial lifts.
- 08.0 Perform the duties of a stage hand.
- 09.0 Maintain stage, lighting, sound, and shop equipment.
- 10.0 Install sound equipment for a performance.
- 11.0 Hang circuit and focus stage lights to the specifications required in a lighting design.
- 12.0 Perform the duties of a light board operator and follow spot operator.
- 13.0 Install and operate audio-visual/multimedia presentation equipment.
- 14.0 Demonstrate employability skills.
- 15.0 Demonstrate an understanding of entrepreneurship.
- 16.0 Function as part of a technical team in planning, implementing, and running the technical aspects of theatrical/entertainment productions.

Florida Department of Education
Student Performance Standards

Program Title: Stage Production
Career Certificate Program Number: K200200

Course Number: TPA0390	
Occupational Completion Point: A	
Stage Production Assistant – 150 Hours – SOC Code 47- 3019	
01.0	Understand and use appropriate theater terminology and language – the student will be able to:
01.01	Define theater terminology (e.g., stage directions, upstage, downstage, center stage, strike, load in).
01.02	Define stage proscenium, arena, and amphitheater.
01.03	Identify the different types of light fixtures.
01.04	Identify the working areas of the stage.
02.0	Demonstrate appropriate understanding of basic science – the student will be able to:
02.01	Understand molecular action as a result of temperature extremes, chemical reactions, and moisture content.
02.02	Draw conclusions or make inferences from data.
02.03	Identify health-related problems that may result from exposure to work-related chemicals and hazardous materials, and know the proper precautions required for handling such materials.
02.04	Understand pressure measurement in terms of PSI, inches of mercury, and KPA.
02.05	Identify the components that make electromotive force.
03.0	Demonstrate appropriate math skills – the student will be able to:
03.01	Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
03.02	Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
03.03	Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
03.04	Demonstrate an understanding of federal, state and local taxes and their computation.
04.0	Demonstrate appropriate communication skills – the student will be able to:

04.01	Write logical and understandable statements or phrases to accurately fill out forms/invoices commonly used in business and industry.
04.02	Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
04.03	Read and follow written and oral instructions.
04.04	Answer and ask questions coherently and concisely.
04.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
05.0	Demonstrate an understanding of Ohm's Law – the student will be able to:
05.01	Calculate electrical circuits for voltage, amperage and resistance.
05.02	Calculate electrical circuits for wattage.
05.03	Determine the voltage drop of a circuit in a single-phase and three-phase system.
06.0	Demonstrate safe work practices – the student will be able to:
06.01	Identify safety rules for stage and shop equipment.
06.02	Identify health and environmental hazards of materials used in stage production.
06.03	Select and use the appropriate protective clothing and equipment when working in a shop or stage environment.
06.04	Use shop and stage equipment in accordance with both manufacturer and industry safety standards.
06.05	Identify and correct unsafe work practices.
06.06	Understand the national electric code requirements for grounding and ground fault protection.
06.07	Demonstrate knowledge of the Federal Hazard Communication regulation 29 CFR 1910.1200.
07.0	Demonstrate proficiency in forklift operation, crane safety, rigging, fall protection, scaffolding and aerial lifts – the student will be able to:
07.01	Operate a forklift safely using proper lifting techniques.
07.02	Understand the proper signals for crane operation.
07.03	Connect rigging to loads by using proper knot configurations.
07.04	Know the correct procedures for the use of personal protective equipment and when to apply the procedures.
07.05	Operate a chain hoist and electrical wench.

08.0	Perform the duties of a stage hand – the student will be able to:
08.01	Operate equipment commonly found in performance venues.
08.02	Use hand and power tools commonly found in scene shops.
08.03	Determine methods for scenery repair within a limited time frame.
08.04	Perform all duties in a disciplined manner as required by the demands of a performance.
08.05	Install and operate special effects such as fog, pyrotechnics and automated devices.
08.06	Assume crew chief responsibilities.

Course Number: TPA0391
Occupational Completion Point: B
Stage Production Assistant – 150 Hours – SOC Code 27- 4011

09.0	Maintain stage lighting, sound and shop equipment – the student will be able to:
09.01	Calibrate and operate test equipment through all modes of operation as necessary for the maintenance of systems.
09.02	Locate malfunctions using applicable diagnostic methods.
09.03	Read and understand technical manuals.
09.04	Record and maintain documentation on equipment including manufacturer’s warranties and parts inventories.
09.05	Troubleshoot electrical circuits by using multimeters.
10.0	Install sound equipment for a performance – the student will be able to:
10.01	Identify sound equipment used in productions.
10.02	Assemble various components under the direction of an audio engineer.
10.03	Install a sound system resulting in optimal performance and safety of the equipment.
11.0	Hang circuit and focus stage lights to the specifications required in a lighting design – the student will be able to:
11.01	Read a standard lighting plot.
11.02	Read a standard instrument schedule.
11.03	Identify stage lighting equipment.

11.04	Hang and circuit lights for a stage production.
11.05	Focus lights for a stage production.
11.06	Hang and set control parameters for intelligent lighting fixtures.
11.07	Calculate the number of fixtures allowed on a circuit.
11.08	Draft working drawings when given a ground plan and designer's elevations.
12.0	Perform the duties of a light board operator and follow spot operator – the student will be able to:
12.01	Make and read a lighting cue sheet.
12.02	Program and execute cues on a computerized lighting console in both rehearsal and performance.
12.03	Execute cues for intelligent lighting.
12.04	Execute cues using a follow spot in rehearsal and performance.
13.0	Install and operate audio-visual/multimedia presentation equipment – the student will be able to:
13.01	Set up and operate basic video production equipment (e.g., camcorders, studio cameras, video monitors, video decks, switchers, video distribution amplifiers).
13.02	Set up and operate a basic 35 mm slide presentation in both single and multi-projector configurations.
13.03	Set up and operate a variety of video projection systems.
13.04	Install and operate data projection equipment.
13.05	Determine layout for an A/V show including screen and equipment location.
13.06	Select and install appropriate cable and interfaces for A/V set up.
13.07	Perform basic troubleshooting on A/V systems.
14.0	Demonstrate employability skills – the student will be able to:
14.01	Conduct a job search.
14.02	Secure information about a job.
14.03	Identify documents that may be required when applying for a job interview.
14.04	Complete a job application form correctly.

14.05	Demonstrate competence in job interview techniques.
14.06	Develop a résumé.
14.07	Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
14.08	Identify acceptable work habits.
14.09	Demonstrate knowledge of how to make job changes appropriately.
14.10	Demonstrate acceptable employee health habits.
15.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
15.01	Define entrepreneurship.
15.02	Describe the importance of entrepreneurship to the American economy.
15.03	List the advantages and disadvantages of business ownership.
15.04	Identify the risks involved in business ownership.
15.05	Identify the necessary personal characteristics of a successful entrepreneur.
15.06	Identify the business skills needed to operate a small business efficiently and effectively.
16.0	Function as part of a technical team in planning, implementing and running the technical aspects of theatrical/entertainment productions – the student will be able to:
16.01	Perform as a member of a technical team within the framework of an organized production.
16.02	Schedule job assignments in order to meet production deadlines.
16.03	Apply accepted principles of theater technology to production situations.
16.04	Adapt learned skills and generate new approaches in order to solve unique production problems.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Graphic Communications and Printing Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K300100
CIP Number	0650040217
Grade Level	30, 31
Standard Length	1650 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	51-5113 – Print Binding and Finishing Workers 51-5112 – Printing Press Operators 51-5111 – Prepress Technicians and Workers 27-1024 – Graphic Designers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment in the Printing and Graphic Communications industry.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The course content includes, but is not limited to, an understanding of the printing and graphic communications industry, digital production printing and prepress operations, contemporary and emergent printing technologies, and the application of finishing and distribution processes.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of five occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0041	Printing and Graphic Communications	PRINTING @7 7G	450 hours	51-5112
B	GRA0042	Digital Production Printing		150 hours	51-5111
C	GRA0017	Digital Prepress Operations		450 hours	27-1024
D	GRA0045	Offset Printing Technology		450 hours	51-5112
E	GRA0046	Finishing and Distribution Processes		150 hours	51-5113

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate understanding of safety and first aid practices.
- 02.0 Demonstrate understanding of graphic communications occupations and processes.
- 03.0 Demonstrate proficiency in art and copy preparation.
- 04.0 Demonstrate proficiency in prepress/imaging operations.
- 05.0 Demonstrate proficiency in image assembly/platemaking.
- 06.0 Demonstrate proficiency in performing basic offset press operations.
- 07.0 Demonstrate proficiency in basic finishing and bindery operations.
- 08.0 Demonstrate appropriate math skills.
- 09.0 Demonstrate proficiency in performing basic imposition platemaking and digital printer competencies.
- 10.0 Demonstrate proficiency in the operation of a digital production printing system.
- 11.0 Demonstrate proficiency in basic electronic imaging competencies.
- 12.0 Demonstrate proficiency in the use of type and typography.
- 13.0 Demonstrate proficiency in using page layout operations.
- 14.0 Demonstrate proficiency in scanning operations.
- 15.0 Demonstrate an understanding of a vector-based graphics program.
- 16.0 Demonstrate proficiency in electronic prepress operations.
- 17.0 Demonstrate proficiency in the operation of a basic offset press.
- 18.0 Demonstrate proficiency in performing basic finishing and distribution competencies.

Florida Department of Education
Student Performance Standards

Program Title: **Printing and Graphic Communications**
Career Certificate Program Number: **K300100**

Course Number: GRA0041
Occupational Completion Point: A
Printing and Graphic Communications – 450 Hours – SOC Code 51-5112

01.0	Demonstrate understanding of safety and first aid practices – the student will be able to:
01.01	Identify the location of fire safety equipment.
01.02	Describe the proper use of fire safety equipment.
01.03	List safety rules involving flammable liquids.
01.04	List the steps to be taken in case of injury in the lab.
01.05	Identify locations of first aid kits and eye wash stations.
01.06	Discuss the importance of the Material Safety Data Sheets (MSDS).
01.07	Identify protective safety equipment (e.g., gloves, goggles, ear plugs).
01.08	Practice proper safety procedures when operating equipment.
01.09	Practice approved shop dress code for safe operation; include the necessary personal safety equipment.
01.10	Pass a general lab safety test.
01.11	Demonstrate acceptable employee health habits.
01.12	Demonstrate knowledge of the “Right-to-Know” law.
01.13	Pass a safety test related to the individual’s specialty area(s).
01.14	Practice approved methods for the disposal of waste materials.
01.15	Read, comprehend and follow instructions on warning labels.
01.16	Demonstrate common sense when working with others.
01.17	Demonstrate a working knowledge of the safety color code.

02.0	Demonstrate understanding of graphic communications occupations and processes – the student will be able to:
02.01	Define the role of graphics in a free enterprise system.
02.02	Identify printing markets and types of printing businesses.
02.03	List the rank of the printing industry among other industries.
02.04	Identify the major printing processes.
02.05	List the advantages of each major process.
02.06	List the disadvantages of each major process.
02.07	Identify the products produced by each major process.
02.08	List the business flow of printing from initial need to final product.
02.09	List the technical production flow from idea to finished product.
02.10	Identify major occupations in the graphic arts.
02.11	List the primary responsibilities for each occupation.
02.12	Identify basic salary/wage expectation ranges for the local area.
03.0	Demonstrate proficiency in art and copy preparation – the student will be able to:
03.01	Demonstrate how to prepare thumbnail layouts.
03.02	Demonstrate how to prepare rough layouts.
03.03	Demonstrate how to prepare comprehensive layouts; include a finished working dummy.
03.04	Employ the use of printer's measurements to compute inches, fractions, points, picas, decimals, percentages, and proportions.
03.05	Check and compare the completed original to comprehensive layouts for final proofing.
04.0	Demonstrate proficiency in prepress/imaging operations – the student will be able to:
04.01	Identify basic equipment and tools and the safety rules pertaining to prepress/imaging operations.
04.02	Demonstrate how to choose type using the correct size and format.
04.03	Identify the fundamentals and uses of type.
04.04	Identify the types of items that can be designed and produced using a page layout program.

04.05	Demonstrate keyboarding skills.
04.06	State how to organize a file management system for opening, copying, saving and deleting files.
04.07	Demonstrate file management operations for opening, copying, saving and deleting files.
04.08	Demonstrate how to log-on/boot-up and print from a page layout program; demonstrate a functional knowledge of computer commands/codes/menus/palettes for the software in use.
04.09	Demonstrate how to set text with appropriate margins, formatting, gutters, leading, headings, etc.
04.10	Demonstrate how to flow copy from a word processing program according to job specifications.
05.0	Demonstrate proficiency in image assembly/platemaking – the student will be able to:
05.01	Identify platemaking equipment and tools for offset metal plates.
05.02	Identify plate material types and processing chemicals for making offset metal plates.
05.03	Demonstrate how to produce a correctly exposed and processed metal plate for offset printing.
05.04	Identify computer-to-plate platemaking equipment.
06.0	Demonstrate proficiency in performing basic offset press operations – the student will be able to:
06.01	Identify basic offset duplicator parts and operations.
06.02	Identify basic safety and operation procedures for an offset duplicator or a single-color printing press.
06.03	Demonstrate basic setup procedures for printing a single-color job.
06.04	Produce a printed single-color job using an offset duplicator.
07.0	Demonstrate proficiency in basic finishing and bindery operations – the student will be able to:
07.01	Identify the operational and safety parts of a paper cutter.
07.02	Identify the grain direction of paper.
07.03	Demonstrate how to calculate basic paper cuts from a stock sheet.
07.04	Demonstrate how to draw a master cutting diagram for making cuts.
07.05	Demonstrate how to make accurate paper cuts using a mechanized paper cutter.
07.06	Identify basic paper types, weights, grades and classifications used in the printing industry.
07.07	Identify padding materials.

07.08	Demonstrate how to produce correctly made pads of paper.
07.09	Identify stapling and stitching equipment, materials and supplies.
07.10	Demonstrate how to produce side-stitched, saddle-stitched, and stapled products.
07.11	Identify punching/drilling equipment and hand tools.
07.12	Demonstrate how to measure three-ring notebook pages for drilling.
07.13	Demonstrate how to make holes for three-ring notebooks.
07.14	Identify folding equipment and hand tools.
07.15	Identify basic folds for printed products.
07.16	Demonstrate how to make a single fold using an automatic folding machine.
07.17	Identify collating equipment and hand tools.
07.18	Demonstrate how to make sets of paper using collating equipment in the correct sequence.
07.19	Demonstrate how to hand collate sets in proper sequence.
07.20	Identify the cut products and the basic procedure for die cutting.
07.21	Identify hot foil stamped products and the basic equipment, materials, and procedures for foil stamping.
08.0	Demonstrate appropriate math skills – the student will be able to:
08.01	Demonstrate how to solve addition, subtraction, multiplication and division of whole numbers.
08.02	Demonstrate how to solve addition, subtraction, multiplication and division of fractions.
08.03	Demonstrate how to solve addition, subtraction, multiplication and division of decimals.
08.04	Demonstrate how to solve fraction to decimal and decimal to fraction conversion problems.
08.05	Demonstrate how to solve decimal to percent and percent to decimal conversion problems.
08.06	Demonstrate how to solve basic ratio and proportion problems.
08.07	Demonstrate how to solve basic linear measurement problems.
08.08	Demonstrate how to solve basic inches to picas and picas to inches conversion problems.
08.09	Demonstrate how to solve inches to points and points to inches conversion problems.

08.10 Demonstrate how to solve cost-calculating problems.

Course Number: GRA0042
Occupational Completion Point: B
Digital Production Printing – 150 Hours – SOC Code 51-5111

09.0 Demonstrate proficiency in performing basic imposition platemaking and digital printer competencies – the student will be able to:

09.01 Read and comprehend production information on a job jacket/ticket.

09.02 Demonstrate the ability to create a single-color layout for an envelope.

09.03 Demonstrate the ability to create a single-color layout for a work-and-turn imposition.

09.04 Demonstrate the ability to create a single-color layout for a work-and-tumble imposition.

09.05 Demonstrate the ability to create a single-color layout for a business card.

09.06 Demonstrate the ability to create a single-color layout for a 4-page sheetwise imposition.

09.07 Demonstrate the ability to assemble a single-color layout for an 8-page signature.

09.08 Demonstrate how to inspect and compare proofs to originals.

09.09 Identify the equipment, tools, and materials used in platemaking operations and the parts, functions, and safety rules related to their operation.

09.10 Apply basic math skills to platemaking operations.

09.11 Identify the different plate materials, types and processing chemicals and the methods of use for each.

09.12 Demonstrate how to expose, process and preserve metal plates.

09.13 Demonstrate how to make additions, deletions and repairs to metal plates.

09.14 Demonstrate how to inspect and compare plates to proofs.

09.15 Demonstrate how to properly handle, file, store and retrieve flats and plates.

10.0 Demonstrate proficiency in the operation of a digital production printing system.

10.01 Use the system interface to adjust image tone reproduction quality.

10.02 Program and run a job for cardstock.

10.03 Program and run a job for folded signatures.

10.04	Program and set-up the various inline finishing and binding options.
10.05	Program and run productivity features (e.g., cover sheets, job separator sheets).
10.06	Program and run jobs on a digital color printing system.
10.07	Evaluate and adjust color print quality on a digital color printing system.
10.08	Apply troubleshooting and problem-solving strategies to digital printing systems.
10.09	Demonstrate how to produce a 2-sided, 3-panel brochure.
10.10	Demonstrate how to produce a 4-page newsletter on a digital printing system.

Course Number: GRA0017
Occupational Completion Point: C
Digital Prepress Operations – 450 Hours – SOC Code 27-1024

11.0	Demonstrate proficiency in basic electronic imaging competencies – the student will be able to:
11.01	Read and comprehend production information on a job jacket/ticket.
11.02	Identify the various types of items that can be designed and produced using desktop publishing.
11.03	Identify the basic principles of design (e.g., unity, contrast, page proportions, balance).
11.04	Demonstrate how to incorporate basic design principles in hand-drawn sketches and measured layouts.
11.05	Identify line copy.
11.06	Identify continuous tone and halftone copy.
11.07	Identify basic process color principles and four kinds of color printing.
11.08	Demonstrate understanding of electronic color-proofing techniques.
11.09	Identify basic desktop publishing equipment.
11.10	Define the limitations and capabilities of desktop publishing.
11.11	Define the differences in quality of photo-processed output and laser printer output.
11.12	Demonstrate understanding of postscript software capabilities.
11.13	Define the operation of the hardware components of a computer aided publishing system.
11.14	Demonstrate how to select appropriate software for word processing, graphics, scanning and page layout.

11.15	Demonstrate a keyboard typing proficiency of a minimum of 30 WPM.
11.16	State how to organize a file management system for opening, copying, saving and deleting files.
11.17	Demonstrate file management operations for opening, copying, saving and deleting files.
11.18	Demonstrate how to prepare a series of hand-drawn sketches for layouts incorporating appropriate marks (e.g., gutters, register marks, fold lines).
11.19	Demonstrate how to prepare a dummy for a multi-page signature.
11.20	Demonstrate an understanding of data exchange.
12.0	Demonstrate proficiency in the use of type and typography – the student will be able to:
12.01	Demonstrate how to measure copy/text in points and picas using a line gauge.
12.02	Demonstrate how to measure type using a type-fitting gauge.
12.03	Demonstrate how to identify x-height, meanline, baseline, ascenders, descenders, and the roles of each in measuring and designing with type.
12.04	Demonstrate how to identify caps, lowercase, uppercase, small caps and ligatures.
12.05	Define <i>dingbats</i> , <i>bullets</i> , <i>rules</i> , and <i>symbols</i> and the uses of each in publications.
12.06	Demonstrate how to distinguish between display (headline) type and body (text) type by point size and style.
12.07	Demonstrate how to identify basic type styles and the uses of each style.
12.08	Determine the weight and posture of type.
12.09	Demonstrate how to distinguish between <i>serif</i> and <i>sans-serif</i> type styles.
12.10	Define <i>letter spacing</i> and <i>kerning</i> of type characters.
12.11	Define <i>word spacing</i> and the relationship of <i>em</i> and <i>en</i> in paragraph spacing.
12.12	Define <i>line spacing</i> and explain the measurement principles for the leading of text.
12.13	Define type arrangements: <i>flush left</i> , <i>ragged right</i> , <i>flush right</i> , <i>ragged left</i> , <i>centered</i> , <i>justified</i> , and <i>forced justified</i> .
12.14	Define and demonstrate <i>copy fitting</i> .
13.0	Demonstrate proficiency in using page layout operations – the student will be able to:
13.01	Demonstrate how to prepare rough layouts.
13.02	Demonstrate how to markup a copy for the production of a printed piece.

13.03	Demonstrate how to select appropriate page layout software for a given job.
13.04	Demonstrate how to log-on/boot-up and print out from a page layout program; demonstrate a functional knowledge of computer commands/codes/menus/palette for the software in use.
13.05	Demonstrate text alignment, element positioning and the rules of page design for printed material.
13.06	Demonstrate how to set-up column grids for an electronic page layout according to job specifications.
13.07	Demonstrate how to set-up/select appropriate pagination for a given job.
13.08	Demonstrate the uses of headers and footers.
13.09	Demonstrate how to set text with appropriate margins, formatting, gutters, leading, headings, etc.
13.10	Demonstrate a proficiency in conducting basic search operations.
13.11	Demonstrate how to place copy from a word processing program into a page layout program according to job specifications.
13.12	Demonstrate how to proofread, edit and make corrections/adjustments to copy on screen.
13.13	Demonstrate how to download fonts.
13.14	Demonstrate how to transfer graphics, rules, and dingbats from an existing file into a publication.
13.15	Demonstrate the procedure for cropping graphics electronically.
13.16	Use graphics and text to create a 2-sided, 3-panel brochure for publication.
13.17	Demonstrate how to create a 4-page newsletter using windows, blocks, text, graphics, frames and headings.
13.18	Demonstrate how to create a 2-page newsletter using drop caps for paragraph openings, wraparound (run-around) and graphics.
13.19	Use tints, reverses, and manipulated type for effect to create a printed piece.
13.20	Demonstrate how to produce a multicolor flyer using electronic spot color separations.
13.21	Demonstrate knowledge of the capabilities, advantages, and disadvantages of available page layout programs.
13.22	Demonstrate the use of an electronic dictionary, spell checker, and automatic hyphenation.
14.0	Demonstrate proficiency in scanning operations – the student will be able to:
14.01	Identify the hardware, basic components and operations associated with scanners.
14.02	Identify basic scanner software and its uses and limitations.
14.03	Demonstrate appropriate scanner/program operations for continuous tone copy.

14.04	Demonstrate how to place scanned graphics/photos into existing page layout program.
15.0	Demonstrate understanding of a vector-based graphics program – the student will be able to:
15.01	Demonstrate how to log-on/boot-up a vector-based graphics program; demonstrate a functional knowledge of commands/codes/menus/hand tools and procedures for their uses.
15.02	Use a graphics program to draw a design appropriate for a given job.
15.03	Use tints, fills, and paint in a graphics program to create a design for a given job.
15.04	Use manipulated type (e.g., rotated, circled, extended) to create a design for a publication.
15.05	Demonstrate how to trace a drawing/photograph using a graphics program.
15.06	Demonstrate how to create a design/publication using digital clip art.
16.0	Demonstrate proficiency in electronic prepress operations – the student will be able to:
16.01	Describe the application of digital photography in electronic imaging.
16.02	List the capabilities and functions of image setters.
16.03	Identify and compare digital proofs.
16.04	Identify and compare networking systems.
16.05	Identify the current systems/techniques for outputting files directly to plate material.
16.06	Demonstrate an understanding of page description languages (e.g., PostScript).
16.07	Compare the leading operating systems based on performance, uses and capabilities.
16.08	Explain storage guidelines and limitations.
16.09	List the advantages and disadvantages of different storage media options.
16.10	List the use and capabilities of storage devices for the transport and storage of electronic imaging work.
16.11	Describe the strengths and weaknesses of TIFF, EPS, PICT and other formats in a page description language environment.
16.12	Demonstrate how to convert files from PC to Mac formats.
16.13	Demonstrate how to use a file compression utility for file transfer or storage.
16.14	Describe the differences between TrueType, OpenType and PostScript fonts.
16.15	Demonstrate how to use a telecommunications program and a modem to transfer files.

16.16	Demonstrate how to create a single-color layout using clip art.
16.17	Demonstrate how to create a single-color layout using work-and-turn.
16.18	Demonstrate how to change contrast using tint screens and shading techniques.
16.19	Demonstrate how to create a logo design on a computer and integrate it into a brochure design.
16.20	Demonstrate how to produce special effects type using a graphics application.
16.21	Demonstrate how to produce a job on the computer using electronic imposition.
16.22	Demonstrate how to create a job that incorporates electronic trapping.
16.23	Demonstrate how to produce a multicolor job that includes scans, text and spot color artwork.
16.24	Demonstrate how to prepare page layout files containing graphic images for remote output.
16.25	Demonstrate how to follow instructions to produce, modify or output files according to customer-supplied criteria.
16.26	Demonstrate how to use optical character recognition (OCR) software to capture text.
16.27	Demonstrate how to calibrate a desktop color scanner.
16.28	Demonstrate how to produce a color scan.
16.29	Demonstrate how to use an image manipulation program to perform basic color correction and basic image cloning.
16.30	Demonstrate how to calibrate a color monitor.

Course Number: GRA0045
Occupational Completion Point: D
Offset Printing Technology – 450 Hours – SOC Code 51-5112

17.0	Demonstrate proficiency in the operation of a basic offset press – the student will be able to:
17.01	Identify the equipment and materials used in offset press operations, their parts and functions, and the safety rules related to their operation.
17.02	Apply basic principles of offset lithography pertaining to the physical and chemical properties of ink components (pigment, vehicle, and dryer).
17.03	Apply basic principles of offset lithography pertaining to dampening systems (ducted and continuous).
17.04	Apply basic principles of offset lithography pertaining to the chemical components of fountain solutions (acid, alkaline, and neutral).
17.05	Apply basic principles of offset lithography pertaining to pH-control and its effects on the lithographic process.

17.06	Apply basic principles of offset lithography pertaining to interrelationships on the process of paper (coated and uncoated and various grades within).
17.07	Demonstrate how to determine the grain direction of paper.
17.08	Demonstrate how to handle and jog paper stock (wire/felt, watermarks, carbonless sequence).
17.09	Demonstrate how to identify paper weight, coating and sizes.
17.10	Demonstrate how to identify paper problems, curling, dust, moisture, flaring, etc.
17.11	Apply basic principles of offset lithography pertaining to the interrelationships of textured or smooth paper, plastic, metal plates, and conventional or compressible blankets.
17.12	Apply basic principles of offset lithography pertaining to ink and its drying properties in relation to fountain solution and the plate and paper used (effects of ink film thickness, drying time and set off; the problems associated with inappropriate use of spray powder).
17.13	Apply basic principles of plate preservation after presswork for long-term storage (use of gum arabic and asphaltum).
17.14	Demonstrate how to prepare a press for operation by reviewing job-ticket specifications and then selecting the appropriate press and materials.
17.15	Demonstrate how to prepare a press for operation based on the interrelationships of lithographic processes.
17.16	Demonstrate how to mix fountain solution from concentrate.
17.17	Demonstrate how to mix ink to color matching system specifications (e.g., Pantone Color Matching System).
17.18	Demonstrate how to introduce ink and fountain solution to the press in proper sequence.
17.19	Demonstrate how to set-up and adjust the feeder to paper specifications (air blast, vacuum, choke).
17.20	Demonstrate how to set-up and adjust the register system to single sheet, stream fed, side guide, and head register.
17.21	Demonstrate how to set-up and adjust delivery (chute or chain).
17.22	Demonstrate how to mount a blanket cylinder (and pack if necessary) and adjust to press specifications.
17.23	Demonstrate how to set an impression cylinder to paper thickness and press specifications.
17.24	Demonstrate how to set and adjust the pressure of ink and water rollers to press specifications.
17.25	Demonstrate how to make-ready a press to ensure ink and water balance for uniform coverage, volume and replenishment of ink, image position, cylinder pressure, and sheet registration.
17.26	Demonstrate how to make additions, deletions and repairs to an offset plate.
17.27	Demonstrate how to inspect and evaluate the final make-ready sheet to job-ticket specifications and obtain proof approval to run.
17.28	Demonstrate how to set spray powder.

17.29	Demonstrate how to produce the required number of press sheets to meet job-ticket specifications.
17.30	Demonstrate how to preserve a plate for long-term storage.
17.31	Demonstrate how to perform press wash-up and roller treatment.
17.32	Demonstrate how to perform press maintenance to manufacturer's specifications.
17.33	Demonstrate how to apply basic principles of offset press operations with regard to work-and-turn, work-and-tumble and sheetwise printed products.
17.34	Demonstrate how to produce a tight register one-color project.
17.35	Demonstrate how to produce a tight register one-color or two-color, pre-collated carbonless project.
17.36	Demonstrate how to produce a two-color tight register project.
17.37	Demonstrate how to print a two-color job on a duplicator using a T-head.
17.38	Demonstrate how to produce a one-color or two-color tight register envelope project.
17.39	Demonstrate how to produce a tight register one-color metallic ink project.
17.40	Demonstrate how to produce a tight register one-color or two-color folding two-sided project.
17.41	Demonstrate how to produce a multicolor tight register project.
17.42	Demonstrate an understanding of and the ability to identify troubleshooting problems on a duplicator.
17.43	Identify and describe direct-imaging technologies.
17.44	Demonstrate how to clean and secure a duplicator for downtime.

Course Number: GRA0046
Occupational Completion Point: E
Finishing and Distribution Processes – 150 Hours – SOC Code 51-5113

18.0	Demonstrate proficiency in performing basic finishing and distribution competencies – the student will be able to:
18.01	Demonstrate how to read and comprehend production information on a job jacket/ticket.
18.02	Demonstrate how to identify the equipment and materials used in finishing and distribution operations, and the parts, functions, and safety rules related to their operation.
18.03	Demonstrate how to apply basic math skills to binding and distribution operations.
18.04	Demonstrate how to prepare a folding dummy from a press sheet according to job ticket specifications and the approved proof.

18.05	Demonstrate how to set-up and operate a folder in accordance with job ticket specifications and the folding dummy.
18.06	Demonstrate how to use folding equipment to produce single, gate and accordion folds.
18.07	Describe and identify right-angle folds.
18.08	Apply the basic principles of finishing and distribution to folded/bound signature impositions to allow for lips, trims and bleeds according to saddle-stitch and side-stitch binding methods.
18.09	Identify and explain slitting, perforating and scoring functions and equipment pertaining to folding operations.
18.10	Explain how to use and set-up cutters.
18.11	Demonstrate how to prepare rule-out of a press sheet for finishing operations according to job ticket specifications and the approved proof.
18.12	Demonstrate how to set-up and operate a cutter in accordance with rule-out.
18.13	Demonstrate how to square substrate.
18.14	Identify and describe problems with substrate.
18.15	Determine the proper maintenance procedures for paper cutters.
18.16	Explain how to change the blade on a paper cutter.
18.17	Define and identify the most commonly used types of paper.
18.18	Identify paper types based on the printing, folding and binding characteristics of each type.
18.19	Demonstrate how to hand-jog 8.5" X 11" substrate.
18.20	Demonstrate how to hand-jog 17" X 22" or larger substrate.
18.21	Demonstrate how to machine-jog substrate.
18.22	Describe and identify offline finishing systems.
18.23	Explain the fundamentals of saddle-stitching and perfect binding.
18.24	Identify and explain the uses of automated sorting and labeling equipment.
18.25	Define and identify mail class rates (e.g., bulk, presorted).
18.26	Identify and explain the quality control methods for bar codes in relation to postal standards.
18.27	Identify and explain embossing procedures and equipment.
18.28	List the common problems encountered with embossing.

18.29	Identify the components of case, spiral and perfect bound books.
18.30	Identify and describe modern book binding equipment; compare to hand-binding techniques.
18.31	Demonstrate how to store and properly handle substrates.
18.32	Define and identify UV coatings.
18.33	List the advantages and disadvantages of UV coatings.
18.34	Demonstrate how to estimate the cost of materials and production for performing bindery operations (cutting, scoring, folding, packaging, coating).
18.35	Demonstrate how to set-up and operate a side-stitcher and a saddle-stitcher.
18.36	List the techniques used to control waste production and disposal in a modern bindery.
18.37	Identify and describe spiral, comb and wire binding equipment and supplies.
18.38	Describe tipping procedures.
18.39	Demonstrate how to perform preventive maintenance on binding and finishing equipment.
18.40	Demonstrate methods of counting substrate (machine, measurement, weight, rapid multiple-sheet manual counting by fives).
18.41	Describe how to collate flat sheets.
18.42	Demonstrate how to set-up and operate a paper drill for a standard loose-leaf binder.
18.43	Identify and describe packaging and shrink-wrapping equipment.
18.44	Demonstrate how to package and identify a completed job according to job specifications.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

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SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

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Florida Department of Education
Curriculum Framework

Program Title: Television Production Technology
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K300300
CIP Number	0610020218
Grade Level	30, 31
Standard Length	1200 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4032 – Film and Video Editors 27-4031 – Camera Operators, Television, Video, and Motion Picture
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment as television production operators, television broadcast technicians, camera operators, other professional/paraprofessional technicians, video recording engineers, and audio recording engineers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills; leadership skills; human relations and employability skills; safe and efficient work practices; and preparation to assume responsibility for overall production of television studio activities (e.g., scripts, lighting, shooting and directing, electronic news gathering, and field production).

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of three occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	RTT0514	Studio Assistant	BUS ED 1 @2 @4	450 hours	27-4031
B	RTT0516	Studio Technician	TEC ED 1 @ 2	450 hours	27-4031
C	RTT0109	Television Production Operations	ENG&TEC ED1@2 TV PRO TEC @ 7 7G	300 hours	27-4032

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Apply knowledge of safety procedures and industry-related terminology.
- 02.0 Identify lighting needs and perform lighting tasks for a planned production.
- 03.0 Demonstrate correct use of television production equipment.
- 04.0 Interpret scripts for a television production.
- 05.0 Collaborate with others as part of the television production team.
- 06.0 Perform audio recording and editing operations.
- 07.0 Perform video recording and editing operations.
- 08.0 Conduct research for the development of a television production.
- 09.0 Operate editing software.
- 10.0 Stage a set as directed for a television production.
- 11.0 Perform character generation.
- 12.0 Perform television production and programming activities.
- 13.0 Create a television program.
- 14.0 Research and select one or more areas of television production for specialization.
- 15.0 Perform Electronic News Gathering (ENG) and Electronic Field Production (EFP) equipment functions.
- 16.0 Plan, produce, and direct a television production.

Florida Department of Education
Student Performance Standards

Program Title: **Television Production**
Career Certificate Program Number: **K300300**

Course Number: RTT0514	
Occupational Completion Point: A	
Studio Assistant – 450 Hours – SOC Code 27-4031	
01.0	Apply knowledge of safety procedures and industry-related terminology – the student will be able to:
01.01	Follow classroom procedures.
01.02	State and apply general safety rules for the operation of equipment and participation in lab-based activities.
01.03	Utilize industry-related terminology.
01.04	Utilize trade abbreviations and acronyms.
01.05	Transport equipment safely and securely.
01.06	Store equipment appropriately.
02.0	Identify lighting needs and perform lighting tasks for a planned production – the student will be able to:
02.01	Describe different types of lighting fixtures.
02.02	Identify the parts of lighting fixtures and lighting accessories.
02.03	Set up appropriate lighting for a production.
02.04	Analyze the lighting needs for a specified television production.
02.05	Identify the correct bulb for a specific light fixture.
02.06	Replace a bulb in a light fixture.
02.07	Use the appropriate gear and/or techniques to ensure that the bulbs are not exposed to human contact (to avoid oils on the surface).
03.0	Demonstrate correct use of television production equipment – the student will be able to:
03.01	Use basic equipment in a television production studio.

03.02	Operate teleprompting devices.
03.03	Demonstrate the ability to inventory equipment.
03.04	Demonstrate basic equipment maintenance and management.
04.0	Interpret scripts for a television production – the student will be able to:
04.01	Identify scripts by format, function, and utilization.
04.02	Define the terminology used in broadcast scriptwriting.
04.03	Specify the steps leading to broadcast scripts.
04.04	Write a script in single-column format.
04.05	Write a script in two-column format.
04.06	Write a treatment.
04.07	Write a broadcast script; include location information, camera movements, and dialogue.
04.08	Plan and produce a storyboard.
04.09	Draw a storyboard for a public service announcement (PSA).
05.0	Collaborate with others as part of the television production team – the student will be able to:
05.01	List the job functions of the television production team.
05.02	Describe the steps of the production process.
05.03	Give and follow directions.
05.04	Participate in all aspects of the production process (pre-production, production, post-production).
05.05	Demonstrate the ability to collaborate with others in the television production work environment.
06.0	Perform audio recording and editing operations – the student will be able to:
06.01	Set up, turn on, and operate audio production equipment.
06.02	Identify types of audio connectors.
06.03	Identify, select, and demonstrate the appropriate use of microphones.

06.04	Identify the qualities of a good audio track.
06.05	Identify and select microphones for a television production project.
06.06	Place microphones for maximum effect.
06.07	Load, cue, transfer, record, and play audio in a variety of media formats.
06.08	Describe audio input and output devices.
06.09	Set up audio input and output devices for a television production.
06.10	Operate audio input and output devices during recording and playback.
06.11	Perform audio recording operations.
06.12	Select appropriate audio cables for use in a television production.
06.13	Set up audio monitors for a production.
06.14	Describe the parts of an audio mixing console.
07.0	Perform video recording and editing operations – the student will be able to:
07.01	Set up, turn on, and operate a video camera.
07.02	Identify types of video connectors.
07.03	Load, cue, transfer, record, and play video in a variety of media formats.
07.04	Demonstrate picture composition principles.
07.05	Describe video input and output devices for a television production.
07.06	Set up video input and output devices for a television production.
07.07	Operate video input and output devices during recording and playback.
07.08	Perform video recording operations.
07.09	Describe the operational parts of a video recording device.
07.10	Operate video recording devices to record and play back material.
07.11	Select appropriate video cables for use in a television production.

07.12	Troubleshoot cable connections.
07.13	Set up video monitors for a production.
07.14	Describe the functions of a Camera Control Unit (CCU).
07.15	Match video signals from studio cameras.
07.16	Operate a video switcher.
08.0	Conduct research for the development of a television production – the student will be able to:
08.01	Complete an Internet search for viable information to use in scripting a project.
08.02	Identify valid websites for information retrieval.
08.03	Maintain journalistic integrity.
08.04	Demonstrate the ability to correctly cite sources.
09.0	Operate editing software – the student will be able to:
09.01	Perform basic audio and video editing operations.
09.02	Transfer and log video.
09.03	Prepare graphics for a production.
09.04	Combine elements into a program.
09.05	Select the best source material to achieve program goals [e.g., voice over (VO), sound on tape (SOT)].
09.06	Control audio mix and effects.
09.07	Edit a shot sequence or story for continuity.
09.08	Create a finished video file.
10.0	Stage a set as directed for a television production – the student will be able to:
10.01	Dress a set for a television production.
10.02	Inspect for and correct safety concerns.
11.0	Perform character generation (CG) – the student will be able to:

11.01	Create television graphics using industry standard equipment.
11.02	Understand television safe areas (title-safe area / graphics-safe area) and color design.
11.03	Create CGs by adhering to the rule of thirds.
12.0	Perform television production and programming activities – the student will be able to:
12.01	Direct participants in the production of a television program.
12.02	Perform on-camera in a television program.
12.03	Function in the role of a producer for a television production.
12.04	Apply production skills by producing a television program.
13.0	Create a television program – the student will be able to:
13.01	Plan a television program.
13.02	Write a television program.
13.03	Direct a television program.
13.04	Record a television program.
13.05	Edit a television program.

Course Number: RTT0516
Occupational Completion Point: B
Studio Technician – 450 Hours – SOC Code 27-4031

01.0	Apply knowledge of safety procedures and industry-related terminology – the student will be able to:
01.07	Explain the care, storage, and use of television hardware and software.
02.0	Identify lighting needs and perform lighting tasks for a planned production – the student will be able to:
02.08	Demonstrate basic television lighting capabilities.
02.09	Perform lighting activities for a planned production.
02.10	Describe the functions of the master lighting panel and dimmer board.
02.11	Operate a master lighting panel and dimmer board.

02.12	Select special effects lighting for a planned production.
02.13	Use lighting instruments to create the mood for a production.
02.14	Use appropriate lighting accessories (e.g., gels, reflectors) to enhance a production.
02.15	Perform basic maintenance for lighting instruments.
03.0	Demonstrate correct use of television production equipment – the student will be able to:
03.05	Perform Society of Motion Picture and Television Engineers (SMPTE) time code calculations.
03.06	Demonstrate industry-accepted skills for studio productions.
03.07	Operate television studio equipment.
04.0	Interpret scripts for a television production – the student will be able to:
04.10	Demonstrate skill in the selection of production topics.
04.11	Determine the quality of production topics.
04.12	Use the correct script format for the type of program selected (e.g., documentary, drama, infomercial).
04.13	Develop a script for a narrated program.
04.14	Demonstrate advanced scriptwriting techniques.
04.15	Write a broadcast script for a program of specified length.
04.16	Translate a written script into a full television production.
04.17	Produce a television program from a written script.
05.0	Collaborate with others as part of the television production team – the student will be able to:
05.06	Adhere to production deadlines set by others.
05.07	Demonstrate appropriate communication skills.
05.08	Set production deadlines for a specified program.
05.09	Function as a member of a production team.
05.10	Receive and respond to comments and feedback.

06.0	Perform audio recording and editing operations – the student will be able to:
06.15	Operate a television studio audio control system.
06.16	Identify and select microphones for a television production project.
06.17	Place microphones for maximum effect in a television production.
06.18	Identify and describe the parts of sound recording and playback devices.
06.19	Operate sound recording and playback devices for a television production.
06.20	Identify and describe the parts of an audio mixing console.
06.21	Operate an audio mixing console for a television production.
06.22	Set up digital audio editing equipment and/or software.
06.23	Set up digital audio recording and playback devices.
06.24	Perform advanced audio recording and editing operations.
07.0	Perform video recording and editing operations – the student will be able to:
07.17	Identify and describe different video recording devices.
07.18	Set up digital video editing equipment and/or software.
07.19	Set up digital video recording and playback devices.
07.20	Perform advanced video recording and editing operations.
08.0	Conduct research for the development of a television production – the student will be able to:
08.05	Utilize the Internet to research specific information on an assigned production topic.
08.06	Analyze and consolidate information for use in graphs and charts.
09.0	Operate editing software – the student will be able to:
09.09	Perform advanced editing procedures to meet audio and video production requirements.
10.0	Stage a set as directed for a television production – the student will be able to:
10.03	Sketch a set plan.

10.04	Accurately prepare a set according to the sketched plan; inspect for and correct safety concerns.
13.0	Create a television program – the student will be able to:
13.06	Write, produce, direct, record, and edit a variety of television programs (e.g., news, editorials, features, commercials).
13.07	Plan, write, direct, record, and edit a television program with a minimum program length of ten (10) minutes.

Course Number: RTT0109
Occupational Completion Point: C
Television Production Operations – 300 Hours – SOC Code 27-4032

14.0	Research and select one or more areas of television production for specialization – the student will be able to:
14.01	Survey and select a specialization in the field of television production.
14.02	Perform research on position availability, training requirements, and post-secondary institutions with programs of study or emphasis in the selected specialization.
14.03	Demonstrate proficiency in the selected area of specialization.
14.04	Perform independently within the selected area of specialization.
14.05	Write, produce, direct, record, and edit a variety of television production programs (e.g., news, editorials, features, commercials).
14.06	Create usable end products for the area of specialization.
14.07	Create training materials related to the area of specialization.
14.08	Demonstrate proficiency in all aspects of the chosen area of specialization.
14.09	Create and maintain a professional portfolio.
14.10	Prepare a résumé for employment in the chosen specialization.
14.11	Demonstrate a high level of proficiency in the selected area of specialization.
15.0	Perform Electronic News Gathering (ENG) and Electronic Field Production (EFP) equipment functions – the student will be able to:
15.01	Identify and describe ENG and EFP equipment components.
15.02	Set up equipment for a field production.
15.03	Operate equipment during field production segments.
16.0	Plan, produce, and direct a television production – the student will be able to:

Course Number: RTT0109
Occupational Completion Point: C
Television Production Operations – 300 Hours – SOC Code 27-4032

16.01 Plan a television production.

16.02 Write a script for a television production.

16.03 Stage and direct a television production.

16.04 Select special effects lighting for a television production.

16.05 Select and use audio and video recording equipment.

16.06 Perform digital audio and video editing operations.

16.07 Finalize a professional portfolio; include a résumé and work samples.

Additional Information

Laboratory Activities

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Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Fashion Technology and Production Services
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	K500100
CIP Number	0650040701
Grade Level	30, 31
Standard Length	750 hours primary, 1050 hours secondary
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	FCCLA
SOC Codes (all applicable)	51-6052 – Tailors, Dressmakers, and Custom Sewers 51-6031 – Sewing Machine Operators 51-6092 - Fabric and Apparel Patternmakers
Basic Skills Level	Mathematics: 10 Language: 10 Reading: 10

Purpose

The purpose of this program is to prepare students for careers in fashion technology and production services; these careers include occupations in alterations, tailoring, formalwear, costuming, accessories, embroidering and patternmaking.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, industrial sewing, entrepreneurship, alterations, the design and construction of menswear, formalwear, costumes and accessories, embroidering and patternmaking.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of five occupational completion points (OCP). OCP A is comprised of three core courses. Students are considered program completers after finishing OCP A **and** one additional OCP of their choosing.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code				
A	CTE0000	Garment Fabrication Specialist	APPRL MFG @7 7G FAM CON SC 1 TAILORING 7 G TEC ED 1@2 ENG&TEC ED1@2	150 hours	51-6031				
	CTE0001	Industrial Seamstress		150 hours					
	CTE0002	Introduction to Patternmaking and Entrepreneurship		150 hours					
B	CTE0003	Alterations Specialist AND		APPRL MFG @7 7G FAM CON SC 1 TAILORING 7 G TEC ED 1@2 ENG&TEC ED1@2	300 hours	51-6052			
	CTE0004	Tailor for Menswear OR			300 hours				
	CTE0005	Formalwear Specialist			300 hours				
C	CTE0006	Costume Specialist OR			APPRL MFG @7 7G FAM CON SC 1 TAILORING 7 G TEC ED 1@2 ENG&TEC ED1@2	300 hours	51-6052		
	CTE0007	Accessories Specialist OR				300 hours			
	CTE0008	Intimate Apparel Specialist				300 hours			
D	CTE0010	Embroiderer				APPRL MFG @7 7G FAM CON SC 1 TAILORING 7 G TEC ED 1@2 ENG&TEC ED1@2	300 hours	51-6092	
	CTE0011	Embroidery Digitizer					300 hours		
E	CTE0012	CAD Patternmaker I					APPRL MFG @7 7G FAM CON SC 1 TAILORING 7 G TEC ED 1@2 ENG&TEC ED1@2	300 hours	51-6092
	CTE0013	CAD Patternmaker II						300 hours	

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Select, use and care for tools, equipment and supplies safely.
- 02.0 Identify fiber and textile characteristics.
- 03.0 Set up, operate and maintain a conventional sewing machine.
- 04.0 Set up, operate and maintain a conventional serger.
- 05.0 Take measurements and select patterns based on body type.
- 06.0 Demonstrate simple construction techniques.
- 07.0 Set up, safely operate, maintain and adjust industrial sewing machines.
- 08.0 Create a quality work sample from each industrial machine.
- 09.0 Demonstrate garment construction skills on an industrial machine.
- 10.0 Demonstrate an understanding of the terminology used in the apparel industry.
- 11.0 Identify employment opportunities.
- 12.0 Schedule and participate in industry job shadowing that relates to available specialties (optional).
- 13.0 Identify and exhibit employment skills for occupations related to Fashion Technology and Production Services.
- 14.0 Research the effects of culture on the clothing industry.
- 15.0 Finalize a portfolio per industry standards.
- 16.0 Navigate computer-aided pattern design software.
- 17.0 Demonstrate basic patternmaking skills.
- 18.0 Manipulate darts.
- 19.0 Understand the differences between childrenswear and adult clothing.
- 20.0 Demonstrate knowledge of technology in the apparel and textile industries.
- 21.0 Describe and explain the elements and principles of design related to Fashion Technology and Production Services.
- 22.0 Demonstrate leadership and organizational skills.
- 23.0 Demonstrate an understanding of entrepreneurship.
- 24.0 Identify and develop a business plan (optional).
- 25.0 Use terminology related to alterations and fittings.
- 26.0 Fit a custom garment accurately.
- 27.0 Alter a sample or garment.
- 28.0 Repair a clothing garment or sample.
- 29.0 Exhibit positive customer service skills.
- 30.0 Alter fine/tailored clothing samples or garments.
- 31.0 Demonstrate clothing repair for fine/tailored clothing.
- 32.0 Create and manage an alterations business (optional).
- 33.0 Demonstrate an understanding of the proper fit of menswear.
- 34.0 Construct garments and accessories for men's apparel.
- 35.0 Embroider a monogram on men's clothing.
- 36.0 Construct a speed tailored jacket.
- 37.0 Construct a tailored jacket.

- 38.0 Identify and define terminology related to bridal gowns and formalwear.
- 39.0 Demonstrate management and customer service skills related to formalwear.
- 40.0 Construct formal dresses.
- 41.0 Construct bridal headpieces and accessories.
- 42.0 Construct a bridal gown.
- 43.0 Construct simple stretch garments.
- 44.0 Construct advanced stretch garments.
- 45.0 Demonstrate costume construction skills.
- 46.0 Construct costumes of various types.
- 47.0 Navigate workspace of embroidery software.
- 48.0 Digitize various types of text using embroidery software.
- 49.0 Digitize basic appliqués and patches.
- 50.0 Embroider patches.
- 51.0 Construct simple headwear.
- 52.0 Construct simple accessories bags.
- 53.0 Construct complex accessories.
- 54.0 Construct various hats.
- 55.0 Construct costume accessories.
- 56.0 Construct specialty accessories.
- 57.0 Identify and define terminology related to intimate apparel and shapewear.
- 58.0 Construct basic lingerie garments for women.
- 59.0 Embroider a monogram on lingerie.
- 60.0 Construct basic undergarments for men.
- 61.0 Construct various bras.
- 62.0 Construct various fitted undergarments with stretch.
- 63.0 Construct a functioning corset.
- 64.0 Select, use and care for embroidery tools, equipment and supplies safely.
- 65.0 Set up, operate and maintain a conventional embroidery machine.
- 66.0 Demonstrate simple embroidery techniques.
- 67.0 Set up, operate and maintain a multi-needle embroidery machine.
- 68.0 Demonstrate advanced embroidery techniques.
- 69.0 Navigate workspace of embroidery software.
- 70.0 Using embroidery software to digitize various types of text.
- 71.0 Use embroidery software to edit designs.
- 72.0 Use illustration software for embroidery projects.
- 73.0 Embroider a design from a digitized file.
- 74.0 Manipulate basic embroidery stitches.
- 75.0 Edit vector graphics and other images or artwork and convert them into stitches.
- 76.0 Split designs into multiple hoops.

- 77.0 Draft foundation patterns, advanced darts, yokes, flanges, tucks, collars and cowls using the flat-pattern method of drafting and computer-aided design (CAD) software.
- 78.0 Draft sleeves, cuffs, contours and skirts using the flat-pattern method of drafting and computer-aided drafting (CAD) software.
- 79.0 Draft various articles of clothing using the flat-pattern method of drafting and computer-aided drafting (CAD) software.
- 80.0 Use illustration software for patternmaking.
- 81.0 Draft various stretch garments using the flat-pattern method of drafting and computer-aided drafting (CAD) software.

Florida Department of Education
Student Performance Standards

Program Title: Fashion Technology and Production Services
Career Certificate Program Number: K500100

Course Number: CTE0000	
Occupational Completion Point:	
Garment Fabrication Specialist – 150 Hours – SOC Code 51-6031	
01.0	Select, use and care for tools, equipment and supplies safely – the student will be able to:
01.01	Select and use shears.
01.02	Use rotary cutters and other cutting equipment.
01.03	Use machine maintenance equipment.
01.04	Use measuring tools.
01.05	Use pressing equipment.
01.06	Apply workroom safety procedures when using conventional sewing machines, home serger machines, pressing equipment and small hand tools.
02.0	Identify fiber and textile characteristics – the student will be able to:
02.01	Research the history of textile origins.
02.02	Identify and describe fiber characteristics.
02.03	Identify and describe types of fabric construction.
02.04	Identify and describe types of fabric finishes.
02.05	Identify and describe types of textiles.
02.06	Identify laws and regulations governing the textile industry, including labeling laws.
03.0	Set up, operate and maintain a conventional sewing machine – the student will be able to:
03.01	Identify the parts of a sewing machine.
03.02	Select and insert sewing machine needles based on fabric type.

03.03	Identify the steps and demonstrate threading the sewing machine.
03.04	Demonstrate bobbin winding, threading the bobbin case and inserting the bobbin correctly into the sewing machine.
03.05	Demonstrate straight stitching.
03.06	Demonstrate stitch length and width selection.
03.07	Identify and demonstrate utility stitches.
03.08	Identify and demonstrate decorative stitches.
03.09	Identify the tension and demonstrate tension adjustment.
03.10	Replace light bulb.
04.0	Set up, operate and maintain a conventional serger – the student will be able to:
04.01	Compare and contrast various serger machines and their characteristics.
04.02	Thread the serger following manufacturer's directions.
04.03	Set tension following the manufacturer's directions.
04.04	Clean and maintain the serger following manufacturer's instructions.
04.05	Demonstrate a rolled hem following sample directions.
04.06	Replace knives, needles and light bulbs following manufacturer's directions.
05.0	Take measurements and select patterns based on body type – the student will be able to:
05.01	Take body measurements using the correct method.
05.02	Perform mathematical computations related to the apparel and textile industry.
05.03	Select pattern size and determine figure type.
05.04	Identify and describe styles that suit various body types.
05.05	Select a pattern and fabric for body type.
05.06	Identify and describe characteristics of a properly fitted garment.
06.0	Demonstrate simple construction techniques – the student will be able to:

06.01	Demonstrate basic hand stitching skills.
06.02	Interpret verbal, written and visual directions.
06.03	Select appropriate fabric for a pattern.
06.04	Prepare fabric.
06.05	Adjust patterns following pattern directions.
06.06	Lay out, pin, cut and mark fabric according to pattern directions.
06.07	Stitch darts and pintucks.
06.08	Identify and match garment pieces using markings and stitch following directions.
06.09	Demonstrate correct pressing techniques following fabric requirements.
06.10	Sew a casing.
06.11	Demonstrate ease stitching.
06.12	Demonstrate machine hemming following machine manual instructions.
06.13	Apply fusible interfacing according to manufacturer's instructions.
06.14	Apply shaped facings.
06.15	Apply zippers using different methods and following manufacturer's directions.
06.16	Apply waistbands following prescribed directions.
06.17	Construct belt loops according to instructions.
06.18	Construct various types of pockets.
06.19	Construct mitered corners according to instructions.
06.20	Construct set-in/fitted sleeves according to instructions.
06.21	Construct various seam finishes.
06.22	Match plaids and stripes.

Course Number: CTE0001
Occupational Completion Point:
Industrial Seamstress -- 150 Hours – SOC Code 51-6031

07.0 Set up, safely operate, maintain and adjust industrial sewing machines – the student will be able to:

07.01 Thread, maintain and operate a single needle straight stitch machine.

07.02 Thread, maintain and operate a serger.

07.03 Thread, maintain and operate a cover stitch.

07.04 Thread, maintain and operate a button sewer.

07.05 Thread, maintain and operate a buttonholer.

07.06 Thread, maintain and operate a walking foot.

07.07 Thread, maintain and operate a Merrow machine.

07.08 Thread, maintain and operate an electronic programmable machine.

07.09 Thread, maintain and operate a blind hem.

08.0 Create a quality work sample from each industrial machine – the student will be able to:

08.01 Demonstrate ability to use each industrial machine appropriately on a garment.

08.02 Demonstrate ability to use each industrial machine by creating a sample from each machine and adding it to portfolio.

09.0 Demonstrate garment construction skills on an industrial machine – the student will be able to:

09.01 Construct cuffs and plackets on sleeves.

09.02 Create and attach a collar according to a pattern or teacher instructions.

09.03 Machine sew buttonholes according to manufacturer's instructions.

09.04 Apply complex zippers using different methods, following manufacturer's directions.

09.05 Assemble a portfolio and include samples created through coursework.

10.0 Demonstrate an understanding of the terminology used in the apparel industry – the student will be able to:

10.01 Use terminology associated with the apparel and textile merchandising and manufacturing industry.

10.02 Define and differentiate market segmentation.

10.03	Develop market research strategies based on demographics, focus groups, etc.
10.04	Demonstrate techniques for inventory management.
10.05	Recognize e-commerce merchandising techniques.
11.0	Identify employment opportunities – the student will be able to:
11.01	Identify occupations in the garment/textile industry and the duties and responsibilities of those occupations.
11.02	Identify levels of training required, opportunities for job advancement and earning/wage levels for garment/textile production occupations.
11.03	Visit various facilities related to the industry following recommendations of the instructor.
11.04	Create a presentation on traditional and non-traditional career paths (e.g., costume design, theater, entertainment, buyers, fabric store owners) in the garment/textile industry.
12.0	Schedule and participate in industry job shadowing that relates to available specialties (optional) – the student will be able to:
12.01	Research people within the local area working in one of the specialties offered in the program.
12.02	Write about a job shadowing experience and apply knowledge gained within the program.
13.0	Identify and exhibit employment skills for occupations related to Fashion Technology and Production Services – the student will be able to:
13.01	Identify and list documents that may be required when applying for a job.
13.02	Complete a job application form.
13.03	Demonstrate competence in job interview techniques.
13.04	Identify and demonstrate appropriate responses to criticism from an employer, supervisor, or co-worker.
13.05	Identify and demonstrate acceptable work habits.
13.06	Demonstrate knowledge of how to make job changes appropriately.
13.07	Demonstrate customer service and selling techniques.
14.0	Research the effects of culture on the clothing industry – the student will be able to:
14.01	Identify design periods from 1900 to the present day.
14.02	Explain the influence of earlier design periods on present day design and construction.
14.03	Describe the elements and principles of design as they relate to a particular time period/culture.

14.04 Create a multimedia presentation detailing a selected design period.

15.0 Finalize a portfolio per industry standards – the student will be able to:

15.01 Submit and present a portfolio; include all work from the program and an industry appropriate résumé.

Course Number: CTE0002

Occupational Completion Point: A

Introduction to Patternmaker and Entrepreneurship – 150 Hours – SOC Code 51-6031

16.0 Navigate computer-aided pattern design software – the student will be able to:

16.01 Navigate menus (e.g., file, edit, view).

16.02 Create objects.

16.03 Select objects.

16.04 Move objects.

16.05 Edit objects (align, copy flip, intersect, locate points, mirror, move points, symbols, rotate, scale).

16.06 Measure objects.

17.0 Demonstrate basic patternmaking skills – the student will be able to:

17.01 Explain the functions of patternmaking tools.

17.02 Perform mathematical operations related to patternmaking.

17.03 Describe the process of patternmaking using relevant terminology.

17.04 Demonstrate proper use of a grainline.

17.05 Define draping and demonstrate the basics of the draping method of dress design.

17.06 Draft the basic pattern foundation; include the bodice, skirt and sleeve using flat-patternmaking.

17.07 Add appropriate seam allowance to a drafted pattern.

17.08 Construct a basic muslin shell using customer's measurements and/or a pattern.

17.09 Transfer fitting changes to paper patterns following directions.

17.10 Analyze and adjust patterns for various figure types.

17.11	Identify, manipulate and combine various techniques to develop design details.
18.0	Manipulate darts – the student will be able to:
18.01	Define and explain dart manipulation; add fullness and contouring.
18.02	Define and demonstrate slash-spread and overlap patternmaking techniques.
18.03	Define and demonstrate pivotal-transfer patternmaking techniques.
18.04	Demonstrate single-dart and two-dart manipulation.
18.05	Determine various types of princess seams on a sloper/foundation garment.
19.0	Understand the differences between childrenswear and adult clothing – the student will be able to:
19.01	Explain the challenges in creating childrenswear.
19.02	Explain size categories and sizing methods for childrenswear.
19.03	Explain differences in measuring children and adults.
19.04	Draft a basic pattern set for girls and boys.
19.05	Compare and contrast menswear and womenswear.
19.06	Compare and contrast mature male and youth male figures.
19.07	Demonstrate appropriate measuring of the male figure.
20.0	Demonstrate knowledge of technology in the apparel and textile industries – the student will be able to:
20.01	Use computer terminology related to the apparel and textile industries.
20.02	Demonstrate an awareness of computer-aided design technology.
20.03	Identify industry-related tools relative to CAD.
20.04	Create, edit and measure objects in industry CAD software.
20.05	List and describe software available in the apparel and textile industries.
20.06	Explain how current technologies are used in the creation of fashion products (e.g., fashion profiles, fabrics, garments).
20.07	Identify the development of tools, equipment and technology used in design services as they relate to particular historical periods.

21.0	Describe and explain the elements and principles of design related to Fashion Technology and Production Services – the student will be able to:
21.01	Define the elements of design that are applicable to fashion (space, line, shape, form, texture, color).
21.02	Demonstrate understanding of the color wheel.
21.03	Recognize basic color schemes.
21.04	Understand the psychology of color.
21.05	Define the principles of design that are applicable to fashion and/or interior design (proportion, scale, balance, emphasis, rhythm, harmony).
21.06	Explain the impact of human factors (psychological, physiological and social needs) on decisions relating to the design services process.
21.07	Identify and describe various garment styles, features and parts as they relate to the elements and principles of design.
22.0	Demonstrate leadership and organizational skills – the student will be able to:
22.01	Identify professional and youth organizations related to the fashion technology and production services industry.
22.02	Identify purposes and functions of professional and youth organizations.
22.03	Identify roles and responsibilities of members within organizations.
22.04	Demonstrate cooperation as a group member in achieving organizational goals.
22.05	Demonstrate confidence in leadership roles and organizational responsibilities.
23.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
23.01	Define entrepreneurship.
23.02	Identify and describe the necessary personal characteristics and responsibilities of a successful entrepreneur.
23.03	Analyze the advantages and disadvantages of business ownership and describe entrepreneurship opportunities as a career planning option.
23.04	Explain the concept of, and applications for, social entrepreneurship.
23.05	Understand the key elements of a business plan.
23.06	Assess the start-up requirements associated with a new venture.
23.07	Assess risks associated with a new venture.
23.08	Identify external resources useful to entrepreneurs in the sewn products industry during concept development.

23.09	Research and identify legal issues affecting small businesses; include contracts, negotiable instruments and privacy issues.
23.10	Describe strategies to protect intellectual property.
23.11	Identify various forms of business ownership.
23.12	Identify IRS business reporting requirements.
23.13	Identify and plan strategies to implement federal and state workplace regulations to include OSHA and ADA.
24.0	Identify and develop business a plan (optional) – the student will be able to:
24.01	Evaluate a project’s strengths, weaknesses, opportunities and threats (SWOT).
24.02	Conduct a competitive analysis.
24.03	Evaluate business acquisition options.
24.04	Develop company goals and objectives.
24.05	Develop a business mission.
24.06	Forecast income and sales.
24.07	Conduct a break-even analysis.
24.08	Develop action and business plans.

Course Number: CTE0003	
Occupational Completion Point:	
Alterations Specialist -- 300 Hours – SOC Code 51-6052	
25.0	Use terminology related to alterations and fittings – the student will be able to:
25.01	Define terminology related to alterations.
26.0	Fit a custom garment accurately – the student will be able to:
26.01	Pin-fit garments to a customer.
26.02	Chalk and baste a garment to fit a customer.
26.03	Demonstrate appropriate fitting techniques when dealing with customers.
26.04	Define standards of fit and ease.

26.05	Analyze wrinkles to adjust for proper fit.
27.0	Alter a sample or garment – the student will be able to:
27.01	Remove stitches in ready-made garments without damaging fabric.
27.02	Construct and finish seams.
27.03	Mark and even a hemline following guidelines.
27.04	Adjust hemlines in various garments according to customer’s measurements.
27.05	Remove the flare from pant legs following a given set of directions.
27.06	Taper a skirt following a given set of directions.
27.07	Convert tucks to gathers following a given set of instructions.
27.08	Add gathers following a given set of instructions.
27.09	Take in the side seams on a garment/sample.
27.10	Shorten or lengthen sleeves using various techniques.
27.11	Press altered areas using acquired pressing techniques.
28.0	Repair a clothing garment or sample – the student will be able to:
28.01	Reinforce seams and buttonholes on a garment/sample.
28.02	Replace zippers in various types of garments/samples.
28.03	Apply patches to a garment/sample.
28.04	Replace various types of buttons on a garment/sample.
28.05	Demonstrate appropriate pressing techniques on repaired garments/samples.
29.0	Exhibit positive customer service skills – the student will be able to:
29.01	Demonstrate effective communication skills.
29.02	Demonstrate ability to use technology in the workplace.
29.03	Prepare alteration tickets accurately.

30.0	Alter fine/tailored clothing samples or garments – the student will be able to:
30.01	Add or remove shoulder pads following specific instructions.
30.02	Adjust crotch in a garment/sample according to customer's body measurements.
30.03	Adjust waist size of various garments according to customer's body measurements.
30.04	Correct various garments for high hip or swayback using proper adjustment techniques.
30.05	Adjust, remove, or add cuffs to pants adjusting to client's height difference and customer specifications.
30.06	Adjust bodices according to customer's measurements using proper adjustment techniques.
30.07	Redistribute ease in sleeve cap adjusting fullness according to specified instructions.
30.08	Adjust sleeve cuffs according to specified instructions.
30.09	Shorten wristlets on knitted sleeves according to customer's or manufacturer's specifications.
30.10	Reshape trouser legs using proper adjustment techniques.
30.11	Taper men's shirts using proper adjustment techniques.
30.12	Miter hem corners using proper construction techniques.
30.13	Add or remove tucks, pleats, or darts using proper construction techniques.
30.14	Increase and decrease the width of pleats following proper construction techniques.
30.15	Alter closures and fasteners according to customer's specifications.
30.16	Alter belt loops according to the customer's specifications.
30.17	Adjust belts to fit the customer's form.
30.18	Adjust pockets according to fabric requirements and using proper alteration techniques.
30.19	Shorten sleeves on a tailored jacket.
30.20	Narrow lapels on a tailored jacket.
30.21	Lower the collar on a suit jacket.
30.22	Construct a gusset in trousers.

30.23	Construct a gusset in a dance garment.
31.0	Demonstrate clothing repair for fine/tailored clothing – the student will be able to:
31.01	Apply patches to holes or rips in knit or woven fabrics following specified fabric instructions.
31.02	Repair frayed parts of garments (e.g., cuffs, collars, seams) following proper repair techniques for the specified fabric.
32.0	Create and manage an alterations business (optional) – the student will be able to:
32.01	Identify the occupations necessary to run an alterations business.
32.02	Develop a plan for the alterations business; include job assignments and responsibilities, hours of operation, marketing, fees charged, etc.

Course Number: CTE0004
Occupational Completion Point: B
Tailor for Menswear -- 300 Hours – SOC Code 51-6052

Note: Students may choose one of the following courses for the completion of OCP B: ‘Tailor for Menswear’ or ‘Formalwear Specialist’.

33.0	Demonstrate an understanding of the proper fit of menswear – the student will be able to:
33.01	Identify terminology related to menswear.
33.02	Identify standards of fit related to menswear.
33.03	Demonstrate proficiency in identifying male figure types.
33.04	Identify necessary corrections for proper fit particular to men.
34.0	Construct garments and accessories for men’s apparel – the student will be able to:
34.01	Construct an ascot.
34.02	Construct a tie and bowtie.
34.03	Construct a cummerbund.
34.04	Construct a vest.
34.05	Construct a tuxedo shirt.
34.06	Construct slacks.
34.07	Construct cargo pants.

35.0	Embroider a monogram on men's clothing – the student will be able to:
35.01	Select appropriate interfacing and stabilizer for embroidery.
35.02	Utilize embroidery software to generate a custom monogram.
35.03	Hoop, position and mark fabric for accurate embroidery.
35.04	Monogram a necktie.
35.05	Construct and monogram a pocket square.
35.06	Monogram a shirt cuff.
36.0	Construct a speed tailored jacket – the student will be able to:
36.01	Construct a speed tailored jacket using a specific set of construction skills according to given directions.
37.0	Construct a tailored jacket – the student will be able to:
37.01	Select suitable fabric for a tailored jacket using identified criteria.
37.02	Select suitable hair canvas, interfacing, lining and underlining for specified fabric.
37.03	Prepare fabrics and alter patterns using pattern directions.
37.04	Lay out patterns, bias, plaid, or one-way prints using correct layout procedures.
37.05	Cut patterns, fabric, hair canvas and linings according to given directions.
37.06	Tailor tack markings using the proper techniques.
37.07	Identify tailor basting and tailor baste layers.
37.08	Tape roll line and edges following prescribed method.
37.09	Pad-stitch lapels and collars following prescribed method.
37.10	Baste and fit a garment according to customer specifications.
37.11	Stitch seams using correct stitches for fabric.
37.12	Apply seam finishes chosen from practice samples.
37.13	Construct tailored pockets following given directions.

37.14	Construct bound buttonholes following given directions.
37.15	Construct chest pieces, shoulder pads and sleeve heads following given directions.
37.16	Set in sleeves following given directions.
37.17	Construct and apply upper collar and facings following given directions.
37.18	Catch-stitch all edges using proper method of stitching.
37.19	Fit a garment using the customer's measurements.
37.20	Construct and apply linings according to fabric requirements.
37.21	Construct hems using the proper technique for fabric/garment style.
37.22	Identify steps of and demonstrate tailor pressing.

Course Number: CTE0005
Occupational Completion Point: B
Formalwear Specialist -- 300 Hours – SOC Code 51-6052

Note: Students may choose one of the following courses for the completion of OCP B: 'Tailor for Menswear' or 'Formalwear Specialist'.

38.0	Identify and define terminology related to bridal gowns and formalwear – the student will be able to:
38.01	Identify and define bridal silhouettes.
38.02	Identify appropriate styles for body types.
38.03	Identify types of fabrics and laces used in bridal fashions.
38.04	Define terminology related to bridal and formalwear.
39.0	Demonstrate management and customer service skills related to formalwear – the student will be able to:
39.01	Develop a schedule for production and fittings.
39.02	Develop standards of operations, pricing and alteration policies for custom formalwear.
39.03	Demonstrate customer service skills related to brides and bridal parties.
40.0	Construct formal dresses – the student will be able to:
40.01	Construct a bridesmaid dress or evening gown using a specific set of construction skills according to given directions.

40.02	Construct a flower girl dress using a specific set of construction skills according to given directions.
40.03	Construct a mother of the bride dress using a specific set of construction skills according to given directions.
41.0	Construct bridal headpieces and accessories – the student will be able to:
41.01	Construct bridal headpieces.
41.02	Construct bridal accessories.
42.0	Construct a bridal gown – the student will be able to:
42.01	Construct a bridal gown; include the following skills: <ul style="list-style-type: none"> • insert boning • insert cups • construct a petticoat/underskirt • apply beading, pearls and rhinestones • construct a bustle

Course Number: CTE0006
Occupational Completion Point: C
Costume Specialist – 300 Hours – SOC Code 51-6052

Note: Students may choose one of the following courses for the completion of OCP C: ‘Costume Specialist’, ‘Accessories Specialist’ or ‘Intimate Apparel Specialist’.

43.0	Construct simple stretch garments – the student will be able to:
43.01	Stitch stretch fabric with a 4-thread serge, zigzag and cover stitches.
43.02	Construct a basic T-shirt.
43.03	Construct a basic tank top.
43.04	Construct a gathered dance skirt.
43.05	Construct a basic leotard with a shelf bra.
43.06	Construct a full face, full body unitard.
43.07	Construct a garment using athletic mesh.
43.08	Construct stirrup pants.
43.09	Construct stretch briefs.

44.0	Construct advanced stretch garments – the student will be able to:
44.01	Construct a stretch garment with bra attachments.
44.02	Construct a fully lined leotard.
44.03	Construct a leotard with mesh sleeves.
44.04	Construct a turtleneck collar.
44.05	Construct fingerless gloves.
44.06	Insert various zippers into stretch fabric.
44.07	Demonstrate application of a stretch appliqué.
45.0	Demonstrate costume construction skills – the student will be able to:
45.01	Construct costumes with the following: <ul style="list-style-type: none"> • Velcro/hook and loop • Foam pods • Fur • Vinyl • Feathers • Stones • Beads • Sequins • Sweat wicking fabric • Silk • Chiffon • Tulle • Organza • Hooded cape • Lights, fiber optics, or other wired and battery operated devices
46.0	Construct costumes of various types – the student will be able to:
46.01	Create the following costume types: <ul style="list-style-type: none"> • One-piece fur costume • Suit with shirt insert • Sweat wicking shirt with tuxedo front

- Dance dress or skirt with gusset inserts
- Ruffled wrap jacket
- Dance pants with V-front
- Dance pants with bell bottoms or flared legs.

47.0 Navigate workspace of embroidery software – the student will be able to:

47.01 Change thread colors.

47.02 Use a sewing simulator.

47.03 Open, close and save designs.

47.04 Print embroidery designs.

47.05 View and measure designs.

47.06 Display a hoop.

47.07 Merge designs.

48.0 Digitize various types of text using embroidery software – the student will be able to:

48.01 Create straight horizontal text.

48.02 Create vertical text.

48.03 Create circular text.

48.04 Create text along a path.

48.05 Utilize text enveloping.

48.06 Import and convert TrueType fonts.

49.0 Digitize basic appliqués and patches – the student will be able to:

49.01 Choose an outline shape from artwork.

49.02 Create a basting or placement stitch.

49.03 Create a satin stitch or decorative edge-finishing stitch.

50.0 Embroider patches – the student will be able to:

50.01 Select appropriate interfacing and stabilizer for embroidery.

50.02 Hoop, position and mark fabric for accurate embroidery.

50.03 Cut and trim fabric for patches and appliqués.

50.04 Embroider a basic patch.

Course Number: CTE0007

Occupational Completion Point: C

Accessories Specialist -- 300 Hours – SOC Code 51-6052

Note: Students may choose one of the following courses for the completion of OCP C: 'Costume Specialist', 'Accessories Specialist' or 'Intimate Apparel Specialist'.

51.0 Construct simple headwear – the student will be able to:

51.01 Construct a bucket hat.

51.02 Construct fascinators.

51.03 Construct hair bows.

51.04 Construct hair flowers.

52.0 Construct simple accessories bags – the student will be able to:

52.01 Construct a garment bag.

52.02 Construct a zippered handbag.

52.03 Construct a handbag with snaps.

52.04 Construct a handbag with straps.

52.05 Construct a backpack.

52.06 Construct coverings for electronic devices (e.g., tablets, phones, laptops).

Note: Students may choose between a focus in Complex Accessories or Accessories for Costumes. The following standards are for the Complex Accessories focus:

53.0 Construct complex accessories – the student will be able to:

53.01 Construct an organizer.

53.02 Construct a fully lined purse with welt zippered pockets.

53.03	Construct a wallet.
53.04	Construct a belt.
53.05	Construct a fedora.
53.06	Use the following fabrics: <ul style="list-style-type: none"> • Vinyl • Leather • Suede • Burlap • Buckram
54.0	Construct various hats – the student will be able to:
54.01	Construct three headpieces using a specific set of construction skills according to given directions.
Note: Students may choose between a focus in Complex Accessories or Accessories for Costumes. The following standards are for the Accessories for Costumes focus:	
55.0	Construct costume accessories – the student will be able to:
55.01	Construct spats.
55.02	Construct spandex gloves.
55.03	Construct costume character gloves.
55.04	Construct a gun holster.
55.05	Construct cuffs.
55.06	Construct and apply patches.
55.07	Construct microphone packs.
55.08	Construct a variety of head coverings.
55.09	Construct a variety of belts.
55.10	Construct foam pods.
56.0	Construct specialty accessories – the student will be able to:
56.01	Construct three specialty accessories using a specific set of construction skills according to given directions.

Course Number: CTE0008
Occupational Completion Point: C
Intimate Apparel Specialist -- 300 Hours – SOC Code 51-6052

Note: Students may choose one of the following courses for the completion of OCP C: 'Costume Specialist', 'Accessories Specialist' or 'Intimate Apparel Specialist'.

57.0 Identify and define terminology related to intimate apparel and shapewear – the student will be able to:

57.01 Identify and define types and functions of intimate apparel and shapewear.

57.02 Identify appropriate styles for body types.

57.03 Identify types of fabrics and laces used in intimate apparel.

57.04 Define terminology related to intimate apparel and shapewear.

58.0 Construct basic lingerie garments for women – the student will be able to:

58.01 Construct a half-slip.

58.02 Construct a full slip or baby doll.

58.03 Construct various women's underwear.

58.04 Construct a camisole.

58.05 Construct a pair of garters and a garter belt.

58.06 Construct a full length nightgown with lace trim, beading and stoning.

58.07 Construct a full length robe including feather trim.

58.08 Construct a netted slip.

59.0 Embroider a monogram on lingerie – the student will be able to:

59.01 Select appropriate interfacing and stabilizer for embroidery.

59.02 Utilize embroidery software to generate a custom monogram.

59.03 Hoop, position and mark fabric for accurate embroidery.

59.04 Monogram a basic piece of women's lingerie.

60.0 Construct basic undergarments for men – the student will be able to:

60.01	Construct boxer shorts.
60.02	Construct boxer briefs.
61.0	Construct various bras – the student will be able to:
61.01	Construct a sports bra.
61.02	Construct a bra with removable cups.
61.03	Construct a bra with underwire and shaped cups.
61.04	Construct a strapless or convertible strap bra.
62.0	Construct various fitted undergarments with stretch – the student will be able to:
62.01	Construct shaping shorts.
62.02	Construct a body suit.
63.0	Construct a functioning corset – the student will be able to:
63.01	Construct a corset; include boning, hooks and eyes, and other specifications.

Course Number: CTE0010
Occupational Completion Point:
Embroiderer – 300 Hours – SOC Code 51-6092

64.0	Select, use and care for embroidery tools, equipment and supplies safely – the student will be able to:
64.01	Select and use stabilizers, adhesives and fusible sprays, marking tools, various threads and fabrics, positioning aids, hooping aides, scissors, spool aids and various embroidery frames.
64.02	Define terminology related to embroidery.
65.0	Set up, operate and maintain a conventional embroidery machine – the student will be able to:
65.01	Identify types of conventional embroidery machines.
65.02	Identify parts and functions of conventional embroidery machines.
65.03	Identify media and formats of embroidery designs.
65.04	Identify and demonstrate the selection and use of embroidery needles.
65.05	Identify and navigate a conventional embroidery screen/display.

65.06	Identify sizes and types of embroidery fields.
65.07	Change, manipulate and convert thread colors.
65.08	Combine embroidery patterns.
65.09	Edit embroidery designs.
65.10	Attach the hoop.
65.11	Demonstrate proper stabilizing and hooping.
65.12	Save embroidery patterns.
65.13	Set tension following the manufacturer's directions.
65.14	Troubleshoot minor embroidery problems.
66.0	Demonstrate simple embroidery techniques – the student will be able to:
66.01	Demonstrate proper pressing of designs.
66.02	Demonstrate proper placement of designs.
66.03	Demonstrate care for embroidery designs.
66.04	Sew embroidery designs on various fabrics: <ul style="list-style-type: none"> • Cotton, broadcloth, or duck cloth • Knits (t-shirts) • Densely woven fabrics • Loosely woven fabrics
66.05	Embroider an applique.
66.06	Embroider a patch.
66.07	Use machine alphabet patterns.
66.08	Embroider various monograms.
67.0	Set up, operate and maintain a multi-needle embroidery machine – the student will be able to:
67.01	Identify types of multi-needle embroidery machines.
67.02	Identify types of parts and functions of multi-needle embroidery machines.

67.03	Demonstrate tension setting for a multi-needle embroidery machine following the manufacturer's directions.
67.04	Identify and demonstrate the selection and use of accessories for multi-needle embroidery machines.
67.05	Demonstrate linking a multi-needle embroidery machine to a computer.
67.06	Demonstrate troubleshooting embroidery problems.
68.0	Demonstrate advanced embroidery techniques – the student will be able to:
68.01	Quilt embroidery patterns.
68.02	Demonstrate cutwork.
68.03	Demonstrate lacework.
68.04	Embroider a dimensional project.
68.05	Demonstrate continuous embroidery.
68.06	Embroider a multi-hoop project.
68.07	Demonstrate linking characters.
68.08	Demonstrate embroidery on curved surfaces (e.g., sleeves, caps, cozies, socks)
68.09	Demonstrate sewing embroidery designs on a variety of surfaces (e.g., spandex, leather or vinyl, sheer fabrics, napped fabrics, high-pile fabrics).

Course Number: CTE0011
Occupational Completion Point: D
Embroidery Digitizer – 300 Hours – SOC Code 51-6092

69.0	Navigate workspace of embroidery software – the student will be able to:
69.01	Change thread colors.
69.02	Use a sewing simulator.
69.03	Open, close and save designs.
69.04	Print embroidery designs.
69.05	View and measure designs.
69.06	Display a hoop.

69.07	Merge designs.
70.0	Use embroidery software to digitize various types of text – the student will be able to:
70.01	Create straight horizontal text.
70.02	Create vertical text.
70.03	Create circular text.
70.04	Create various monograms.
70.05	Create text along a path.
70.06	Utilize text enveloping.
70.07	Import and convert TrueType fonts.
71.0	Use embroidery software to edit designs – the student will be able to:
71.01	Split, move, insert or delete stitches.
71.02	Split designs.
71.03	Adjust stitches based on fabric choice.
71.04	Resize designs and adjust fill stitches accordingly.
71.05	Review density on a map.
71.06	Find and remove hidden stitches in overlapped designs.
71.07	Adjust density to project specifics.
72.0	Use illustration software for embroidery projects – the student will be able to:
72.01	Evaluate industry standard illustration software packages.
72.02	Identify characteristics of vector and bitmap images.
72.03	Demonstrate understanding of the software workspace (menus/palettes).
72.04	Demonstrate software navigation (views, tabs, zoom).
72.05	Demonstrate use of drawing tools to create, combine and edit basic shapes.

72.06	Demonstrate ability to transform content (scale, rotation, position).
72.07	Demonstrate use of pen and pencil tools to draw/edit straight and curved paths.
72.08	Demonstrate use of color and painting tools (patterns, gradients, color palettes).
72.09	Demonstrate ability to work with type (formatting, font palette, paths).
72.10	Demonstrate use of layers (creating, locking, viewing, pasting, merging).
72.11	Demonstrate use of blending (gradients, objects).
72.12	Demonstrate use of brushes.
72.13	Explore file exporting options and round trip workflows with page layout software.
72.14	Demonstrate knowledge of bleed for vector and bitmap design software.
72.15	Demonstrate knowledge of bleed for vector and image editing/authoring software.
73.0	Embroider a design from a digitized file – the student will be able to:
73.01	Embroider a design that uses text, multiple merged designs and resized designs.
74.0	Manipulate basic embroidery stitches – the student will be able to:
74.01	Delete, move and edit stitches.
74.02	Convert and edit segments of stitch types.
74.03	Demonstrate use of common embroidery stitch effects.
74.04	Blend thread colors in a segment.
74.05	Digitize a design using run stitches and satin stitches.
74.06	Group and ungroup stitches.
74.07	Change stitch properties.
74.08	Change fill properties and stitches.
74.09	Change underlay properties.
74.10	Apply specialty fills to outline shapes.

74.11	Fit designs on custom paths including circular and carousel patterns.
74.12	Emboss shapes into a fill.
74.13	Adjust pull compensation.
74.14	Digitize using auto stipple stitches.
74.15	Create ripple effect around designs for continuous quilting motifs.
74.16	Rearrange multiple designs for random scatter effect.
74.17	Add basting stitches to design.
74.18	Add button holes to a design.
75.0	Edit vector graphics and other images or artwork and convert them into stitches – the student will be able to:
75.01	Draw lines, shapes and artwork/vector images.
75.02	Convert vector images to embroidery.
75.03	Import, manipulate and export images.
75.04	Identify characteristics of vector and bitmap images.
75.05	Demonstrate understanding of the software workspace (menus/palettes).
75.06	Demonstrate software navigation (views, tabs, zoom).
75.07	Use drawing tools to create, combine and edit basic shapes.
75.08	Transform content (scale, rotation, position).
75.09	Use pen and pencil tools to draw/edit straight and curved paths.
75.10	Use color and painting tools (patterns, gradients, color palettes).
75.11	Work with type (formatting, font palette, paths).
75.12	Use layers (creating, locking, viewing, pasting, merging).
75.13	Use blending (gradients, objects).
75.14	Use brushes.

75.15	Explore file exporting options and round trip workflows with page layout software.
75.16	Demonstrate knowledge of bleed for vector and bitmap design software.
75.17	Demonstrate knowledge of bleed for vector and image editing/authoring software.
76.0	Split designs into multiple hoops – the student will be able to:
76.01	Split large embroidery designs to fit hoop.
76.02	Align split designs into position for sewing.

Course Number: CTE0012	
Occupational Completion Point:	
CAD Patternmaker I -- 300 Hours – SOC Code 51-6092	
77.0	Draft foundation patterns, advanced darts, yokes, flanges, tucks, collars and cowls using the flat-pattern method of drafting and computer-aided drafting (CAD) software – the student will be able to:
77.01	Draft a men’s foundation set.
77.02	Draft and explain the differences between tuck-darts, pleats, flares and gathers.
77.03	Draft various dart clusters.
77.04	Draft and describe the differences between graduated, radiating, parallel, asymmetric and intersecting darts.
77.05	Draft various front and back yokes (e.g., inverted box pleat, gathers, action pleat).
77.06	Draft various flanges (tuck dart flange, flange to waist, inset flange).
77.07	Draft various tucks.
77.08	Draft various collars for women.
77.09	Draft various collars for children.
77.10	Draft various collars for men.
77.11	Draft various built-up necklines.
77.12	Draft various inset bands.
77.13	Draft various types of cowls.
77.14	Construct multiple garments based on the basic foundation garment with techniques learned through coursework.

78.0	Draft sleeves, cuffs, contours and skirts using the flat-pattern method of drafting and CAD software – the student will be able to:
78.01	Define and explain terminology related to sleeves.
78.02	Draft various sleeves for women.
78.03	Draft various sleeves for children.
78.04	Draft various sleeves for men.
78.05	Draft various shirt cuffs.
78.06	Draft various shirts for a woman (three shirt and blouse foundations, basic sleeves, yoke shirt, shirt facing and band variations).
78.07	Draft a basic shirt for a man including cuffs and plackets.
78.08	Draft various shirts for children.
78.09	Describe different types of contouring (empire style line, strapless bra top, surplice, cutout armholes, necklines).
78.10	Draft using a contour guide pattern.
78.11	Draft a garment with various contour style lines.
78.12	Describe the four skirt foundations (straight, A-shape, pegged, bell shape).
78.13	Describe different skirt characteristics (sweep, movement, break point).
78.14	Draft various skirts for women.
78.15	Draft various skirts for children.
78.16	Construct multiple garments based on the basic foundation garment with techniques learned through coursework.

Course Number: CTE0013	
Occupational Completion Point: E	
CAD Patternmaker II – 300 Hours – SOC Code 51-6092	
79.0	Draft various articles of clothing using the flat-pattern method of drafting and CAD software – the student will be able to:
79.01	Draft various dresses for women.
79.02	Draft various dresses for children.
79.03	Draft various pants.

79.04	Draft various jeans.
79.05	Draft various waistbands.
79.06	Draft for various pant derivatives.
79.07	Draft various jumpsuits.
79.08	Draft various pants and pants derivatives for children.
79.09	Draft various trousers for men.
79.10	Draft slacks for men.
79.11	Draft various jeans for men.
79.12	Draft the men's jacket foundation.
79.13	Draft variations of the men's jacket foundation.
79.14	Demonstrate an understanding of correct fit for a man's suit jacket.
79.15	Draft various casual men's shirts.
79.16	Draft various vests.
79.17	Draft various bias cut patterns.
80.0	Use illustration software for patternmaking – the student will be able to:
80.01	Evaluate industry standard illustration software packages.
80.02	Identify characteristics of vector and bitmap images.
80.03	Demonstrate understanding of the software workspace (menus/palettes).
80.04	Demonstrate software navigation (views, tabs, zoom).
80.05	Use drawing tools to create, combine and edit basic shapes.
80.06	Transform content (scale, rotation, position).
80.07	Use pen and pencil tools to draw/edit straight and curved paths.
80.08	Use color and painting tools (patterns, gradients, color palettes).

80.09	Work with type (formatting, font palette, paths).
80.10	Use layers (create, lock, view, paste and merge).
80.11	Use blending tools (gradients, objects).
80.12	Use brushes.
80.13	Explore file exporting options and round trip workflows with page layout software.
80.14	Demonstrate knowledge of bleed for vector and bitmap design software.
80.15	Demonstrate knowledge of bleed for vector and image editing/authoring software.
80.16	Construct multiple garments based on the basic foundation garment with techniques learned through coursework.
81.0	Draft various stretch garments using the flat-pattern method of drafting and computer-aided drafting (CAD) software – the student will be able to:
81.01	Draft a foundation pattern for knits for women.
81.02	Draft a foundation pattern for knits for men.
81.03	Draft a foundation pattern for knits for children.
81.04	Draft various patterns for activewear.
81.05	Draft various patterns for dancewear.
81.06	Draft various patterns for swimwear.
81.07	Draft various styles of bodysuits.
81.08	Draft various tights for children.
81.09	Draft various leotards for children.
81.10	Draft various swimwear garments for children.
81.11	Draft various undergarments for women.
81.12	Draft various shapewear for women.
81.13	Construct multiple garments based on the basic foundation garment with techniques learned through coursework.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

Florida Family Career and Community Leaders of America (FCCLA) is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 10, Language 10, and Reading 10. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Art Technology 1
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K600100
CIP Number	0650040214
Grade Level	30, 31
Standard Length	900 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 – Multimedia Artists and Animators 27-1029 – Designers, All Other
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment as artists and related workers, illustrators, and commercial designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, basic art skills, lettering skills, preparation of layouts and illustrations, preparation of camera ready paste-up, and development of specialized skills.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0036	Graphic Designer	COMM ART @7 7G	450 hours	27-1024
B	GRA0037	Digital Designer	GRAPHIC COMM 7G	450 hours	27-1029

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate proficiency in the elements and principles of design.
- 02.0 Demonstrate proficiency in art and design skills.
- 03.0 Demonstrate an understanding of type design.
- 04.0 Demonstrate proficiency in layout.
- 05.0 Demonstrate proficiency in applied design.
- 06.0 Demonstrate proficiency in graphic art computer skills.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Art Technology 1
Career Certificate Program Number: K600100

Course Number: GRA0036
Occupational Completion Point: A - CORE
Graphic Designer – 450 Hours – SOC Code 43-9031

01.0	Demonstrate proficiency in the elements and principles of design – the student will be able to:
01.01	Explain proper use and care of tools and equipment.
01.02	Discuss the legal and ethical issues related to graphic design.
01.03	Apply the principles and elements of design.
01.04	Demonstrate a basic understanding of vector drawing programs.
01.05	Demonstrate a basic understanding of photo-editing / photo-manipulation programs.
01.06	Apply color theory (pigment versus light).
01.07	Utilize tones, hues, and values.
01.08	Sketch designs using pencil and ink.
01.09	Mix and apply colors to produce desired hues, tints, and shades.
01.10	Apply color for impact (color psychology) and demonstrate an understanding of color theory.
01.11	Differentiate between line, halftone, duotone, spot, RGB, four-color process, and web-safe colors.
01.12	Demonstrate 2-D design capabilities.
01.13	Demonstrate designs with symmetry and asymmetry.
01.14	Develop grids for traditional and digital layouts for print and web media.
01.15	Create freehand designs and objects for visualization and presentation.
01.16	Demonstrate harmony and contrast of line and shape.

01.17	Demonstrate harmony and contrast of color and tone.
01.18	Demonstrate harmony and contrast of proportion.
01.19	Demonstrate harmony and contrast of texture pattern.
01.20	Demonstrate harmony and contrast of motion.
01.21	Indicate style of layout design appropriate to the target audience.
01.22	Make a collage.
01.23	Begin developing a professional portfolio (to be updated as the student progresses through the program).
01.24	(Optional) Create a sign on poster board.
02.0	Demonstrate proficiency in art and design skills – the student will be able to:
02.01	Explain proper use and care of tools.
02.02	Make computations for centering, spacing, and scaling drawings.
02.03	Draw on various types of media.
02.04	Illustrate using ink, pencil, washes, markers, tempera, watercolor, and paints.
02.05	Demonstrate renderings of different textures using the above listed media.
02.06	Make illustrations using various objects.
02.07	Make a montage illustration.
02.08	Draw a cartoon.
02.09	Interpret information from drawings, prints, and sketches.
02.10	Draw freehand sketches.
02.11	Draw a one-point perspective and a two-point perspective.
02.12	Make corrections to a drawing.
02.13	Develop a glossary of technical terms.
02.14	Analyze an object to determine size, shape, and proportion.

02.15 Draw an oblique drawing.

02.16 Draw an isometric drawing.

Course Number: GRA0037
Occupational Completion Point: B
Digital Designer – 450 Hours – SOC Code 27-1029

03.0 Demonstrate an understanding of type design – the student will be able to:

03.01 Define typographic terms (e.g., *leading*, *kerning*).

03.02 Identify and select typographic applications.

03.03 Demonstrate the ability to proofread, to use proofreader's marks, and to run a spell check.

03.04 Explain picas, points, and conversion to inches.

03.05 Explain specification of type and copy fitting.

03.06 Identify and select typographic styles.

03.07 Define basic letter structures.

03.08 Demonstrate mixing of families of type.

03.09 Identify and select lettering styles.

03.10 Determine and select lettering styles for layout sketches.

04.0 Demonstrate proficiency in layout – the student will be able to:

04.01 Identify the parts of a layout.

04.02 Create thumbnail sketches.

04.03 Create roughs and comprehensives from thumbnail sketches.

04.04 Prepare computer roughs from pencil layouts.

04.05 Prepare digital-ready artwork from comprehensives; prepare files that are print-ready and presentation-ready.

04.06 Crop and scale artwork and/or photos for layouts.

04.07 Use adhesives.

04.08	Demonstrate the use of effects or styles.
04.09	Explain layout and color trends.
05.0	Demonstrate proficiency in applied design – the student will be able to:
05.01	Locate and identify resource materials for inspiration; develop a storage or idea bank.
05.02	Design logos.
05.03	Design stationery layouts.
05.04	Design a magazine, book cover, album artwork, and CD cover.
05.05	Design an ad campaign that includes newspapers, magazines, billboards, and television; demonstrate continuity.
05.06	Design a greeting card.
05.07	Design a business card.
05.08	Apply advertising psychology.
05.09	Produce an industrial brochure.
05.10	Design a consumer brochure.
05.11	Construct a package design.
05.12	Produce computer-assisted artwork.
06.0	Demonstrate proficiency in graphic art computer skills – the student will be able to:
06.01	Demonstrate graphic art computer skills using appropriate graphic art programs and hardware.
06.02	Use software and hardware to manipulate and adjust various drawings, photos, and graphic material by computer.
06.03	Produce finished computer projects that reflect current and/or emergent trends in graphic art technology.
06.04	Operate various input devices for computer graphics, such as scanners and cameras.
06.05	Demonstrate proficiency in vector and raster programs.
06.06	(Optional) Make an orthographic drawing using digital software.
06.07	Continue developing a professional portfolio.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Art Technology 2
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K600200
CIP Number	0650040215
Grade Level	30, 31
Standard Length	600 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 – Multimedia Artists and Animators 27-1024 – Graphic Designers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment as artists and related workers, illustrators, and commercial designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, basic art skills, lettering skills, preparation of layouts and illustrations, preparation of camera ready paste-up, and development of specialized skills.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0038	Print Media Artist	COMM ART @7 7G	300 hours	27-1014
B	GRA0039	Web Designer	GRAPHIC COMM 7G	300 hours	27-1024

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate proficiency in graphic production.
- 02.0 Demonstrate an understanding of employability in commercial art and graphic media.
- 03.0 Demonstrate an understanding of entrepreneurship.
- 04.0 Demonstrate proficiency in website planning and the design process.
- 05.0 Develop markup language structures.
- 06.0 Create basic webpages.
- 07.0 Incorporate images and graphical formatting on a webpage.
- 08.0 Incorporate form structures in a webpage.
- 09.0 Describe frame structures and the usage of these structures.
- 10.0 Use Cascading Style Sheets (CSS).
- 11.0 Examine web design technologies and techniques.
- 12.0 Describe the process for publishing a website.
- 13.0 Describe how website performance is monitored and analyzed.
- 14.0 Create an informational website.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Art Technology 2
Career Certificate Program Number: K600200

Course Number: GRA0038
Occupational Completion Point: A
Print Media Artist – 300 Hours – SOC Code 27-1014

01.0	Demonstrate proficiency in graphic production – the student will be able to:
01.01	Define the differences in production processes and estimate relative costs.
01.02	Recognize the limitations for printing and dissemination on the Internet.
01.03	Identify and select different printing surfaces (e.g., embossing/debossing, silk lamination, varnish, foil, thermography, die cut, letterpress, silkscreen).
01.04	Identify and select appropriate printing inks.
01.05	Identify and select finishing processes.
01.06	Identify standard industry material sizes.
01.07	Specify types of folds.
01.08	Make a print on a plotter.
01.09	Demonstrate proficiency in preparing files for output via print media and web content (preflight).
02.0	Demonstrate an understanding of employability in commercial art and graphic media – the student will be able to:
02.01	Identify and create a résumé, references, cover letter, and a thank you letter.
02.02	Relay instructions to others orally and in writing.
02.03	Define and explain graphic design terms.
02.04	Identify common industry questions.
02.05	Make project presentations.
02.06	Explain appropriate interactions with an employer, fellow employees, and customers.
02.07	Identify potential career pathways.

02.08	Understand the importance of networking with other people in the profession.
02.09	Conduct a job search.
02.10	Develop a professional digital portfolio.
03.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
03.01	Define <i>entrepreneurship</i> .
03.02	Describe the importance of entrepreneurship to the American economy.
03.03	List the advantages and disadvantages of business ownership.
03.04	Identify the risks involved in ownership of a business.
03.05	Identify the necessary personal characteristics of a successful entrepreneur.
03.06	Identify the business skills needed to operate a small business efficiently and effectively.
03.07	Create a business plan.

Course Number: GRA0039
Occupational Completion Point: B
Web Designer – 300 Hours – SOC Code 27-1024

04.0	Demonstrate proficiency in website planning and the design process – the student will be able to:
04.01	Discuss the importance of information architecture to web design and development.
04.02	Conduct a client interview to determine the purpose and needs of the business.
04.03	Conduct a competitive analysis of similar industry sites.
04.04	Identify stages in the web design process and describe the activities comprising each stage.
04.05	Define the site structure by creating a content map, storyboard, and associated wireframes.
04.06	Discuss the legal and ethical issues related to web design and web content.
04.07	Describe accessibility and its implications on web design.
04.08	Create a website mock-up for client approval.
04.09	Continue developing a professional traditional and digital portfolio.

05.0	Develop markup language structures – the student will be able to:
05.01	Define common markup languages and understand the usage of these languages.
05.02	Identify common devices.
05.03	Determine device and browser support and the appropriate usage of markup languages (existing and emerging).
06.0	Create basic webpages – the student will be able to:
06.01	Create basic webpage structures using common markup elements and attributes.
06.02	Incorporate list structures in a webpage (ordered, unordered, definition, nested).
06.03	Incorporate link structures in a webpage (external, internal, email).
06.04	Research web color usage principles and incorporate in a webpage.
07.0	Incorporate images and graphical formatting on a webpage – the student will be able to:
07.01	Describe usage guidelines (e.g., format types, size, relevance) for integrating images and graphics into a webpage.
07.02	Compare and contrast standard image formats used in webpage design.
07.03	Incorporate graphics into a webpage design.
07.04	Create and incorporate image maps in a webpage.
07.05	Optimize images and graphics for use in a webpage.
07.06	Incorporate bootstrap layout.
08.0	Incorporate form structures in a webpage – the student will be able to:
08.01	Create an accessible form using common elements; include form, fieldset, legend, text area, select, option, button, and input (radio, checkbox, submit, reset, image, password, hidden).
08.02	Describe and diagram the relationship between XHTML forms and server-side technologies.
08.03	Compare and contrast the GET and POST methods for forms handling.
08.04	Define <i>form validation</i> and describe how it is accomplished.
08.05	List popular server-side technologies used to process content sent from XHTML forms.
08.06	Use labels with form elements.

08.07	Connect an XHTML form to a server-side script for processing.
09.0	Describe frame structures and the usage of these structures – the student will be able to:
09.01	Explore <i>frame</i> and <i>iframe</i> structures and support issues.
09.02	Describe appropriate uses of iframes.
09.03	Incorporate frame structure in a webpage.
10.0	Use Cascading Style Sheets (CSS) – the student will be able to:
10.01	Define CSS and describe its importance in web design.
10.02	Compare and contrast existing and emerging CSS versions.
10.03	Determine browser support and the appropriate usage of CSS (existing and emerging versions).
10.04	Explain “document flow” and describe its implications on web design.
10.05	Recognize and use element selectors, ID selectors, class selectors, pseudo-class selectors, and descendant selectors.
10.06	Explain how inheritance and specificity affect CSS rule conflicts.
10.07	Use inline styles, embedded style sheets, and external style sheets.
10.08	Use the link and import methods to connect to an external style sheet.
10.09	Use CSS shorthand techniques to create efficient and concise style sheets.
10.10	Apply basic CSS properties (background, border, clear color, float, font, height, line-height, list-style, margin, overflow, padding position, text-align, text-indent, width, z-index, padding).
10.11	Use CSS to style tables (e.g., borders, width, spacing, alignment, background).
10.12	Use CSS to enhance the appearance and usability of an XHTML form.
11.0	Examine web design technologies and techniques – the student will be able to:
11.01	Compare and contrast common authoring tools.
11.02	Compare and contrast client-side and server-side technologies.
11.03	Define e-commerce types and usages.
11.04	Describe database connectivity relative to websites.

11.05	Identify technologies to enhance user experiences.
12.0	Describe the process for publishing a website – the student will be able to:
12.01	Explore domain name selection principles.
12.02	Identify the process for registering a domain name.
12.03	Compare and contrast hosting providers, features, and selection criteria.
12.04	Describe the various means for uploading website files (e.g., FTP, web-based tools).
13.0	Describe how website performance is monitored and analyzed – the student will be able to:
13.01	Identify issues related to website maintenance.
13.02	Use webpage validation tools.
13.03	Describe website performance metrics (e.g., visits, time-on-page, time-on-site) and discuss the implication of performance metrics on design.
13.04	Demonstrate knowledge of accessibility problems and solutions.
13.05	Examine indexing, page ranking, and basic Search Engine Optimization (SEO) techniques.
13.06	Explore common website analytic tools.
14.0	Create an informational website – the student will be able to:
14.01	Use Content Management System (CMS) web authoring software to create a multipage informational website.
14.02	Use image-editing software to enhance website designs with simple graphics.
14.03	Use animation software to enhance website designs.
14.04	Enhance the website using client-side technologies (e.g., rollovers, plug-ins, pop-up windows).
14.05	Demonstrate efficient and consistent website development practices (e.g., the use of templates, snippets).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Photography Technology 1
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K610100
CIP Number	0650040605
Grade Level	30, 31
Standard Length	700 hours
Teacher Certification	PHOTOG @7 7G Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	51-9151 – Photographic Process Workers and Processing Machine Operators
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for work as photographers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Art, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Art, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills; safe and efficient work practices; and the use of cameras and laboratory film-processing techniques in portrait, commercial and industrial applications with emphasis on composition and color dynamics; contact printing; enlarging and developing film; and the use, care, and maintenance of photographic equipment.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	PGY0180	Photographic Imaging Specialist 1	PHOTOG @7 7G	250 hours	51-9151
	PGY0181	Photographic Imaging Specialist 2		250 hours	
B	PGY0182	Photography Specialist/Lab Technician		200 hours	51-9151

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Perform laboratory skills.
- 02.0 Manage a photographic business.
- 03.0 Control exposures (35mm camera).
- 04.0 Take basic photographs (35mm camera).
- 05.0 Finish photographs.
- 06.0 Apply lighting techniques.
- 07.0 Reproduce photographic media.
- 08.0 Reproduce photographic media.
- 09.0 Demonstrate appropriate communication skills.
- 10.0 Operate various format cameras.
- 11.0 Process color images.
- 12.0 Procure color photographs.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Photography Technology 1
Career Certificate Program Number: K610100

Course Number: PGY0180
Occupational Completion Point:
Photographic Imaging Specialist (1 of 2) – 250 Hours – SOC Code 51-9151

01.0	Perform laboratory skills – the student will be able to:
01.01	Mix developers and other chemicals.
01.02	Hand-process black and white film.
01.03	Print black and white photographs.
01.04	Process black and white paper.
01.05	Utilize modern processing machines for color printing.
02.0	Manage a photographic business – the student will be able to:
02.01	Apply communication skills.
02.02	Apply human relations skills.
02.03	Set rates for photographic work.
02.04	Maintain shop records and files.
02.05	Develop effective advertising.
02.06	Maintain a presentational portfolio.

Course Number: PGY0181
Occupational Completion Point: A
Photographic Imaging Specialist (2 of 2) – 250 Hours – SOC Code 51-9151

03.0	Control exposures (35mm camera) – the student will be able to:
03.01	Set appropriate f-stop and shutter speeds.

03.02	Select appropriate film type.
04.0	Take basic photographs (35mm camera) – the student will be able to:
04.01	Apply camera care and maintenance principles.
04.02	Compose photographs.
04.03	Take still photographs.
04.04	Take action photographs.
05.0	Finish photographs – the student will be able to:
05.01	Mount photographs.
05.02	Mat/frame photographs.
06.0	Apply lighting techniques – the student will be able to:
06.01	Take photographs utilizing available light.
06.02	Take photographs with an electronic strobe.
06.03	Take photographs using photo-flood lighting.
07.0	Reproduce photographic media – the student will be able to:
07.01	Copy prints.
08.0	Demonstrate appropriate communication skills – the student will be able to:
08.01	Write logical and understandable statements/phrases to accurately fill out forms/invoices commonly used in business and industry.
08.02	Read and understand graphs, charts, diagrams, and tables commonly used in the photography industry.
08.03	Read and follow written and oral instructions.
08.04	Answer and ask questions coherently and concisely.
08.05	Read critically by recognizing assumptions and implications and by evaluating ideas.
08.06	Demonstrate appropriate telephone/communication skills.

Course Number: PGY0182
Occupational Completion Point: B
Photography Specialist/Lab Technician – 200 Hours – SOC Code 51-9151

09.0 Reproduce photographic media – the student will be able to:

09.01 Scan transparencies.

09.02 Scan internegatives.

10.0 Operate various format cameras – the student will be able to:

10.01 Use view cameras.

11.0 Process color images – the student will be able to:

11.01 (Optional) Hand process color negatives and transparencies.

11.02 (Optional) Process color negatives and transparencies.

11.03 Download images to a computer.

11.04 Save images to a storage device.

11.05 Utilize modern processing machines for color printing.

12.0 Procure color photographs – the student will be able to:

12.01 (Optional) Process color paper.

12.02 (Optional) Print color negatives.

12.03 (Optional) Print color negatives using a color analyzer.

12.04 Purchase color mediums.

12.05 Calibrate a computer monitor.

12.06 Analyze a color print for correct color and contrast.

12.07 Utilize modern processing machines for color printing.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Commercial Photography Technology 2
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K610200
CIP Number	0650040606
Grade Level	30, 31
Standard Length	950 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-4021 – Photographers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment as photographers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Art, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Art, A/V Technology and Communication career cluster.

The content includes, but is not limited to, communication skills, leadership skills, human relations and employability skills; safe and efficient work practices; and the use of cameras and laboratory film-processing techniques in portrait, commercial and industrial applications with emphasis on composition and color dynamics; contact printing; enlarging and developing film; and the use, care, and maintenance of photographic equipment. This program focuses on broad, transferable skills and stresses understanding and demonstration of the following elements of the Commercial Photography industry; planning, management, finance, technical and product skills, underlying principles of technology, labor issues, community issues and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	PGY0183	Portrait Photographer 1	PHOTOG @7 7G	250 hours	27-4021
	PGY0184	Portrait Photographer 2		250 hours	
B	PGY0185	Commercial Photographer		450 hours	27-4021

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Operate various format cameras.
- 02.0 Take studio photographs.
- 03.0 Use digital imaging.
- 04.0 Produce media presentations.
- 05.0 Demonstrate an understanding of entrepreneurship.

Florida Department of Education
Student Performance Standards

Program Title: Commercial Photography Technology 2
Career Certificate Program Number: K610200

Course Number: PGY0183
Occupational Completion Point:
Portrait Photographer 1 – 250 Hours – SOC Code 27-4021

01.0	Operate various format cameras – the student will be able to:
01.01	Use 2¼ format cameras.
02.0	Take studio photographs – the student will be able to:
02.01	Take portraits.
03.0	Use digital imaging – the student will be able to:
03.01	Use basic photographic computer skills.
03.02	Use a professional imaging program.
03.03	Use a flatbed and a film scanner.
03.04	Output photographic-quality images using a digital printer.
03.05	Use a digital camera.

Course Number: PGY0184
Occupational Completion Point: A
Portrait Photographer 2 – 250 Hours – SOC Code 27-4021

01.0	Operate various format cameras – the student will be able to:
01.01	Use 2¼ format cameras.
02.0	Take studio photographs – the student will be able to:
02.01	Take portraits.
03.0	Use digital imaging – the student will be able to:

03.01	Use basic photographic computer skills.
03.02	Use a professional imaging program.
03.03	Use a flatbed and a film scanner.
03.04	Output photographic-quality images using a digital printer.
03.05	Use a digital camera.

Course Number: PGY0185
Occupational Completion Point: B
Commercial Photographer – 450 Hours – SOC Code 27-4021

04.0	Take studio photographs – the student will be able to:
04.01	Take commercial photographs.
05.0	Produce media presentations – the student will be able to:
05.01	Prepare a script for a slide presentation.
05.02	Shoot slides for a slide presentation.
05.03	Produce a slide presentation.
05.04	Prepare a script for a video presentation.
05.05	Shoot video tape.
05.06	Produce a video presentation.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Design 1
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K700100
CIP Number	0510030307
Grade Level	30, 31
Standard Length	600 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	SkillsUSA
SOC Codes (all applicable)	15-1151 – Computer Support Specialists 43-9031 – Desktop Publisher
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment in digital publishing positions, such as Information Technology Assistants, Production Assistants, Digital Assistant Designers, Graphic Designers, and Multimedia Designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, enhanced practical experiences in computer generated art and text, graphic design, graphic production, electronic design skills, preparation of electronic layouts and illustrations, and electronic scanning, and development of specialized skills in multimedia presentations.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of three occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	OTA0040	Information Technology Assistant	OTA0040 Teacher Certifications	150 hours	15-1151
B	GRA0024	Production Assistant	BUS DP @7 %G BUS ED 1 @2 CLERICAL @7 7G COMM ART @7 7G COMP SCI 6 @2 ELECT DP @7 %G PRINTING @7 7G	150 hours	43-9031
C	GRA0025	Digital Assistant Designer	SECRETAR 7 G TC COOP ED @7 TEC ED 1 @2 ENG&TEC ED1@2 TEC ELEC \$7 G VOE @7	300 hours	43-9031

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

Information Technology Assistant (OTA0040) is the first course in this and other programs within the Business Management & Administration Career Cluster. Standards 01.0 – 14.0 are associated with this course; those standards/benchmarks do not appear in this framework.

After successfully completing this program, the student will be able to perform the following:

- 15.0 Demonstrate proficiency in computer skills.
- 16.0 Demonstrate knowledge of digital publishing concepts.
- 17.0 Perform decision-making activities.
- 18.0 Demonstrate proficiency in digital imaging.
- 19.0 Demonstrate proficiency in the safe and ethical use of the Internet to locate information.
- 20.0 Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process.
- 21.0 Perform layout, project design, and measurement activities associated with digital planning.
- 22.0 Demonstrate an understanding of color theory and its role in digital design.
- 23.0 Demonstrate an understanding of typography.
- 24.0 Demonstrate basic skill in digital photography.
- 25.0 Demonstrate skill in the use of digital imaging software applications.
- 26.0 Develop an awareness of the emergent technologies associated with digital design.
- 27.0 Demonstrate proficiency in creating a simple website.
- 28.0 Demonstrate proficiency in digital publishing operations.
- 29.0 Demonstrate proficiency in digital imaging and in utilizing digital photography.
- 30.0 Consolidate coursework into a professional portfolio.
- 31.0 Demonstrate the ability to create a multimedia presentation.
- 32.0 Demonstrate promotion applications for a selected industry.
- 33.0 Demonstrate proficiency in website design.
- 34.0 Demonstrate proficiency in the use of web design software.
- 35.0 Demonstrate the ability to apply the design process.
- 36.0 Demonstrate the knowledge and skills relative to the design process.
- 37.0 Use computer network and web-based resources to facilitate collaborative communication.
- 38.0 Compare and contrast various digital media delivery systems.
- 39.0 Demonstrate proficiency in digital photography.
- 40.0 Plan, organize, and carry out collaborative digital design projects.

Florida Department of Education
Student Performance Standards

Program Title: Digital Design
Career Certificate Program Number: B070600

Course Number: OTA0040
Occupational Completion Point: A
Information Technology Assistant – 150 Hours – SOC Code 15-1151

- Information Technology Assistant (OTA0040) is part of several programs across the various CTE career clusters. To ensure consistency, the standards and benchmarks for this course (01.0 – 14.0) have been placed in a separate document

Course Number: GRA0024
Occupational Completion Point: B
Production Assistant – 150 Hours – SOC Code 43-9031

15.0	Demonstrate proficiency in computer skills – the student will be able to:
15.01	Utilize appropriate font management techniques (e.g., TrueType, OpenType, font installation/removal).
15.02	Perform storage management (e.g., cloud-based services, USB drives).
15.03	Perform basic maintenance of computers and peripherals.
16.0	Demonstrate knowledge of digital publishing concepts – the student will be able to:
16.01	Identify the skills required of a digital designer.
16.02	Define the terms commonly used in graphic communications.
16.03	Identify the characteristics of paper (e.g., weight, point).
16.04	Identify different types of color (e.g., RGB, WebSafe, Pantone Color Matching System, HEX).
16.05	Identify the software used in digital publishing.
17.0	Perform decision-making activities – the student will be able to:
17.01	Determine work priorities.
17.02	Use critical thinking skills to evaluate information and select relevant material.
17.03	Determine the audience.

18.0	Demonstrate proficiency in digital imaging – the student will be able to:
18.01	Demonstrate proper use of scanners, digital cameras, and various input devices.
18.02	Proofread manually and digitally.
19.0	Demonstrate proficiency in the safe and ethical use of the Internet to locate information – the student will be able to:
19.01	Identify and use web-related terminology.
19.02	Define <i>Universal Resource Locator</i> (URL) and associated protocols (e.g., http, ftp, telnet, mailto).
19.03	Compare and contrast the various types of Internet domains (e.g., .com, .org, .edu, .gov, .net, .mil).
19.04	Demonstrate proficiency using search engines, including Boolean search techniques.
19.05	Apply the rules for properly citing works or other information obtained from the Internet.
19.06	Identify and apply Copyright Fair Use guidelines.
19.07	Evaluate web-based information for credibility and quality using basic guidelines and indicators (e.g., authority, affiliation, purpose).
19.08	Demonstrate an understanding of safe and ethical Internet usage.
19.09	Describe cyber-bullying and its impact on the victims and perpetrators.
20.0	Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process – the student will be able to:
20.01	Identify the purpose, audience, and the needs of the audience for the preparation of design projects.
20.02	Research and describe the implications of audience, purpose/message, and time constraints relative to a design project.
20.03	Make decisions based on specifications.
20.04	Research current applications and perspectives related to a project.
20.05	Explain the relationship between design criteria and design constraints.
20.06	Produce thumbnail sketches and rough designs.
21.0	Perform layout, project design, and measurement activities associated with digital publishing – the student will be able to:
21.01	Demonstrate an understanding of the elements and principles of design (e.g., line, shape, balance).
21.02	Determine the appropriate type of layout for a specified problem (e.g., audience, purpose).

21.03	Determine the activities and implications of content preparation and editing/proofreading.
21.04	Develop and apply specifications projects.
21.05	Demonstrate basic technical skills using a desktop or digital publishing application (e.g., InDesign, Publisher).
21.06	Identify distinct components in a layout (e.g., headlines, subheads, body copy).
21.07	Demonstrate appropriate use of typography by considering visual hierarchy, proximity, alignment, contrast, repetition.
21.08	Compare and contrast methods of measurement used in desktop publishing (e.g., inches, centimeters, millimeters, points, picas).
21.09	Produce a variety of designs using digital publishing applications (e.g., flyers, postcards, brochures, business cards, letterhead).
21.10	Incorporate clip art, images, borders, and other special effects into a layout.
21.11	Select the appropriate color format and resolution for a variety of purposes (e.g., web, print).
21.12	Understand and comply with the legalities of using preexisting images (e.g., copyright laws, trademarking).
21.13	Create a professional portfolio to showcase projects.
22.0	Demonstrate an understanding of color theory and its role in digital design – the student will be able to:
22.01	Describe the spectral colors in the visible light spectrum.
22.02	Describe the difference between additive and subtractive color mixing.
22.03	Compare and contrast RGB and CYMK color models as used in digital design.
22.04	Define and explain the terminology related to color (e.g., chroma, lightness, saturation, hue, intensity, luminance/value, shade, tint).
22.05	Demonstrate the application of color theory to design practices.
23.0	Demonstrate an understanding of typography – the student will be able to:
23.01	Define and describe the terminology related to character and line spacing (e.g., leading, kerning, tracking, baseline shift, ligature).
23.02	Identify the characteristics and psychology of type, type families, type series, and type styles.
23.03	Demonstrate an understanding of the history of typography.
23.04	Describe the principles of typographic design as they relate to digital design.
23.05	Compare and contrast the techniques of typographic communication relative to appropriateness and effectiveness.

23.06	Demonstrate proficiency in incorporating typographic techniques into a communication design.
23.07	Understand the installation and application of fonts.
24.0	Demonstrate basic skill in digital photography – the student will be able to:
24.01	Demonstrate the operation of a digital camera (typical features/modes).
24.02	Demonstrate knowledge of ethics related to digital images/imaging; examine legal and content-related issues.
24.03	Apply effective design principles in digital photography compositions (e.g., rule of thirds).
24.04	Illustrate the essence of an event, quotation, or slogan through digital photography and or digital imaging.
25.0	Demonstrate skill in the use of digital imaging software applications – the student will be able to:
25.01	Differentiate between raster (bitmap) and vector graphic images.
25.02	Demonstrate basic knowledge of the tools and techniques for using vector software applications (e.g., Illustrator, Inkscape, CorelDRAW).
25.03	Create and edit various illustrations using vector software (e.g., line art, drawing basics, transforming/applying effects to objects, painting, type and type effects, layers).
25.04	Demonstrate basic knowledge of the tools and techniques for using a raster-based software application (e.g., Photoshop, GNU Image Manipulation Program).
25.05	Create and edit images/photographs using digital imaging software (e.g., layers, image editing, adjustments, filters, selections).
25.06	Demonstrate skill in image manipulation, color correction, and special effects to creatively convey a message using vector-based or raster-based software applications.
25.07	Demonstrate skill in scanning, cropping, and importing photographs.
25.08	Compare and contrast image formats (e.g., BMP, EPS, GIF, JPEG, PDF, PNG, RAW, TIF).
25.09	Demonstrate an understanding of image resolution and compression factors such as transmission speed, color reduction, and delivery media parameters.
25.10	Incorporate scanned and digital photographs into documents comprising a specified design (e.g., poster, brochure, card, advertisement, web page).
26.0	Develop an awareness of the emergent technologies associated with digital design – the student will be able to:
26.01	Compare and contrast emerging technologies relative to their role in digital design (e.g., wireless, cloud-based, mobile, portable devices, kiosks).
26.02	Describe social media as a form of digital design.
26.03	Describe the emergent and evolving nature of software applications used in interactive design.

26.04 Explain how the use of advanced image sensing devices have altered the manner in which communication takes place, especially those utilizing Quick Response (QR) Codes and other forms of two-dimensional bar coding techniques.

Course Number: GRA0025
Occupational Completion Point: C
Digital Assistant Designer – 300 Hours – SOC Code 43-9031

17.0 Perform decision-making activities – the student will be able to:

17.04 Demonstrate an understanding of various advertising channels.

17.05 Recognize and maintain ethical standards.

17.06 Demonstrate knowledge of copyright laws.

17.07 Determine project specifications.

17.08 Research a digital design problem and determine the most appropriate problem-solving method to enhance the functional, economic, and ethical viability of a project.

17.09 Utilize a variety of approaches to solve digital design problems.

19.0 Demonstrate proficiency in the safe and ethical use of the Internet to locate information – the student will be able to:

19.10 Differentiate between viruses and malware, specifically the sources, ploys, and impact on personal privacy and computer operation; identify ways to avoid infection.

19.11 Demonstrate an understanding of how to run an antivirus scan to remove viruses and malware.

19.12 Describe the risks associated with social networking sites (e.g., Facebook, Instagram, Twitter) and identify ways to mitigate these risks.

19.13 Adhere to cyber safety practices with regard to conducting Internet searches, email, chat rooms, and other social network sites.

19.14 Adhere to Acceptable Use policies when accessing the Internet.

20.0 Demonstrate the ability to set project requirements, engage in project planning, and utilize the design process – the student will be able to:

20.07 Produce final designs based on specifications.

20.08 Demonstrate knowledge of project management tasks and responsibilities.

20.09 Evaluate solutions to ensure the sustainability and effectiveness of a digital design product (e.g., visual appeal, audience, media, market research).

20.10 Identify basic usability, readability, and accessibility standards.

27.0 Demonstrate proficiency in creating a simple website – the student will be able to:

27.01	Create a webpage.
27.02	Convert publications for viewing on the Internet.
27.03	Save files in multiple formats.
27.04	Create a simple website and use hyperlinks.
27.05	Demonstrate knowledge of e-Portfolios and how to create an e-Portfolio.
28.0	Demonstrate proficiency in digital publishing operations – the student will be able to:
28.01	Produce a variety of color designs using different color techniques; include process color and spot color.
28.02	Prepare output files using prepress operations (e.g., color separation, font management, file management).
28.03	Read work orders and prepare electronic files that meet all specifications.
28.04	Design a document using grids and formats.
28.05	Produce documents integrating the Elements and Principles of Art and Design.
28.06	Demonstrate proficiency in the use of a raster-based illustration program.
28.07	Demonstrate proficiency in the use of a vector-based illustration program.
28.08	Demonstrate the ability to save documents to various storage media/devices.
29.0	Demonstrate proficiency in digital imaging and in utilizing digital photography – the student will be able to:
29.01	Digitally crop and scale photographs.
29.02	Demonstrate understanding of and proficiency in the use of formats and modes.
29.03	Demonstrate the ability to use image editing software.
29.04	Complete projects using appropriate resolution and screen values (e.g., DPI, LPI, PPI).
29.05	Produce digitally retouched photographs; utilize tones, hues, and values.
29.06	Produce projects using a digital camera.
29.07	Scan multiple documents and images.
29.08	Apply special effects to image files.

29.09	Demonstrate increased proficiency in digital photography and digital image manipulation.
30.0	Consolidate coursework into a professional portfolio – the student will be able to:
30.01	Assess personal interest and create an individual career plan that reflects the transition from school to work, lifelong learning, and personal and professional goals.
30.02	Prepare a traditional (hard copy) portfolio.
30.03	Prepare a digital portfolio.
30.04	Present the portfolio to an audience.
30.05	Refine and implement a plan to facilitate personal growth and skill development related to career opportunities in digital design.
30.06	Develop and maintain a professional portfolio; include a résumé and letter of interest.
31.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
31.01	Create quality multimedia files; add audio, links, images/photos, and video.
31.02	Incorporate audio and video into a presentation.
31.03	Demonstrate the ability to create a multimedia PDF.
31.04	Demonstrate proficiency in the use of 2D and 3D animation effects.
32.0	Demonstrate promotion applications for a selected industry – the student will be able to:
32.01	Identify the types of promotion used in the industry.
32.02	Discuss the importance of advertising media.
32.03	Use design principles to prepare promotional messages.
32.04	Write a promotional message that appeals to a specified target market.
32.05	Use advertising guidelines to design appropriate sample ads for print, television, and the Internet.
32.06	Design a website to promote a product or service.
33.0	Demonstrate proficiency in website design – the student will be able to:
33.01	Develop awareness of acceptable website design.
33.02	Access and digitize graphics through various resources (e.g., scanner, digital cameras, online graphics, clipart, CD-ROM).

33.03	Use image design software to create and edit images.
33.04	Demonstrate proficiency in adding downloadable forms to a website.
33.05	Demonstrate proficiency in publishing to the Internet.
34.0	Demonstrate proficiency in the use of web design software – the student will be able to:
34.01	Compare and contrast various specialized web design programs.
34.02	Demonstrate proficiency using web design software.
35.0	Demonstrate the ability to apply the design process – the student will be able to:
35.01	Determine whether a digital design problem should be addressed or resolved.
35.02	Identify the criteria and constraints associated with a digital design problem and select the most appropriate solution based on these factors.
35.03	Evaluate the quality, efficiency, and productivity of an existing or proposed design; refine the design accordingly.
35.04	Evaluate an existing design using conceptual, physical, and mathematical models; note aspects for improvement; determine whether the design meets criteria and constraints.
35.05	Select an appropriate brainstorming process (e.g., concept mapping, graphic organizers) and explain the role of brainstorming in the digital design process.
35.06	Develop a digital design solution using the design process.
35.07	Apply and evaluate the design process pertaining to a specific design solution.
36.0	Demonstrate the knowledge and skills relative to the design process – the student will be able to:
36.01	Demonstrate the ability to represent a concept.
36.02	Determine the most effective software applications for the digital design problem.
36.03	Use communication, analysis, and design skills to define project specifications that meet the client's needs/desires; include purpose, mood, and audience.
36.04	Demonstrate increased proficiency in the use of tools and techniques in desktop/digital publishing software applications (e.g., layout, text, graphics, color and transparency, output).
36.05	Use communication, analysis, and design skills to define project specifications that will meet the client's expectations.
36.06	Use the most effect designs to complete projects according to plan.
36.07	Define, design, and complete digital design projects; account for time and resources.
36.08	Update the professional digital design portfolio.

36.09	Create a project plan to account for the time and resources to complete the project.
36.10	Complete the project according to plan.
37.0	Use computer network and web-based resources to facilitate collaborative communication – the student will be able to:
37.01	Discuss the legal and ethical copyright issues related to downloading or sharing music and/or video files from online collaborative environments (e.g., GoogleDocs).
37.02	Describe the risks associated with the use of social networking sites for collaboration; identify ways to mitigate those risks.
37.03	Adhere to cyber safety practices while conducting Internet searches and using email, chat rooms, and social networking sites.
37.04	Use various web-based tools associated with online collaboration; include those tools used to download and transfer files, telnet, FTP, PDF, plug-ins, and data compression.
37.05	Describe the ways interactive web applications support communication; include the real-time sharing of photos and video clips, messaging, chatting, and collaborating.
37.06	Describe the appropriate use of social networking sites and applications, blogs, and collaborative tools for gathering and disseminating information and/or images.
38.0	Compare and contrast various digital media delivery systems – the student will be able to:
38.01	Explain the benefits and constraints of fixed versus streaming digital media.
38.02	Describe the variations in design considerations between the mass display and on-demand display of digital media.
38.03	Discuss the variations in design considerations related to digital signage.
38.04	Describe the design implications of digital images and/or graphics based on projected mobile and Wi-Fi delivery media.
39.0	Demonstrate proficiency in digital photography – the student will be able to:
39.01	Demonstrate proficiency in adjusting the hardware features (e.g., manual settings, shutter speed, f-stops) of a basic digital single-lens reflex camera (DSLR or digital SLR).
39.02	Demonstrate knowledge of editing processes on smartphone devices; recognize the availability of apps related to photograph editing.
39.03	Demonstrate understanding of white balance and ISO.
39.04	Understand the role of lighting in photographic composition; develop an awareness of and use the three-point lighting concept.
39.05	Use imaging techniques (e.g., High Dynamic Range, panoramic, long exposure, stop motion, time lapse) to achieve different artistic effects.
39.06	Demonstrate the use of various photography techniques (e.g., black and white photography, macro photography).
39.07	Demonstrate knowledge of photography by creating a variety of projects that include appropriate composition, framing, and point-of-view (POV).

39.08	Demonstrate effective presentation of a thematic photograph or create a video portfolio of different types of photos.
39.09	Develop an awareness of the history of photography.
40.0	Plan, organize, and carry out collaborative digital design projects – the student will be able to:
40.01	Apply the design process to determine the scope of a project.
40.02	Organize a team according to individual strengths.
40.03	Assign specific tasks to team members.
40.04	Determine project priorities and the timeline for completion.
40.05	Identify the resources required for the project.
40.06	Plan and conduct research, design, development, and evaluation activities for the project.
40.07	Carry out the project plan to successful completion.
40.08	Create a presentation to articulate the problem, the solution, the selected process, conclusions, and lessons learned (self-reflection).

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Digital Design 2
Program Type: Career Preparatory
Career Cluster: Art, A/V Technology and Communication

Career Certificate Program

Program Number	K700200
CIP Number	0510030308
Grade Level	30, 31
Standard Length	600 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	SkillsUSA
SOC Codes (all applicable)	27-1014 – Multimedia Artists and Animators 27-1024 – Graphic Designers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment in digital publishing positions, such as Information Technology Assistants, Production Assistants, Digital Assistant Designers, Graphic Designers, and Multimedia Designers.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, enhanced practical experiences in computer generated art and text, graphic design, graphic production, electronic design skills, preparation of electronic layouts and illustrations, and electronic scanning, and development of specialized skills in multimedia presentations.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of two occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	GRA0026	Graphic Designer	BUS DP @7 %G BUS ED 1 @2 CLERICAL @7 7G COMM ART @7 7G	300 hours	27-1024
B	GRA0027	Media Designer	COMP SCI 6 @2 ELECT DP @7 %G PRINTING @7 7G SECRETAR 7 G TC COOP ED @7 TEC ED 1 @2 ENG&TEC ED1@2 TEC ELEC \$7 G VOE @7	300 hours	27-1014

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate proficiency in digital imaging.
- 02.0 Demonstrate basic skill in digital photography.
- 03.0 Demonstrate proficiency in digital publishing operations.
- 04.0 Consolidate coursework into a professional portfolio.
- 05.0 Demonstrate the ability to create a multimedia presentation.
- 06.0 Demonstrate proficiency in creating and manipulating digital images using software applications.
- 07.0 Demonstrate proficiency in the creation of digital design solutions involving motion or special effects.
- 08.0 Demonstrate knowledge and skills relative to digital design.
- 09.0 Demonstrate the ability to assess the impact of digital products.
- 10.0 Demonstrate an understanding of career opportunities and requirements in the field of digital design.
- 11.0 Demonstrate an understanding of the use of emergent technologies in digital design and advertising.
- 12.0 Demonstrate proficiency in the creation of a digital design product using mobile communication devices.
- 13.0 Demonstrate advanced project design capabilities associated with digital publishing.
- 14.0 Demonstrate advanced ability to create and manipulate digital images using software applications.
- 15.0 Organize and carry out project plans for creating various digital design products.
- 16.0 Demonstrate understanding of the Elements and Principles of Art and Design.

Florida Department of Education
Student Performance Standards

Program Title: Digital Design 2
Career Certificate Program Number: K700200

Course Number: GRA0026	
Occupational Completion Point: A	
Graphic Designer – 300 Hours – SOC Code 27-1024	
01.0	Demonstrate proficiency in digital imaging – the student will be able to:
01.01	Produce projects using line art, grayscale, duotone, and the four-color process.
01.02	Use illustrations to emphasize, interpret, and establish mood and emotion.
01.03	Apply special effects to projects.
02.0	Demonstrate basic skill in digital photography – the student will be able to:
02.01	Demonstrate advanced knowledge of and skills in photography by creating various theme-based projects.
03.0	Demonstrate proficiency in digital publishing operations – the student will be able to:
03.01	Produce designs by integrating the elements and principles of design.
03.02	Use software to produce vector illustrations.
03.03	Produce multiple projects using a variety of software programs.
03.04	Demonstrate the ability to prepare output files.
03.05	Establish workflows using advanced features in desktop publishing software.
03.06	Create documents using advanced features in desktop publishing software.
03.07	Produce color designs for a presentation using appropriate color balance.
03.08	Create multimedia presentations.
04.0	Consolidate coursework into a professional portfolio – the student will be able to:
04.01	Maintain a professional digital portfolio.

04.02	Present an updated digital portfolio to an audience.
05.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
05.01	Create links in webpages, PDF files, and other documents.
05.02	Optimize images for Internet publication.
05.03	Build pages for multimedia presentations.
06.0	Demonstrate proficiency in creating and manipulating digital images using software applications – the student will be able to:
06.01	Demonstrate proficiency using tools and techniques in raster-based software applications (e.g., layers, adjustments, filters, special effects, selections, masks, channels).
06.02	Demonstrate proficiency using tools and techniques in vector-based software applications (e.g., line art, drawing, transforming/applying effects to objects, painting, type and type effects, layers).
07.0	Demonstrate proficiency in the creation of digital design solutions involving motion or special effects – the student will be able to:
07.01	Demonstrate an understanding of kinetic typography.
07.02	Design a communication solution that employs animation or motion (e.g., graphics, text, video) to achieve or enhance the intended message.
07.03	Describe the design constraints associated with optics and devices (e.g., tablet, kiosk, smartphone) used to deliver digital design projects.
07.04	Demonstrate proficiency in the use of editing software to create a product featuring special visual effects.
07.05	Design and create an interactive digital design project feature the use of rich media.
08.0	Demonstrate knowledge and skills relative to digital design – the student will be able to:
08.01	Demonstrate effective use of the Internet to locate and evaluate information.
08.02	Distribute information digitally.
08.03	Identify effective design methods for the digital presentation of information.
08.04	Demonstrate the ability to select appropriate media topics, equipment, and materials for a digital media project.
08.05	Produce a digital media project.
09.0	Demonstrate the ability to assess the impact of digital products – the student will be able to:
09.01	Collect information and evaluate the quality and validity of this information.
09.02	Evaluate data, analyze trends, and draw conclusions regarding the effects of technology on the individual, society, and the environment.

09.03	Use assessment techniques (e.g., trend analysis, experimentation) to make decisions about the future development of technology.
10.0	Demonstrate an understanding of career opportunities and requirements in the field of digital design – the student will be able to:
10.01	Discuss individual interests related to a career in digital design.
10.02	Explore career opportunities in the field of digital design.
10.03	Explore secondary and post-secondary educational opportunities related to digital design.
10.04	Conduct a job search.
10.05	Correctly complete a job application form.
10.06	Demonstrate competence in job interview skills and techniques.
10.07	Create a professional résumé and letter of introduction.
10.08	Procure letters of recommendation; list awards and recognition received.
10.09	Organize work samples in a professional portfolio (digital and traditional formats).
11.0	Demonstrate an understanding of the use of emergent technologies in digital design and advertising – the student will be able to:
11.01	Demonstrate an understanding of the principles of optics and how they relate to digital design.
11.02	Discuss contemporary trends in digital signage and imprinted advertising specialties.
11.03	Explain the various technologies associated with digital design, advertising, and associated industries.
11.04	Compare and contrast printing processes.
12.0	Demonstrate proficiency in the creation of a digital design product using mobile communication devices – the student will be able to:
12.01	Design and create digital design products suitable for delivery via multiple media options (e.g., smartphones, tablets, laptops).
12.02	Discuss the design implications of products intended for delivery via Bluetooth-enabled devices.
12.03	Compare and contrast the security and privacy issues associated with different delivery media, particularly in regard to social media.
13.0	Demonstrate advanced project design capabilities associated with digital publishing – the student will be able to:
13.01	Demonstrate advanced capabilities in the use of tools and techniques in digital publishing software applications (e.g., layout of a document, text, graphics, color/transparency, basic output).
14.0	Demonstrate advanced ability to create and manipulate digital images using software applications – the student will be able to:

14.01	Demonstrate advanced capabilities in the use of tools and techniques in raster-based software applications.
14.02	Demonstrate advanced capabilities in the use of tools and techniques in vector-based software applications.
15.0	Organize and carry out project plans for creating various digital design products – the student will be able to:
15.01	Apply the design process to determine the goal, scope, criteria, constraints, and timeline of the project.
15.02	Work as part of the project team; support the project's focus, direction, and progress.
15.03	Identify the required resources for a specified project.
15.04	Plan and conduct research, design, development, and evaluation activities for the successful completion of the project.
15.05	Carry out the project plan to successful completion.
15.06	Create a presentation to articulate the problem, the solution, the selected process, conclusions, and lessons learned (self-reflection).

Course Number: GRA0027
Occupational Completion Point: B
Media Designer – 300 Hours – SOC Code 27-1014

04.0	Consolidate coursework into a professional portfolio – the student will be able to:
04.03	Continue to update the professional digital portfolio.
05.0	Demonstrate the ability to create a multimedia presentation – the student will be able to:
05.04	Incorporate multimedia elements into digitally-delivered documents/products.
05.05	Select appropriate fonts for on-screen presentations.
05.06	Generate presentations with fully integrated text and images.
16.0	Demonstrate understanding of the Elements and Principles of Art and Design – the student will be able to:
16.01	Describe the Elements of Art and Design (line, shape, mass, value, space, texture).
16.02	Describe the Principles of Art and Design (balance, unity, contrast, rhythm, proportion, emphasis, movement, scaling).
16.03	Apply the Elements and Principles of Art and Design to enhance the message of the image/text and layout.
16.04	Utilize design elements and principles to create cohesive digital design projects.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

SkillsUSA is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9 Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Fashion Technology and Design Services
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	V200400
CIP Number	0419090606
Grade Level	30, 31
Standard Length	600 hours
Teacher Certification	Refer to the <u>Program Structure</u> section.
CTSO	FCCLA
SOC Codes (all applicable)	41-2031 – Retail Salespersons 51-6052 – Tailors, Dressmakers, and Custom Sewers 51-6092 – Fabric and Apparel Patternmakers 27-1022 – Fashion Designers
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for initial employment or continued study in the fashion technology and design services industry.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, the following aspects of the fashion technology and design services industry: planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	HEV0010	Retail Sales	APPRL MFG ϕ 7 @7G	150 hours	41-2031
B	HEV0011	Tailor, Dressmaker, Custom Sewer	FAM CON SC 1	150 hours	51-6052
C	HEV0012	Fabric and Apparel Patternmakers	FASH TECH 7G	150 hours	51-6092
D	HEV0013	Fashion Coordinator/Stylist	HME EC OCC ϕ 7 TAILORING 7G TEC ED 1 @2 ENG&TEC ED1@2	150 hours	27-1022

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Demonstrate leadership and organizational skills.
- 02.0 Demonstrate appropriate basic skills essential to working in design occupations.
- 03.0 Identify and exhibit employment skills.
- 04.0 Describe the relationship between human factors and design services.
- 05.0 Identify the characteristics and care of textiles.
- 06.0 Select and safely use tools and equipment.
- 07.0 Operate and maintain a conventional and/or commercial/industrial sewing machine.
- 08.0 Operate specialty machines (minimum of two machines, if available).
- 09.0 Select and prepare materials.
- 10.0 Construct a machine-sewn design project for inclusion in a design portfolio.
- 11.0 Develop a design portfolio.
- 12.0 Identify employment opportunities in Fashion Technology and Design Services.
- 13.0 Identify and exhibit employment skills for occupations related to Fashion Technology and Design Services.
- 14.0 Demonstrate an understanding of the elements and principles of design.
- 15.0 Demonstrate an understanding of the terminology used in the apparel industry.
- 16.0 Operate specialty machines (if available).
- 17.0 Demonstrate skill in the construction of simple garments.
- 18.0 Demonstrate an understanding of the ways eco-fashion decisions impact the environment, consumer health and the working conditions of people in the fashion industry.
- 19.0 Research the ways fashion design is affected by history and culture.
- 20.0 Demonstrate sketching and freehand drawing skills.
- 21.0 Demonstrate an understanding of the uses of technology in the fashion industry.
- 22.0 Identify the psychological and practical needs of clothing for special markets.
- 23.0 Create an original pattern for a garment.
- 24.0 Demonstrate alteration skills on a sample or garment.
- 25.0 Demonstrate clothing repair on a garment or sample.
- 26.0 Identify and describe the different specialties related to Fashion Technology and Design Services (e.g., Window Display, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, and Stylist).
- 27.0 Select one specialty area and complete the student performance standards for that area.
- 28.0 (Optional) Schedule and participate in a Fashion Technology and Design Services job shadowing experience.
- 29.0 Finalize a professional portfolio according to industry standards.

Florida Department of Education
Student Performance Standards

Program Title: Fashion Technology and Design Services
Career Certificate Program Number: V200400

Course Number: HEV0010	
Occupational Completion Point: A	
Retail Sales – 150 Hours – SOC Code 41-2031	
01.0	Demonstrate leadership and organizational skills – the student will be able to:
01.01	Identify professional and youth organizations.
01.02	Identify the purposes and functions of professional and youth organizations.
01.03	Identify the roles and responsibilities of members.
01.04	Demonstrate cooperation as a group member to achieve organizational goals.
01.05	Demonstrate confidence in leadership roles and organizational responsibilities.
02.0	Demonstrate appropriate basic skills essential to working in design services occupations – the student will be able to:
02.01	Identify the knowledge, skills, and attitudes necessary to perform occupational tasks (e.g., email, phone, conversations with clients).
02.02	Demonstrate the communication competencies required to perform occupational tasks.
03.0	Identify and exhibit employment skills – the student will be able to:
03.01	Use the Internet to conduct a job search.
03.02	Research and synthesize information about an industry-related employment opportunity or advanced training opportunities; include information pertaining to local post-secondary educational programs and training opportunities.
03.03	Demonstrate proficiency in current technology and software related to the fashion design industry; create, revise, retrieve and verify information.
03.04	Apply the principles of time management, work simplification, and teamwork when performing assigned tasks.
03.05	Demonstrate pride in the quality of work performed.
04.0	Describe the relationship between human factors and design services – the student will be able to:
04.01	Define the <i>elements</i> of design applicable to interior design (space, line, shape, form, texture, color).

04.02	Define the <i>principles</i> of design applicable to design (proportion, scale, balance, emphasis, rhythm, harmony).
04.03	Explain the impact of human factors (psychological, physiological, social) on decisions relating to design services processes.
04.04	Identify and describe the modifications necessary to accommodate individuals with special needs.
04.05	Identify and describe the impact of human needs and wants on the cost of design services and customized projects.
04.06	Identify and describe the importance of barrier-free design and accessibility related to design services.
04.07	Identify and describe the characteristics of interior spaces, furnishings, and garments.
04.08	Take accurate measurements to determine the correct size home furnishings items.
05.0	Identify the characteristics and care of textiles – the student will be able to:
05.01	Identify and describe fiber characteristics.
05.02	Identify and describe types of fabric construction (e.g., knitted, woven, tufted).
05.03	Identify and describe types of fabric finishes (e.g., dyed, printed, performance/quality enhancements).
05.04	Identify and describe different types of natural and manufactured textiles; identify the pros/cons, uses, and care of each type.
05.05	Identify the laws and regulations governing the textile industry; include labeling laws and care symbols.
06.0	Select and safely use tools and equipment – the student will be able to:
06.01	Identify the tools and equipment used in design services for sewing, cutting, measuring, fabric marking, and drafting.
06.02	Select the appropriate tools and equipment for assigned projects; explain why the selection is appropriate for the project.
06.03	Demonstrate proper and safe usage of tools and equipment.
06.04	Identify and demonstrate safety procedures for the use of conventional sewing machines and home sergers, and pressing equipment.
06.05	Explain the importance of observing Occupational Safety and Health Administration (OSHA) rules and regulations.
06.06	Clean and maintain various types of tools and equipment.
06.07	Keep an inventory record of tools, equipment, supplies, and materials using computer application software or other formatting options (e.g., written records).
06.08	Research innovations in materials and technologies that contribute to safeguards in the tools and equipment used in interior design services.
06.09	Identify and apply drafting tools and techniques to a specific design services project (e.g., architectural ruler, light box, protractor, floor plans to scale, one-point perspective).

07.0	Operate and maintain a conventional and/or commercial/industrial sewing machine – the student will be able to:
07.01	Identify the parts of a sewing machine.
07.02	Select the needles that appropriate for different fabric types; identify the process and demonstrate needle insertion.
07.03	Identify the steps and demonstrate threading a sewing machine.
07.04	Diagram and demonstrate the ability to wind the bobbin, thread the bobbin case, and insert the bobbin correctly into a sewing machine.
07.05	Demonstrate straight stitching.
07.06	Identify and demonstrate stitch length and width selection.
07.07	Demonstrate utility and decorative stitches.
07.08	Identify the tension and demonstrate tension adjustment.
07.09	Demonstrate cleaning and lubricating the machine following manufacturer’s instructions.
08.0	Operate specialty machines (minimum of two machines, if available) – the student will be able to identify and operate at least two of the following machines:
08.01	Electronic programmable machine.
08.02	Serger.
08.03	Pleater, ruffler foot, or gathering foot.
08.04	Blindstitch machine or blind hemming foot.
08.05	Straight stitch machine.
08.06	Chain stitch machine or five thread serger.
08.07	Cutting machine or electric cutting system.
08.08	Bar tack or programmable/computerized sewing machine.
08.09	Zigzag machine.
09.0	Select and prepare materials – the student will be able to:
09.01	Identify and match pattern pieces.
09.02	Read and interpret instructions and specifications.

09.03	Identify fabric content.
09.04	Prepare fabric.
09.05	Adjust patterns according to pattern/teacher instructions.
09.06	Lay out, pin, cut, and mark fabric according to a pattern or teacher instructions.
09.07	Demonstrate stay stitching and ease stitching.
09.08	Match grain lines and patterns according to a pattern or teacher instructions.
09.09	Mark fabric for assembly according to a pattern or teacher instructions.
09.10	Mark fabric for trims according to a pattern or teacher instructions.
09.11	Match thread with fabric.
09.12	Identify, select, and use content labels according to fabric requirements.
10.0	Construct a machine-sewn design project for inclusion in a design portfolio – the student will be able to:
10.01	Construct projects that include seaming, darts, interfacing, seam finishing, hemming, closures and pockets.
10.02	Line up notches, dots, or clips according to a pattern or teacher instructions.
10.03	Stitch on woven, stretch, or specialty fabrics using the appropriate stitch length.
10.04	Demonstrate correct pressing techniques by following fabric requirements.
10.05	Demonstrate machine hemming according to machine manual instructions.
11.0	Develop a design portfolio – the student will be able to:
11.01	Assemble a portfolio; include all work samples.
11.02	Assemble a Technical Sewing Samples binder.
11.03	Construct basic hand-stitching techniques (e.g., running, backstitch, overcast, blanket).
11.04	Demonstrate stay stitching and ease stitching.
11.05	Demonstrate straight seams, clean finish and other seam finishes; include common seam allowances (e.g., 1/4", 5/8").
11.06	Demonstrate hemming techniques (e.g., slip stitch, blind hem stitch).

Course Number: HEV0011
Occupational Completion Point: B
Tailor, Dressmaker, Custom Sewer – 150 Hours – SOC Code 51-6052

12.0	Identify employment opportunities in Fashion Technology and Design Services – the student will be able to:
15.01	Secure information about a job and advanced training opportunities for the job; report in a written or oral format.
15.02	Demonstrate proficiency in current technology and software related to the fashion design industry; create, revise, retrieve and verify information.
15.03	Apply the principles of time management, work simplification, and teamwork when performing assigned tasks.
15.04	Demonstrate pride in the quality of work performed.
15.05	Identify career options in Fashion Technology and Design Services (e.g., entrepreneurship).
15.06	Create a presentation on non-traditional career paths (e.g., costume design, theater, entertainment, buyers, fabric store owners) in the garment/textile industry.
15.07	Analyze current trends as they affect the future of occupations in Fashion Technology and Design Services.
15.08	Identify different earning and wage level options for occupations in Fashion Technology and Design Services.
13.0	Identify and exhibit employment skills for occupations related to Fashion Technology and Design Services – the student will be able to:
13.01	Identify and list documents that may be required to apply for a job.
13.02	Complete a job application form accurately.
13.03	Demonstrate competence in job interview techniques; use role playing techniques.
13.04	Identify and demonstrate appropriate responses to criticism from an employer, supervisor, co-worker, or customer.
13.05	Identify and demonstrate acceptable work habits.
13.06	Demonstrate knowledge of how to make job changes appropriately.
13.07	Identify and describe acceptable employee health and hygiene habits.
13.08	Demonstrate customer relations skills by synthesizing given instructions.
13.09	Develop and create a résumé and portfolio.
13.10	Continue to enhance the professional portfolio; include résumé and samples/evidence.
14.0	Demonstrate an understanding of the elements and principles of design – the student will be able to:

14.01	Identify and explain the elements of design (e.g., texture, pattern, line, form, shape, space, color, light) and how various effects can be achieved.
14.02	Identify and explain the principles of design and how they can be used (e.g., proportion, scale, balance, rhythm, emphasis, and harmony).
14.03	Apply the elements and principles of design to Fashion Technology and Design Services.
14.04	Develop a project applying color and color schemes in a design.
14.05	Use the laws of design to evaluate a design project.
14.06	Create an elements and principles section for a design portfolio.
15.0	Demonstrate an understanding of the terminology used in the apparel industry – the student will be able to:
15.01	Complete a research project dealing with aspects of fashion retail and production; include terminology, labeling, designers, manufacturers and stores used within the apparel industry.
16.0	Operate specialty machines (if available) – the student will be able to identify and operate at least two of the following machines:
16.01	Electronic programmable machines.
16.02	Serger.
16.03	Straight stitch machine.
16.04	Zigzag machine.
16.05	Embroidery machine.
17.0	Demonstrate skill in the construction of simple garments – the student will be able to:
17.01	Identify common ready-to-wear sizes.
17.02	Identify and describe the characteristics of a properly fitted garment.
17.03	Take accurate body measurements, select pattern size, and determine figure type.
17.04	Interpret verbal, written, and visual directions.
17.05	Prepare fabric and adjust patterns by following pattern directions.
17.06	Lay out, pin, cut, and mark fabric according to pattern specifications.
17.07	Demonstrate stay stitching and ease stitching.
17.08	Demonstrate stitching darts and tucks.

17.09	Identify and match garment pieces using markings; stitch according to directions.
17.10	Match plaids, stripes and one-way designs.
17.11	Demonstrate correct pressing techniques according to fabric requirements.
17.12	Demonstrate casing and elastic installation.
17.13	Demonstrate machine hemming according to machine manual instructions.
17.14	Identify different types of sergers and their characteristics.
18.0	Demonstrate an understanding of the importance of how eco-fashion decisions impact the environment, consumer health and the working conditions of people in the fashion industry – the student will be able to:
18.01	Demonstrate an understanding of eco-fashion.
18.02	Identify materials that can be used to make eco-friendly fashions and accessories; describe why these materials are eco-friendly.
18.03	Research innovations in materials and technologies that have contributed to safeguards in the tools and equipment used in fashion technology and design services.
18.04	Compare the working conditions of employees when materials are produced following eco-friendly guidelines and when they are not.
18.05	Research methods for using vegetable and plant materials for eco-friendly fashions and replacing these materials into the environment.
18.06	Describe ways to be eco-friendly and the environmental and social responsibilities of eco-friendly methods.
18.07	Design and create an eco-friendly fashion product.

Course Number: HEV0012
Occupational Completion Point: C
Fabric and Apparel Patternmakers – 150 Hours – SOC Code 51-6092

25.0	Research the ways fashion design is affected by history and culture – the student will be able to:
25.01	Identify design periods from 1900 to the present.
25.02	Explain the influence of earlier design periods on contemporary design.
25.03	Describe the elements and principles of design as they relate to a particular time period/culture.
25.04	Create a multimedia presentation detailing a selected design period.
26.0	Demonstrate sketching and freehand drawing skills – the student will be able to:
26.01	Demonstrate sketching and shading techniques.
26.02	Create inspiration boards to display sketches and drawings.
26.03	Develop a design collection according to determined criteria and include in a professional portfolio; include examples that demonstrate sketching and shading techniques.
27.0	Demonstrate an understanding of the uses of technology in the fashion industry – the student will be able to:
27.01	Research and list software options available for fashion design services.
27.02	Demonstrate an understanding of how contemporary technologies (CAD, electronic sewing, knitting, embroidery machines, sergers) are used in the creation of fashion products (e.g., fashion profiles, fabrics, garments).
27.03	Analyze how specific technologies are used in the fashion design industry.
27.04	Create a fashion product using two or more technologies appropriately.
27.05	Research innovations in materials and technologies that have contributed to safeguards in tools and equipment.
27.06	Identify the development of tools, equipment and technology used in fashion design services as they relate to particular historical periods.
28.0	Identify the psychological and practical needs of clothing for special markets – the student will be able to:
28.01	List human and environmental factors that could impact a design (e.g., uniforms, clothing in non-standard sizes, clothing for people with disabilities, maternity wear, clothing for children and the elderly, protective clothing for dangerous conditions and climatic extremes, purpose-designed clothing for sports, leisure, and entertainment industries).
28.02	Plan and implement a fashion design project based on a specific human or environmental factor.
29.0	Create an original pattern for a garment – the student will be able to:

29.01	Plan and report on a fashion design project using established criteria.
29.02	Using appropriate software, insert body measurements to produce a pattern.
29.03	(Optional) Draft and produce a paper pattern using personal measurements.
29.04	(Optional) Create slopers for a bodice, skirt, and pants; construct the slopers using grey goods and create a mood board that includes a title, photographs of the sloper, and the purpose/use of a sloper (include in Professional Portfolio).
29.05	Create a muslin prototype of the pattern.
29.06	Evaluate the prototype for proper fit and adjust as needed.
29.07	Construct a specialty garment according to teacher instructions (the project must include a minimum number of construction skills as designated by the teacher).
30.0	Demonstrate alteration skills on a sample or garment – the student will be able to:
30.01	Remove stitches in ready-made garments without damaging fabric.
30.02	Mark and even a hemline.
30.03	Lengthen and shorten hems in pants, skirts, or dresses (include cuffs and the use of hem tape).
30.04	Remove the flare from pant legs.
30.05	Taper a skirt.
30.06	Shorten the crotch rise in a garment/sample.
30.07	Take in the waist on a man's garment/sample.
30.08	Take in the waist on a woman's garment/sample.
30.09	Take in the side seams on a blouse/shirt.
30.10	Shorten sleeves at the cuff on a garment/sample.
30.11	Shorten sleeves at the shoulder cap on a garment/sample.
30.12	Finish seams and press altered areas using pressing techniques.
31.0	Demonstrate clothing repair on a garment or sample – the student will be able to:
31.01	Reinforce seams and buttonholes on a garment/sample.
31.02	Replace zippers in various types of garments/samples (including fly/jeans).

31.03 Apply patches to a garment/sample.

31.04 Replace various types of buttons on a garment/sample.

31.05 Demonstrate appropriate pressing techniques on repaired garments/samples.

Course Number: HEV0013

Occupational Completion Point: D

Fashion Coordinator/Stylist – 150 Hours – SOC Code 27-1022

32.0 Identify and describe the different specialties related to Fashion Technology and Design Services (e.g., Window Display, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, Stylist) – the student will be able to:

32.01 Identify future trends in Fashion Technology and Design Services.

32.02 Research, identify, and describe the different job responsibilities of a Window Displayer, Fashion Design Assistant, Tailor's Assistant, Personal Shopper, and Stylist.

32.03 Identify, research, and describe current trends related to careers in the Fashion Technology and Design Services industry (e.g., blogger, museum curator, entertainment).

33.0 Select one specialty area and complete the student performance standards for that area – the student will be able to:

Window Display

33.01 Demonstrate knowledge of the elements of design (e.g., color, line, proportion, scale, harmony, light).

33.02 Demonstrate an understanding of fashion as a form of ethno-cultural expression.

33.03 Demonstrate space planning in a window display according to given criteria.

33.04 Develop window displays in accordance with seasonal promotions.

33.05 Plan and create a window display project given established criteria.

Fashion Design Assistant

33.06 Demonstrate knowledge of pattern making.

33.07 Apply design draping techniques.

33.08 Exhibit effective communication skills.

33.09 Demonstrate computer skills.

33.10 Demonstrate garment construction skills.

33.11 Explain the elements of design.

33.12	Demonstrate appropriate customer relations skills.
33.13	Plan and develop a project related to fashion design according to the specifications given by the designer.
Tailor's Assistant	
33.14	Select suitable fabric for a tailored jacket using identified criteria.
33.15	Select suitable hair canvas, interfacing, linings, and underlining for specified fabric.
33.16	Prepare fabrics and alter patterns according to pattern directions.
33.17	Lay out patterns, bias, plaid, or one-way prints using correct layout procedures.
33.18	Cut patterns, fabric, hair canvas, and linings according to given directions.
33.19	Tailor tack markings using the proper techniques.
33.20	Baste and fit a garment.
33.21	Stitch seams using the correct stitches for the fabric.
33.22	Apply seam finishes selected from practice samples.
33.23	Apply zippers according to the manufacturer's instructions and the application chosen for different types of garments.
33.24	Construct tailored pockets.
33.25	Construct buttonholes.
33.26	Construct chest pieces, shoulder pads, and sleeve heads.
33.27	Set in sleeves according to given directions.
33.28	Construct and apply an upper collar and facings.
33.29	Construct and apply linings according to fabric requirements.
33.30	Construct hems using proper techniques for the selected fabric/garment style.
33.31	Select patterns and cut fabric for tailored pants.
33.32	Alter patterns and cut fabric for tailored pants.
33.33	Fit and construct tailored pants.

33.34	Construct and apply linings to tailored pants using appropriate techniques.
33.35	Refit and alter a ready-to-wear garment.
Costume Design	
33.36	Demonstrate taking body measurements using the correct measuring method.
33.37	Compare and alter basic patterns.
33.38	Construct a basic muslin shell using a customer's measurements and/or a pattern.
33.39	Transfer fitting changes to paper patterns.
33.40	Construct an oak tag board sloper from muslin.
33.41	Draft a pattern according to costume specifications.
33.42	Identify and describe the styles that suit different body types.
33.43	Identify and design garments to suit different body types.
33.44	Choose fabric for a specific body type and design based on customer criteria.
33.45	Design garments for dance, theater, sports activities, costumes, music videos, and print ads.
33.46	Define <i>draping</i> ; demonstrate the draping method of design.
Personal Shopper	
33.47	Demonstrate effective communication skills.
33.48	Identify different body types.
33.49	Identify and demonstrate knowledge of appropriate attire for various ages, body types, and occasions.
33.50	Demonstrate an understanding of the relationship between color and skin tone.
33.51	Demonstrate the ability to work within a customer's budget.
33.52	Coordinate wardrobe essentials.
33.53	Plan and develop a personal shopping project according to established criteria.
33.54	Exhibit the skills necessary for a quality presentation of selections to clients.

33.55	Identify future trends in personal shopping.
Stylist	
33.56	Demonstrate effective communication skills.
33.57	Identify different body types.
33.58	Identify and demonstrate knowledge of appropriate attire for various ages, body types, and occasions.
33.59	Demonstrate an understanding of the relationship between color and skin tone.
33.60	Demonstrate the ability to work within a customer's budget.
33.61	Identify future trends and future techniques in styling sets.
33.62	Identify and select fashion and accessories based on specific criteria.
33.63	Explain how the media has helped define fashion and influence design trends.
33.64	Coordinate wardrobe essentials.
33.65	Plan and develop a stylist project based on established criteria.
34.0	(Optional) Schedule and participate in a Fashion Technology and Design Services job shadowing experience – the student will be able to:
34.01	Research persons working in the Fashion Technology and Design Services profession within the local area.
34.02	Formalize, in writing, a job shadowing experience; apply knowledge gained within the program and use the guidelines set by the district, instructor, and employer; use knowledge synthesized within the program.
35.0	Finalize a professional portfolio according to industry standards – the student will be able to:
35.01	Submit a portfolio; include work samples from the Fashion Technology and Design Services program.
35.02	Compile and present a Mastery Project Showcase; include the professional portfolio, the technical sewing samples binder, examples of coursework, evidence of awards/honors, evidence of participation in FCCLA (if applicable), samples of constructed garments and slopers, and the use of technology.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

Florida Family Career and Community Leaders of America (FCCLA) is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education
Curriculum Framework

Program Title: Interior Decorating Services
Program Type: Career Preparatory
Career Cluster: Arts, A/V Technology and Communication

Career Certificate Program

Program Number	V200600
CIP Number	0450040804
Grade Level	30, 31
Standard Length	1050 hours
Teacher Certification	Refer to the Program Structure section.
CTSO	FCCLA
SOC Codes (all applicable)	27-1029 – Designers, All Other 41-3099 – Sales Representative, Services, All Other
Basic Skills Level	Mathematics: 9 Language: 9 Reading: 9

Purpose

The purpose of this program is to prepare students for employment or advanced training in the interior decorating industry.

This program offers a sequence of courses that provides coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Arts, A/V Technology and Communication career cluster; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Arts, A/V Technology and Communication career cluster.

The content includes, but is not limited to, the principles of color and design; techniques applicable to the interior decorating industry; sustainable design; interior decorating components and basic decorative styles; the elements and principles of design; planning and developing a decorating project; and the applications of furniture, fabric, floor coverings, wall and window treatments, and bedding and accessories.

This program focuses on broad, transferable skills, stresses the understanding of all aspects of the residential decoration industry and demonstrates such elements of the industry as planning, management, finance, technical and production skills, underlying principles of technology, labor issues, community issues, and health, safety, and environmental issues.

Additional Information relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

Program Structure

This program is a planned sequence of instruction consisting of four occupational completion points.

This program is comprised of courses which have been assigned course numbers in the SCNS (Statewide Course Numbering System) in accordance with Section 1007.24 (1), F.S. Career and Technical credit shall be awarded to the student on a transcript in accordance with Section 1001.44(3)(b), F.S.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the postsecondary program structure:

OCP	Course Number	Course Title	Teacher Certification	Length	SOC Code
A	HEV0412	Sales/Color Consultant	FAM CON SC 1 HME EC OCC ϕ 7 @7 G INT DEC 7G	200 hours	41-3099
B	HEV0452	Furniture Arranger/Space Planner		350 hours	27-1029
C	HEV0453	Merchandise Stylist/Visual Displayer		300 hours	27-1029
D	HEV0413	Interior Decorator/ Interior Decorating Consultant		200 hours	27-1029

Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.
2. Apply appropriate academic and technical skills.
3. Attend to personal health and financial well-being.
4. Communicate clearly, effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
6. Demonstrate creativity and innovation.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.
9. Model integrity, ethical leadership and effective management.
10. Plan education and career path aligned to personal goals.
11. Use technology to enhance productivity.
12. Work productively in teams while using cultural/global competence.

Standards

After successfully completing this program, the student will be able to perform the following:

- 01.0 Identify employment opportunities in the interior decorating industry.
- 02.0 Describe the relationship between human factors and the decorating industry.
- 03.0 Analyze the principles of color and design.
- 04.0 Demonstrate drafting abilities and the basic use of computer-aided design (CAD) software.
- 05.0 Demonstrate sales techniques applicable to the decorating industry.
- 06.0 Identify basic interior decorating components.
- 07.0 Demonstrate an understanding of basic decorative styles.
- 08.0 Develop an understanding of the elements and principles of design.
- 09.0 Identify and apply the principles of space planning.
- 10.0 Demonstrate proficiency in the use of computer-aided design (CAD) software.
- 11.0 Plan and develop a decorating project.
- 12.0 Explain the importance of sustainable design.
- 13.0 Identify, select and place furniture for appropriate application.
- 14.0 Identify and select fabric for appropriate application.
- 15.0 Identify and select floor coverings for appropriate application.
- 16.0 Identify, select and place wall treatments for appropriate application.
- 17.0 Identify, select and place window treatments for appropriate application.
- 18.0 Identify, select and place bedding and accessories for appropriate application.
- 19.0 Identify, select and place lighting fixtures for appropriate application.
- 20.0 Demonstrate an understanding of entrepreneurship.
- 21.0 Plan and implement an interior decorating project to meet the client's needs.
- 22.0 Present a portfolio according to industry requirements.

Florida Department of Education
Student Performance Standards

Program Title: Interior Decorating Services
Career Certificate Program Number: V200600

Course Number: HEV0412	
Occupational Completion Point: A	
Sales/Color Consultant – 200 Hours – SOC Code 41-3099	
01.0	Identify employment opportunities in the interior decorating industry – the student will be able to:
01.01	Explain the roles of a decorator and a designer.
01.02	Identify employment, career growth, and advanced training opportunities in the interior decorating industry.
01.03	Describe the personal and professional qualities required for employment in the profession.
01.04	Analyze the benefits of membership in professional organizations related to interior decorating services.
01.05	Identify the purposes, benefits, and functions of the professional organizations related to interior decorating.
01.06	Work cooperatively to achieve organizational goals.
02.0	Describe the relationship between human factors and the decorating industry – the student will be able to:
02.01	Explain the impact of human factors (psychological, physiological, social needs) on decisions related to decorating services.
02.02	Describe the modifications necessary to accommodate individuals with special needs.
02.03	Describe the impact of human needs and wants on the cost of decorating services.
02.04	Describe the importance of barrier-free design and accessibility related to decorating services.
03.0	Analyze the principles of color and design – the student will be able to:
03.01	Identify the elements and principles of design.
03.02	Explain the uses of a color wheel.
03.03	Define <i>value</i> and <i>intensity</i> and identify how each relates to color.
03.04	Identify different color schemes and determine how to achieve those color schemes.

03.05	Apply color schemes to a decorating plan.
04.0	Demonstrate drafting abilities and the basic use of computer-aided design (CAD) software – the student will be able to:
04.01	Identify the tools and equipment used in decorating services.
04.02	Use appropriate tools and equipment safely.
04.03	Keep an inventory record of tools, equipment, supplies, and materials using computer application software.
04.04	Explain the importance of observing Occupational Safety and Health Administration (OSHA) rules and regulations.
04.05	Identify architectural symbols.
04.06	Demonstrate basic competency in the use of computer-aided design (CAD) software.
05.0	Demonstrate sales techniques applicable to the decorating industry – the student will be able to:
05.01	Research different sales techniques.
05.02	Practice various sales techniques for the decorating industry.
05.03	Research and recommend decorating products that meet the customer’s specifications.
05.04	Demonstrate appropriate computer and telecommunications skills related to sales transactions.
05.05	Explain the importance of responsibility and ethical behavior in the interior decorating industry.

Course Number: HEV0452	
Occupational Completion Point: B	
Furniture Arranger/Space Planner – 350 Hours – SOC 27-1029	
06.0	Identify basic interior decorating components – the student will be able to:
06.01	Identify decorating styles and the history of each style.
06.02	Identify periods and styles of furniture.
06.03	Analyze and describe environmental concerns affecting future interiors using the Internet and textual resources.
07.0	Demonstrate an understanding of basic decorative styles – the student will be able to:
07.01	Demonstrate various decorating styles through the use of diagrams, photos, and other resources.
07.02	Research, identify and describe various movements in the evolution of housing architecture and interior decorating.

07.03	Identify future trends in interior décor and design.
08.0	Develop an understanding of the elements and principles of design – the student will be able to:
08.01	Identify and explain the elements of design and the effects of these elements on room décor (e.g., texture, pattern, line, form, shape, space, color, light).
08.02	Identify and explain the principles of design and the use of these principles in interior decorating (e.g., proportion, scale, balance, rhythm, emphasis, harmony).
08.03	Use the elements, principles and goals of design to analyze good design.
09.0	Identify and apply the principles of space planning – the student will be able to:
09.01	Identify the components of space planning.
09.02	Read and interpret a blueprint.
09.03	Practice calculating area, size, circumference, square footage and in-scale drawing.
09.04	Apply space planning techniques to furniture placement.
10.0	Demonstrate proficiency in the use of computer-aided design (CAD) software – the student will be able to:
10.01	Identify and discuss the benefits of using CAD software in interior decorating services.
10.02	Perform advanced decorating and design applications utilizing CAD software.
10.03	Complete an interior decorating project using CAD software.
11.0	Plan and develop a decorating project – the student will be able to:
11.01	Develop a decorating project utilizing technology and presentation boards.
11.02	Select appropriate materials for the project (e.g., surface treatments, upholstery, case goods, accessories) and apply the elements and principles of design.
11.03	Measure and calculate the materials required for a decorating project.
11.04	Demonstrate the ability to work within a given timeframe and budget.

Course Number: HEV0453
Occupational Completion Point: C
Merchandise Stylist/Visual Displayer – 300 Hours – SOC Code 27-1029

12.0	Explain the importance of sustainable design – the student will be able to:
12.01	Define <i>sustainable design</i> as related to interior design.

12.02	Analyze, evaluate, and select materials and furnishings for sustainable design.
12.03	Identify methods and materials used to increase energy efficiency.
12.04	Identify and describe energy sources.
12.05	Explain the differences between energy efficiency and energy conservation.
13.0	Identify, select and place furniture for appropriate application – the student will be able to:
13.01	Describe the various methods of furniture construction.
13.02	Compare and contrast types of wood; illustrate these comparisons in a traditional or computerized presentation or written report.
13.03	Describe different types of finishes and the care required for each type of wood.
13.04	Compare and contrast manmade fibers (e.g., polyester, metal, synthetics, plastic) to the natural materials used in furniture construction.
13.05	Measure and calculate the materials needed for upholstered items according to the client's specifications.
13.06	Select furniture by considering its functions and design.
14.0	Identify and select fabric for appropriate application – the student will be able to:
14.01	Identify the fiber content of fabrics used in decorating.
14.02	Compare different types of fabrics used in decorating.
14.03	Explain durability.
14.04	Select fabric that is appropriate for window treatments, upholstery, and accessories.
14.05	Demonstrate how to coordinate different patterns and textures for an overall decorating scheme.
15.0	Identify and select floor coverings for appropriate application – the student will be able to:
15.01	Identify and describe the characteristics of different types of floor coverings.
15.02	Compare durability and maintenance factors for floor covering materials.
15.03	Develop criteria for the selection of floor coverings; use multiple resources to consider color, texture, type, style, pattern, client's lifestyle, durability, energy conservation and environmental safety.
15.04	Identify and select floor covering materials according to the developed criteria.
15.05	Measure and calculate space and materials for a floor covering application based upon the client's criteria.

16.0	Identify, select and place wall treatments for appropriate application – the student will be able to:
16.01	Identify and describe the characteristics of different types of wall treatments.
16.02	Compare durability and maintenance factors for wall treatment materials.
16.03	Develop criteria for the selection of wall treatments; use multiple resources to consider color, texture, type, style, pattern, client's lifestyle, durability, energy conservation and environmental safety.
16.04	Use the developed criteria to identify and select wall treatment materials.
16.05	Use the criteria provided to calculate the materials needed for a specific wall treatment.
17.0	Identify, select and place window treatments for appropriate application – the student will be able to:
17.01	Identify and describe the different functions of windows and window treatments.
17.02	Categorize window treatments as hard or soft.
17.03	Describe the characteristics of draperies and drapery header styles.
17.04	Recognize the different types and appropriate uses of hardware for window treatments.
17.05	Develop criteria for the selection of window treatments; use multiple resources to consider color, texture, type, style, pattern, client's lifestyle, durability, energy conservation and environmental safety.
17.06	Use the developed criteria to identify and select window treatments.
17.07	Estimate the yardage required for various window treatments.
17.08	Select appropriate window fabrics and treatments for various decorating styles.
18.0	Identify, select and place bedding and accessories for appropriate application – the student will be able to:
18.01	Describe different styles of accessories.
18.02	Research artwork appropriate for various decorating styles.
18.03	Select accessories; apply the elements and principles of design to a given decorating project.
18.04	Demonstrate appropriate grouping and placement of accessories using the Golden Mean.
18.05	Select bedding and accessories according to established criteria.
19.0	Identify, select, and place lighting fixtures for appropriate application – the student will be able to:
19.01	Explain the purposes of different types of lighting.

19.02	Research different types of direct and indirect lighting.
19.03	Identify the characteristics of incandescent, fluorescent, LED, compact fluorescent (CFL), and other types of lights.
19.04	Identify lighting symbols on plans and drawings.

Course Number: HEV0413
Occupational Completion Point: D
Interior Decorator/Interior Decorating Consultant – 200 Hours – SOC Code 27-1029

20.0	Demonstrate an understanding of entrepreneurship – the student will be able to:
20.01	Define <i>entrepreneurship</i> .
20.02	Research procedures needed for the startup of a new business.
20.03	Debate the advantages and disadvantages of business ownership.
20.04	Identify the advantages, disadvantages, and costs associated with employees.
21.0	Plan and implement an interior decorating project to meet the client’s needs – the student will be able to:
21.01	Develop criteria for a decorating project based on the client’s preferences.
21.02	Calculate area, size, circumference and square footage to create a scale drawing.
21.03	Select appropriate materials and products for the project (e.g., surface treatments, case goods, upholstery, accessories) and apply the elements and principles of design.
21.04	Estimate the materials required for the client’s project.
21.05	Determine budgetary limitations.
21.06	Estimate the costs associated with implementing the plan; evaluate the estimate in relation to the client’s budget.
21.07	Implement the project using computer-aided design (CAD) software.
21.08	Deliver an oral presentation of the project.
22.0	Present a portfolio according to industry requirements – the student will be able to:
22.01	Compile and present a portfolio; include a résumé, biographical data, project pictures, and any other applicable information.

Additional Information

Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

Special Notes

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student.

Career and Technical Student Organization (CTSO)

Florida Family Career and Community Leaders of America (FCCLA) is the intercurricular career and technical student organization(s) providing leadership training and reinforcing specific career and technical skills. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

Basic Skills (if applicable)

In a Career Certificate Program offered for 450 hours or more, in accordance with Rule 6A-10.040, F.A.C., the minimum basic skills grade levels required for postsecondary adult career and technical students to complete this program are: Mathematics 9, Language 9, and Reading 9. These grade level numbers correspond to a grade equivalent score obtained on a state designated basic skills examination.

Adult students with disabilities, as defined in Section 1004.02(7), Florida Statutes, may be exempted from meeting the Basic Skills requirements (Rule 6A-10.040). Students served in exceptional student education (except gifted) as defined in s. 1003.01(3)(a), F.S., may also be exempted from meeting the Basic Skills requirement. Each school district and Florida College must adopt a policy addressing procedures for exempting eligible students with disabilities from the Basic Skills requirement as permitted in Section 1004.91(3), F.S.

Students who possess a college degree at the Associate of Applied Science level or higher; who have completed or are exempt from the college entry-level examination; or who have passed a state, national, or industry licensure exam are exempt from meeting the Basic Skills requirement (Rule 6A-10.040, F.A.C.) Exemptions from state, national or industry licensure are limited to the certifications listed on the Basic Skills and Licensure Exemption List which may be accessed from the CTE Program Resources page.

Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities to meet individual needs and ensure equal access. Postsecondary students with disabilities must self-identify, present documentation, request accommodations if needed, and develop a plan with their counselor and/or instructors. Accommodations received in postsecondary education may differ from those received in secondary education. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

Note: postsecondary curriculum and regulated secondary programs cannot be modified.