

Florida Department of Education  
Curriculum Framework

**Course Title:** Introduction to Energy  
**Course Type:** Orientation/Exploratory  
**Career Cluster:** Energy

**Secondary – Middle School**

Course Number	9709350
CIP Number	149709350M
Grade Level	6-8
Standard Length	Semester
Teacher Certification	Refer to the <b>Course Structure</b> section.
CTSO	SkillsUSA

**Purpose**

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the Energy career cluster. The content includes but is not limited to planning, managing and providing support and technical services related to the generation, transmission and distribution of various types of energy along with the design engineering, construction, maintenance and repair of these systems. Reinforcement of academic skills occurs through classroom instruction and applied laboratory procedures.

Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices. **Additional Information** relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

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

The following table illustrates the course structure:

Course Number	Course Title	Teacher Certification	Length
9709350	Introduction to Energy	TEC ED 1@2 ENG&TEC ED1@2 ELECTRICAL @7 7G IND ENGR 7G	Semester

## **Florida Standards for English Language Development (ELD)**

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.SI.1.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL's need for communication and social skills. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition.

## **Standards**

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

- 01.0 Explore the generation pathway of the energy industry and the applicable career options
- 02.0 Explore the transmission/ distribution pathway of the energy industry and the applicable career option
- 03.0 Apply leadership and communication skills.
- 04.0 Describe how information technology is used in the Energy career cluster.
- 05.0 Use information technology tools.

**Florida Department of Education  
Student Performance Standards**

**Course Title:** Introduction to Energy  
**Course Number:** 9709350  
**Course Length:** Semester

Beginning with a broad overview of the Energy career cluster, students are introduced to the terminology, careers, history, required skills and technologies associated with each pathway in the Energy career cluster. Additionally, they will be provided with opportunities to acquire and demonstrate beginning leadership skills.

<b>CTE Standards and Benchmarks</b>	
01.0	Explore the generation pathway of the energy industry and the applicable career options--The student will be able to:
01.01	Explore various sources of renewable and nonrenewable energy generation and the careers associated with them.
01.02	Explain ways of generating electric power.
01.03	Define and use proper terminology associated with energy generation.
01.04	Describe some of the careers available in energy generation.
01.05	Identify common characteristics of the careers in energy generation.
01.06	Identify possibilities for future careers in energy that support emerging technologies.
01.07	Describe how society has impacted the energy industry.
01.08	Identify education required to successfully enter any career in the energy generation field.
01.09	Demonstrate employability skills and hands-on skills required to successfully enter any career in the energy generation field.
01.10	Describe career ladder options and the skills or education required to progress in the energy industry.
01.11	Describe technologies associated with careers in energy generation.
02.0	Explore the transmission/ distribution pathway of the energy industry and the applicable career option--The student will be able to:
02.01	Define and use proper terminology associated with energy transmission/distribution.
02.02	Describe some of the careers available in energy transmission/distribution.

## CTE Standards and Benchmarks

02.03	Identify common characteristics of the careers in energy transmission/distribution.
02.04	Identify skills required to successfully enter any career in energy transmission/distribution.
02.05	Demonstrate employability skills and hands-on skills required to successfully enter any career in the energy transmission/distribution field.
02.06	Describe technologies associated with careers in energy transmission/distribution.
03.0	Apply leadership and communication skills--The student will be able to:
03.01	Discuss the establishment and history of the SkillsUSA organization.
03.02	Identify the characteristics and responsibilities of organizational leaders.
03.03	Demonstrate parliamentary procedure skills during a meeting.
03.04	Participate on a committee/ collaborative group which has an assigned task and report to the class.
03.05	Demonstrate effective communication skills through verbal conversation, written communication, delivery of a speech, a slide presentation or conducting a demonstration through participation in a Career and Technical Student Organization (CTSO).
03.06	Use a computer to assist in the completion of a project related to the Energy career cluster.
04.0	Describe how information technology is used in the Energy career cluster--The student will be able to:
04.01	Identify information technology (IT) careers in the Energy career cluster, including the responsibilities, tasks and skills they require.
04.02	Identify security-related ethical and legal IT issues faced by professionals in the Energy career cluster.
05.0	Use information technology tools--The student will be able to:
05.01	Identify the functions of web browsers and use them to access the World Wide Web and other computer resources typically used in the Energy career cluster.
05.02	Use e-mail clients to send simple messages and files to other Internet users.
05.03	Demonstrate ways to communicate effectively using Internet technology.
05.04	Use different types of web search engines effectively to locate information relevant to the Energy career cluster.

## **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**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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 for 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 as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. 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.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education  
Curriculum Framework

**Course Title:** Introduction to Energy and Career Planning\*  
**Course Type:** Orientation/Exploratory  
**Career Cluster:** Energy

**Secondary – Middle School**

Course Number	9709360
CIP Number	149709360M
Grade Level	6-8
Standard Length	Semester
Teacher Certification	Refer to the <b><u>Course Structure</u></b> section.
CTSO	SkillsUSA

\*Effective July 1, 2017, there is no longer a promotion requirement for middle grades students to complete a Career and Education Planning course. However, these courses will continue to be available and should be taught integrating the eight career and education planning course standards. The MyCareerShines powered by Kuder® career planning system is available free of charge to all Florida middle and high schools to assist students in exploring career options and developing an academic and career plan.

**Purpose**

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the Energy career cluster. The content includes but is not limited to planning, managing and providing support and technical services related to the generation, transmission and distribution of various types of energy along with the design engineering, construction, maintenance, and repair of these systems. Reinforcement of academic skills occurs through classroom instruction and applied laboratory procedures.

Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices.

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

**Course Structure**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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

The following table illustrates the course structure:

Course Number	Course Title	Teacher Certification	Length
9709360	Introduction to Energy and Career Planning	TEC ED 1@2 ENG&TEC ED1@2 ELECTRICAL @7 7G IND ENGR 7G	Semester

**Florida Standards for English Language Development (ELD)**

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.SI.1.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL’s need for communication and social skills. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition.

## **Standards**

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

- 01.0 Explore the generation pathway of the energy industry and the applicable career options
- 02.0 Explore the transmission/ distribution pathway of the energy industry and the applicable career option
- 03.0 Apply leadership and communication skills.
- 04.0 Describe how information technology is used in the Energy career cluster.
- 05.0 Use information technology tools.

Listed below are the eight career and education planning course standards:

- 06.0 Describe the influences that societal, economic, and technological changes have on employment trends and future training.
- 07.0 Develop skills to locate, evaluate, and interpret career information.
- 08.0 Identify and demonstrate processes for making short and long term goals.
- 09.0 Demonstrate employability skills such as working in a group, problem-solving and organizational skills, and the importance of entrepreneurship.
- 10.0 Understand the relationship between educational achievement and career choices/postsecondary options.
- 11.0 Identify a career cluster and related pathways that match career and education goals.
- 12.0 Develop a career and education plan that includes short and long-term goals, high school program of study, and postsecondary/career goals.
- 13.0 Demonstrate knowledge of technology and its application in career fields/clusters.

**Florida Department of Education  
Student Performance Standards**

**Course Title:** Introduction to Energy and Career Planning  
**Course Number:** 9709360  
**Course Length:** Semester

**Course Description:**

Beginning with a broad overview of the Energy career cluster, students are introduced to the terminology, careers, history, required skills and technologies associated with each pathway in the Energy career cluster. Additionally, they will be provided with opportunities to acquire and demonstrate beginning leadership skills.

<b>CTE Standards and Benchmarks</b>	
01.0	Explore the generation pathway of the energy industry and the applicable career options--The student will be able to:
01.01	Explore various sources of renewable and nonrenewable energy generation and the careers associated with them.
01.02	Explain ways of generating electric power.
01.03	Define and use proper terminology associated with energy generation.
01.04	Describe some of the careers available in energy generation.
01.05	Identify common characteristics of the careers in energy generation.
01.06	Identify possibilities for future careers in energy that support emerging technologies.
01.07	Describe how society has impacted the energy industry.
01.08	Identify skills required to successfully enter any career in the energy generation field.
01.09	Demonstrate employability skills and hands-on skills required to successfully enter any career in the energy generation field.
01.10	Describe career ladder options and the skills or education required to progress in the energy industry.
01.11	Describe technologies associated with careers in energy generation.
02.0	Explore the transmission/ distribution pathway of the energy industry and the applicable career option--The student will be able to:
02.01	Define and use proper terminology associated with energy transmission/distribution.

## CTE Standards and Benchmarks

02.02 Describe some of the careers available in energy transmission/distribution.

02.03 Identify common characteristics of the careers in energy transmission/distribution.

02.04 Identify skills required to successfully enter any career in energy transmission/distribution.

02.05 Demonstrate employability skills and hands-on skills required to successfully enter any career in the energy transmission/distribution field.

02.06 Describe technologies associated with careers in energy transmission/distribution.

03.0 Apply leadership and communication skills--The student will be able to:

03.01 Discuss the establishment and history of the SkillsUSA organization.

03.02 Identify the characteristics and responsibilities of organizational leaders.

03.03 Demonstrate parliamentary procedure skills during a meeting.

03.04 Participate on a committee/ collaborative group which has an assigned task and report to the class.

03.05 Demonstrate effective communication skills through verbal conversation, written communication, delivery of a speech, a slide presentation or conducting a demonstration through participation in a Career and Technical Student Organization (CTSO).

03.06 Use a computer to assist in the completion of a project related to the Energy career cluster.

04.0 Describe how information technology is used in the Energy career cluster--The student will be able to:

04.01 Identify information technology (IT) careers in the Energy career cluster, including the responsibilities, tasks and skills they require.

04.02 Identify security-related ethical and legal IT issues faced by professionals in the Energy career cluster.

05.0 Use information technology tools--The student will be able to:

05.01 Identify the functions of web browsers and use them to access the World Wide Web and other computer resources typically used in the Energy career cluster.

05.02 Use e-mail clients to send simple messages and files to other Internet users.

05.03 Demonstrate ways to communicate effectively using Internet technology.

05.04 Use different types of web search engines effectively to locate information relevant to the Energy career cluster.

### **Listed below are the eight career and education planning course standards:**

The student will be able to:

06.0	Describe the influences that societal, economic, and technological changes have on employment trends and future training.
07.0	Develop skills to locate, evaluate, and interpret career information.
08.0	Identify and demonstrate processes for making short and long term goals.
09.0	Demonstrate employability skills such as working in a group, problem-solving and organizational skills, and the importance of entrepreneurship.
10.0	Understand the relationship between educational achievement and career choices/postsecondary options.
11.0	Identify a career cluster and related pathways that match career and education goals.
12.0	Develop a career and education plan that includes short and long-term goals, high school program of study, and postsecondary/career goals.
13.0	Demonstrate knowledge of technology and its application in career fields/clusters.

## **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**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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)**

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### **Accommodations**

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. 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.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education  
Curriculum Framework

**Program Title:** Fundamentals of Energy  
**Program Type:** Orientation/Exploratory  
**Career Cluster:** Energy

**Secondary – Middle School**

Course Number	9790300
CIP Number	149790300M
Grade Level	6-8
Standard Length	Semester
Teacher Certification	Refer to <b>Course Structure</b> section.
CTSO	SkillsUSA

**Purpose**

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the Energy career cluster. The content includes but is not limited to careers in the energy industry, various energy sources, and electrical power generation, transmission and distribution. Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices.

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

**Course Structure**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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

The following table illustrates the course structure:

Course Number	Course Title	Teacher Certification	Length
9790300	Fundamentals of Energy	TEC ED 1@2 ENG&TEC ED1@2 ELECTRICAL @7 7G IND ENGR 7G	Semester

**Florida Standards for English Language Development (ELD)**

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.SI.1.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL’s need for communication and social skills. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition.

## **Standards**

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

- 01.0 Explore careers and entry requirements in the energy industry.
- 02.0 Locate power plants in Florida.
- 03.0 Understand conventional electric power generation.
- 04.0 Discuss the value of alternative and renewable energy sources.
- 05.0 Understand electric power transmission and distribution.
- 06.0 Investigate the viability of wind energy.
- 07.0 Investigate the viability of solar energy.
- 08.0 Investigate the use of hydroelectricity.
- 09.0 Investigate the use of nuclear power.
- 10.0 Investigate the viability of bioenergy (biomass and biofuel).
- 11.0 Investigate the viability of geothermal energy.
- 12.0 Investigate energy consumption and identify ways to use energy wisely.
- 13.0 Discuss greenhouse gas emissions based on local fuel mixture and energy consumption.

**Florida Department of Education  
Student Performance Standards**

**Course Title:** Fundamentals of Energy  
**Course Number:** 9790300  
**Course Length:** Semester

**Course Description:**

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the Energy career cluster. The content includes but is not limited to careers in the energy industry, various energy sources and electrical power generation, transmission and distribution.

<b>CTE Standards and Benchmarks</b>	
01.0	Explore careers and entry requirements in the energy industry--The student will be able to:
01.01	Describe careers in the energy industry.
01.02	Explain educational pathways available to gain training to begin a career in the energy industry.
01.03	Classify careers from entry-level to professional level.
01.04	Explain the importance of employability skills related to the energy industry.
01.05	Explain how destructive decisions can affect future employment.
01.06	Research and present information on an energy career including roles and responsibilities, opportunities for employment and the requirements for education and training.
02.0	Locate power plants in Florida--The student will be able to:
02.01	Describe the energy source(s) the power plants use.
02.02	Map the areas that are served by particular utility companies.
02.03	Describe different types of utility businesses (electric cooperatives, municipal, investor owned).
03.0	Understand conventional electric power generation--The student will be able to:
03.01	Explain the conventional electric power generation systems and process (coal, petroleum, hydroelectric and nuclear).
03.02	Identify various conventional electric power generation fuel sources and the cost/ efficiency/ environmental advantages and

## CTE Standards and Benchmarks

disadvantages of each.

03.03 Diagram conventional electrical power generation systems.

04.0 Discuss the value of alternative and renewable energy sources--The student will be able to:

04.01 Identify reasons for seeking alternatives to fossil fuels to include economic, environmental and social impacts.

04.02 Understand the difference between alternative energy and renewable energy.

04.03 Understand the economic, environmental and social impact of alternative / renewable energy.

04.04 Compare and contrast alternative / renewable sources of energy with conventional sources of energy.

05.0 Understand electric power transmission and distribution--The student will be able to:

05.01 Understand the differences between AC and DC power.

05.02 Explain the electric power transmission process.

05.03 Explain the electric power distribution process.

05.04 Discuss the need for electric distribution systems and how they are designed to operate.

05.05 Discuss the emerging technologies in electric power transmission and distribution.

06.0 Investigate the viability of wind energy--The student will be able to:

06.01 Describe the process to harness wind energy.

06.02 Evaluate the advantages and disadvantages to wind technology.

06.03 Diagram a wind turbine.

06.04 Explain what makes a location appropriate for wind energy and identify on a map.

07.0 Investigate the viability of solar energy--The student will be able to:

07.01 Describe solar energy and how it is harnessed.

07.02 Explain the difference between passive solar and active solar.

07.03 Diagram a solar cell.

## CTE Standards and Benchmarks

07.04 Describe a central receiver system.

07.05 Diagram a solar thermal plant.

07.06 Explain what makes a location appropriate for solar energy and identify on a map.

08.0 Investigate the use of hydroelectricity--The student will be able to:

08.01 Describe hydroelectric energy production.

08.02 Diagram a hydroelectric plant.

08.03 Explain what makes a location appropriate for hydroelectricity and identify on a map.

09.0 Investigate the use of nuclear power--The student will be able to:

09.01 Evaluate the advantages and disadvantages of nuclear power.

09.02 Diagram a Light-Water Reactor (LWR) (e.g. control rods, coolant, containment vessel, dry casks, turbine, etc.).

09.03 Describe nuclear energy and how it is harnessed.

09.04 Discuss types of locations where building nuclear power plants would not be feasible.

10.0 Investigate the viability of bioenergy (biomass and biofuel)--The student will be able to:

10.01 Discuss the major sources of biomass.

10.02 Define biofuels (e.g. ethanol, biodiesel and methanol).

10.03 Describe the major sources, scale and impacts of biomass energy.

10.04 Diagram an electric energy producing biomass plant.

10.05 List the advantages and disadvantages of using biomass for energy (e.g. CO<sub>2</sub> emissions, photosynthetic efficiency, cost, etc.).

11.0 Investigate the viability of geothermal energy--The student will be able to:

11.01 Describe geothermal energy and the way it is harnessed.

11.02 Evaluate the advantages and disadvantages of using geothermal energy.

11.03 Diagram a geothermal power plant.

## CTE Standards and Benchmarks

11.04 Explain what makes a location appropriate for geothermal energy power plant and identify on a map.

12.0 Investigate energy consumption and identify ways to use energy wisely--The student will be able to:

12.01 Describe energy efficiency and conservation.

12.02 Read and interpret a residential utility bill.

12.03 Learn how to measure energy use of various equipment.

12.04 Identify ways to conserve energy at home and at school.

13.0 Discuss greenhouse gas emissions based on local fuel mixture and energy consumption—The student will be able to:

13.01 Discuss sources of energy used by local utility.

13.02 Discuss local fuel mixture.

13.03 Compare greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, etc.) for various types of fuel (e.g. coal, petroleum, natural gas).

13.04 Explain the importance of fuel mix diversity.

## **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**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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 for 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 as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan to meet individual needs and ensure equal access. 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.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Florida Department of Education  
Curriculum Framework

**Course Title:** Orientation to Career Clusters  
**Course Type:** Orientation/Exploratory

**Secondary – Middle School**

Course Number	8000400
CIP Number	1498999907
Grade Level	6 – 8
Standard Length	Semester
Teacher Certification	Refer to the <b>Course Structure</b> section.
CTSO	Any CTSO as appropriate

**Purpose**

The purpose of this course is to assist students in making informed decisions regarding their future academic and occupational goals and to provide information regarding careers in the seventeen career clusters. This course is a compilation of modules for each of the seventeen career clusters and is designed to provide flexibility in course offerings. Any number of modules can be selected to comprise a course that meets the needs of the students.

The content includes, but is not limited to, the orientation of students to career pathways in the career and technical education field. Reinforcement of academic skills occurs through classroom instruction and applied laboratory procedures. This course is recommended for students in the sixth grade, but not required.

Instruction and learning activities are provided in a laboratory setting using hands-on experiences with the equipment, materials and technology appropriate to the course content and in accordance with current practices.

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

**Course Structure**

The length of this course is one semester. It may be offered for two semesters when appropriate. When offered for one semester, it is recommended that it be at the exploratory level and more in-depth when offered for two semesters.

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

The following table illustrates the course structure:

Course Number	Course Title	Teacher Certification	Length
8000400	Orientation to Career Clusters	ANY FIELD	Semester

**Florida Standards for English Language Development (ELD)**

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.SI.1.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting. For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL's need for communication and social skills. For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition.

## **Standards**

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

- 01.0 Identify Florida's seventeen career clusters.
- 02.0 Identify and explore careers in the Agriculture, Food & Natural Resources cluster.
- 03.0 Identify and explore careers in the Architecture & Construction cluster.
- 04.0 Identify and explore careers in the Arts, A/V Technology & Communication cluster.
- 05.0 Identify and explore careers in the Business Management & Administration cluster.
- 06.0 Identify and explore careers in the Education & Training cluster.
- 07.0 Identify and explore careers in the Energy cluster.
- 08.0 Identify and explore careers in the Finance cluster.
- 09.0 Identify and explore careers in the Government & Public Administration cluster.
- 10.0 Identify and explore careers in the Health Science cluster.
- 11.0 Identify and explore careers in the Hospitality and Tourism cluster.
- 12.0 Identify and explore careers in the Human Services cluster.
- 13.0 Identify and explore careers in the Information Technology cluster.
- 14.0 Identify and explore careers in the Law, Public Safety & Security cluster.
- 15.0 Identify and explore careers in the Manufacturing cluster.
- 16.0 Identify and explore careers in the Marketing, Sales & Service cluster.
- 17.0 Identify and explore careers in the Engineering and Technology Education cluster.
- 18.0 Identify and explore careers in the Transportation, Distribution & Logistics cluster.
- 19.0 Describe leadership skills.

**Florida Department of Education  
Student Performance Standards**

**Course Title:** Orientation to Career Clusters  
**Course Number:** 8000400  
**Course Credit:** Semester

**Course Description:**

This course is a broad overview of the seventeen career clusters offered in Florida. This course provides hands-on introductory activities for each career cluster as well as opportunities to acquire and demonstrate beginning leadership skills.

<b>CTE Standards and Benchmarks</b>	
01.0	Identify Florida’s seventeen career clusters – the student will be able to:
01.01	List Florida’s seventeen career clusters.
01.02	Research the national career clusters website.
01.03	Identify the Career and Technical Student Organizations (CTSO) appropriate for Career and Technical Education (CTE) programs.
01.04	Explain the purpose of a CTSO.
02.0	Identify and explore careers in the Agriculture, Food & Natural Resources cluster – the student will be able to:
02.01	Identify the pathways in the Agriculture, Food & Natural Resources career cluster and the careers in each pathway.
02.02	Describe the types of places that employ individuals who have careers in the Agriculture, Food & Natural Resources career cluster.
02.03	Describe the variety of tasks performed by individuals who have careers in the Agriculture, Food & Natural Resources career cluster.
02.04	List the skills, abilities, and talents needed for careers in the Agriculture, Food & Natural Resources career cluster.
02.05	Identify the level of training and education required for careers in the Agriculture, Food & Natural Resources career cluster.
02.06	Research a career in the Agriculture, Food & Natural Resources career cluster and present findings to the class.
02.07	Apply math, science, and reading skills in the completion of a project or activity related to the Agriculture, Food & Natural Resources career cluster.
03.0	Identify and explore careers in the Architecture & Construction cluster – the student will be able to:
03.01	Identify the pathways in the Architecture & Construction career cluster and the careers in each pathway.

## CTE Standards and Benchmarks

03.02 Describe the types of places that employ individuals who have careers in the Architecture & Construction career cluster.

03.03 Describe the variety of tasks performed by individuals who have careers in the Architecture & Construction career cluster.

03.04 List the skills, abilities, and talents needed for careers in the Architecture & Construction career cluster.

03.05 Identify the level of training and education required for careers in the Architecture & Construction career cluster.

03.06 Research a career in the Architecture & Construction career cluster and present findings to the class.

03.07 Apply math, science, and reading skills in the completion of a project or activity related to the Architecture & Construction career cluster.

04.0 Identify and explore careers in the Arts, A/V Technology & Communication cluster – the student will be able to:

04.01 Identify the pathways in the Arts, A/V Technology & Communication career cluster and the careers in each pathway.

04.02 Describe the types of places that employ individuals who have careers in the Arts, A/V Technology & Communication career cluster.

04.03 Describe the variety of tasks performed by individuals who have careers in the Arts, A/V Technology & Communication career cluster.

04.04 List the skills, abilities, and talents needed for careers in the Arts, A/V Technology & Communication career cluster.

04.05 Identify the level of training and education required for careers in the Arts, A/V Technology & Communication career cluster.

04.06 Research a career in the Arts, A/V Technology & Communication career cluster and present findings to the class.

04.07 Apply math, science, and reading skills in the completion of a project or activity related to the Arts, A/V Technology & Communication career cluster.

05.0 Identify and explore careers in the Business, Management & Administration cluster – the student will be able to:

05.01 Identify the pathways in the Business, Management & Administration career cluster and the careers in each pathway.

05.02 Describe the types of places that employ individuals who have careers in the Business Management & Administration career cluster.

05.03 Describe the variety of tasks performed by individuals who have careers in the Business Management & Administration career cluster.

05.04 List the skills, abilities, and talents needed for careers in the Business Management & Administration career cluster.

05.05 Identify the level of training and education required for careers in the Business Management & Administration career cluster.

05.06 Research a career in the Business Management & Administration career cluster and present findings to the class.

05.07 Apply math, science, and reading skills in the completion of a project or activity related to the Business Management & Administration career cluster.

## CTE Standards and Benchmarks

06.0 Identify and explore careers in the Education & Training cluster – the student will be able to:

06.01 Identify the pathways in the Education & Training career cluster and the careers in each pathway.

06.02 Describe the types of places that employ individuals who have careers in the Education & Training career cluster.

06.03 Describe the variety of tasks performed by individuals who have careers in the Education & Training career cluster.

06.04 List the skills, abilities, and talents needed for careers in the Education & Training career cluster.

06.05 Identify the level of training and education required for careers in the Education & Training career cluster.

06.06 Research a career in the Education & Training career cluster and present findings to the class.

06.07 Apply math, science, and reading skills in the completion of a project or activity related to the Education & Training career cluster.

07.0 Identify and explore careers in the Energy cluster – the student will be able to:

07.01 Identify the pathways in the Energy career cluster and the careers in each pathway.

07.02 Describe the types of places that employ individuals who have careers in the Energy career cluster.

07.03 Describe the variety of tasks performed by individuals who have careers in the Energy career cluster.

07.04 List the skills, abilities, and talents needed for careers in the Energy career cluster.

07.05 Identify the level of training and education required for careers in the Energy career cluster.

07.06 Research a career in the Energy career cluster and present findings to the class.

07.07 Apply math, science, and reading skills in the completion of a project or activity related to the Energy career cluster.

08.0 Identify and explore careers in the Finance cluster – the student will be able to:

08.01 Identify the pathways in the Finance career cluster and the careers in each pathway.

08.02 Describe the types of places that employ individuals who have careers in the Finance career cluster.

08.03 Describe the variety of tasks performed by individuals who have careers in the Finance career cluster.

08.04 List the skills, abilities, and talents needed for careers in the Finance career cluster.

08.05 Identify the level of training and education required for careers in the Finance career cluster.

08.06 Research a career in the Finance career cluster and present findings to the class.

## CTE Standards and Benchmarks

08.07 Apply math, science, and reading skills in the completion of a project or activity related to the Finance career cluster.

09.0 Identify and explore careers in the Government & Public Administration cluster – the student will be able to:

09.01 Identify the pathways in the Government & Public Administration career cluster and the careers in each pathway.

09.02 Describe the types of places that employ individuals who have careers in the Government & Public Administration career cluster.

09.03 Describe the variety of tasks performed by individuals who have careers in the Government & Public Administration career cluster.

09.04 List the skills, abilities, and talents needed for careers in the Government & Public Administration career cluster.

09.05 Identify the level of training and education required for careers in the Government & Public Administration career cluster.

09.06 Research a career in the Government & Public Administration career cluster and present findings to the class.

09.07 Apply math, science, and reading skills in the completion of a project or activity related to the Government & Public Administration career cluster.

10.0 Identify and explore careers in the Health Science cluster – the student will be able to:

10.01 Identify the pathways in the Health Science career cluster and the careers in each pathway.

10.02 Describe the types of places that employ individuals who have careers in the Health Science career cluster.

10.03 Describe the variety of tasks performed by individuals who have careers in the Health Science career cluster.

10.04 List the skills, abilities, and talents needed for careers in the Health Science career cluster.

10.05 Identify the level of training and education required for careers in the Health Science career cluster.

10.06 Research a career in the Health Science career cluster and present findings to the class.

10.07 Apply math, science, and reading skills in the completion of a project or activity related to the Health Science career cluster.

11.0 Identify and explore careers in the Hospitality & Tourism cluster – the student will be able to:

11.01 Identify the pathways in the Hospitality & Tourism career cluster and the careers in each pathway.

11.02 Describe the types of places that employ individuals who have careers in the Hospitality & Tourism career cluster.

11.03 Describe the variety of tasks performed by individuals who have careers in the Hospitality & Tourism career cluster.

11.04 List the skills, abilities, and talents needed for careers in the Hospitality & Tourism career cluster.

11.05 Identify the level of training and education required for careers in the Hospitality & Tourism career cluster.

## CTE Standards and Benchmarks

11.06 Research a career in the Hospitality & Tourism career cluster and present findings to the class.

11.07 Apply math, science, and reading skills in the completion of a project or activity related to the Hospitality & Tourism career cluster.

12.0 Identify and explore careers in the Human Services cluster – the student will be able to:

12.01 Identify the pathways in the Human Services career cluster and the careers in each pathway.

12.02 Describe the types of places that employ individuals who have careers in the Human Services career cluster.

12.03 Describe the variety of tasks performed by individuals who have careers in the Human Services career cluster.

12.04 List the skills, abilities, and talents needed for careers in the Human Services career cluster.

12.05 Identify the level of training and education required for careers in the Human Services career cluster.

12.06 Research a career in the Human Services career cluster and present findings to the class.

12.07 Apply math, science, and reading skills in the completion of a project or activity related to the Human Services career cluster.

13.0 Identify and explore careers in the Information Technology cluster – the student will be able to:

13.01 Identify the pathways in the Information Technology career cluster and the careers in each pathway.

13.02 Describe the types of places that employ individuals who have careers in the Information Technology career cluster.

13.03 Describe the variety of tasks performed by individuals who have careers in the Information Technology career cluster.

13.04 List the skills, abilities, and talents needed for careers in the Information Technology career cluster.

13.05 Identify the level of training and education required for careers in the Information Technology career cluster.

13.06 Research a career in the Information Technology career cluster and present findings to the class.

13.07 Apply math, science, and reading skills in the completion of a project or activity related to the Information Technology career cluster.

14.0 Identify and explore careers in the Law, Public Safety & Security cluster–The student will be able to:

14.01 Identify the pathways in the Law, Public Safety & Security career cluster and the careers in each pathway.

14.02 Describe the types of places that employ individuals who have careers in the Law, Public Safety & Security career cluster.

14.03 Describe the variety of tasks performed by individuals who have careers in the Law, Public Safety & Security career cluster.

14.04 List the skills, abilities, and talents needed for careers in the Law, Public Safety & Security career cluster.

## CTE Standards and Benchmarks

14.05 Identify the level of training and education required for careers in the Law, Public Safety & Security career cluster.

14.06 Research a career in the Law, Public Safety & Security career cluster and present findings to the class.

14.07 Apply math, science, and reading skills in the completion of a project or activity related to the Law, Public Safety & Security career cluster.

15.0 Identify and explore careers in the Manufacturing cluster – the student will be able to:

15.01 Identify the pathways in the Manufacturing career cluster and the careers in each pathway.

15.02 Describe the types of places that employ individuals who have careers in the Manufacturing career cluster.

15.03 Describe the variety of tasks performed by individuals who have careers in the Manufacturing career cluster.

15.04 List the skills, abilities, and talents needed for careers in the Manufacturing career cluster.

15.05 Identify the level of training and education required for careers in the Manufacturing career cluster.

15.06 Research a career in the Manufacturing career cluster and present findings to the class.

15.07 Apply math, science, and reading skills in the completion of a project or activity related to the Manufacturing career cluster.

16.0 Identify and explore careers in the Marketing, Sales & Service cluster – the student will be able to:

16.01 Identify the pathways in the Marketing, Sales & Service career cluster and the careers in each pathway.

16.02 Describe the types of places that employ individuals who have careers in the Marketing, Sales & Service career cluster.

16.03 Describe the variety of tasks performed by individuals who have careers in the Marketing, Sales & Service career cluster.

16.04 List the skills, abilities, and talents needed for careers in the Marketing, Sales & Service career cluster.

16.05 Identify the level of training and education required for careers in the Marketing, Sales & Service career cluster.

16.06 Research a career in the Marketing, Sales & Service career cluster and present findings to the class.

16.07 Apply math, science, and reading skills in the completion of a project or activity related to the Marketing, Sales & Service career cluster.

17.0 Identify and explore careers in Engineering and Technology Education – the student will be able to:

17.01 Identify the pathways in Engineering and Technology Education.

17.02 Describe the types of places that employ individuals who have careers in Engineering and Technology Education.

17.03 Describe the variety of tasks performed by individuals who have careers in Engineering and Technology Education.

## CTE Standards and Benchmarks

17.04 List the skills, abilities, and talents needed for careers in Engineering and Technology Education.

17.05 Identify the level of training and education required for careers in Engineering and Technology Education.

17.06 Research a career in Engineering and Technology Education and present findings to the class.

17.07 Apply math, science, and reading skills in the completion of a project or activity related to the Engineering and Technology Education.

18.0 Identify and explore careers in the Transportation & Logistics cluster – the student will be able to:

18.01 Identify the pathways in the Transportation & Logistics career cluster and the careers in each pathway.

18.02 Describe the types of places that employ individuals who have careers in the Transportation & Logistics career cluster.

18.03 Describe the variety of tasks performed by individuals who have careers in the Transportation & Logistics career cluster.

18.04 List the skills, abilities, and talents needed for careers in the Transportation & Logistics career cluster.

18.05 Identify the level of training and education required for careers in the Transportation & Logistics career cluster.

18.06 Research a career in the Transportation & Logistics career cluster and present findings to the class.

18.07 Apply math, science, and reading skills in the completion of a project or activity related to the Transportation & Logistics career cluster.

19.0 Describe leadership skills – the student will be able to:

19.01 Identify the Career and Technical Student Organization(s) that are appropriate for CTE programs in each of the career clusters.

19.02 Describe the leadership opportunities available to members of the CTSOs identified above.

19.03 Investigate the CTSOs at your school and/or in your school district (e.g., membership requirements, dues, activities, events).

## **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)**

The Florida Technology Student Association (FL-TSA) is the intercurricular career and technical student organization for 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 as identified on the secondary student's Individual Educational Plan (IEP) or 504 plan or postsecondary student's accommodations' plan 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.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.