GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

ENGINEERING & TECHNOLOGY

COURSE: Engineering Applications (ET-EA)

UNIT: 1. Safety in Engineering

INTRODUCTION

Annotation:

This unit focuses on employee safety. Students need to be aware of their rights as they enter employment or internship.

Grade(s):

	9th
	10th
X	11th
X	12th

Time:

4 hours

Author:

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Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards: Please list the standard and elements covered.

- ENGR-EA-1 – Students will use selected discipline specific engineering tools, machines, materials, and processes.
- ENGR-STEM-5 – Students will apply principles of science, technology, engineering, mathematics, interpersonal communication, and teamwork to the solution of technological problems.
- CTAE-FS-7 – Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.
- CTAE-FS-9 – Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.
- CTAE-FS-11 – Entrepreneurship: Learners demonstrate understandings of concepts, processes, and behaviors associated with successful entrepreneurial performance.

GPS Academic Standards:

- SCSh2. Students will use standard safety practices for all classroom laboratory and field investigations.
- ELA10C1. The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.
- ELAALRC3. The student acquires new vocabulary in each content area and uses it correctly.

National / Local Standards / Industry / ISTE:

UNDERSTANDINGS & GOALS

Enduring Understandings: Enduring understandings are statements summarizing important ideas and have lasting value beyond the classroom. They synthesize what students should understand – not just know.

Students will be able to explain the role of OSHA and identify the role of employers and employees in meeting OSHA Standards.

Essential Questions: Essential questions probe for deeper meaning and understanding while fostering the development of critical thinking and problem-solving skills. Example: Why is life-long learning important in the modern workplace?

- What is OSHA?
- How does an employer comply with OSHA Standards?
- What are the employee's rights?

Knowledge from this Unit: Factual information.

Skills from this Unit: Performance.

ASSESSMENT(S)

Assessment Method Type: Select one or more of the following. Please consider the type(s) of differentiated instruction you will be using in the classroom.

____ Pre-test
_X_ Objective assessment - multiple-choice, true- false, etc.
__ Quizzes/Tests
_X_ Unit test
____ Group project
_X_ Individual project
____ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
__ Self-check rubrics
__ Self-check during writing/planning process
__ Journal reflections on concepts, personal experiences and impact on one's life
__ Reflect on evaluations of work from teachers, business partners, and competition judges
__ Academic prompts
__ Practice quizzes/tests
____ Subjective assessment/Informal observations
__ Essay tests
__ Observe students working with partners
__ Observe students role playing
____ Peer-assessment
__ Peer editing & commentary of products/projects/presentations using rubrics
__ Peer editing and/or critiquing
____ Dialogue and Discussion
__ Student/teacher conferences
__ Partner and small group discussions
__ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
____ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
__ Application of skills to real-life situations/scenarios
____ Post-test

Assessment(s) Title:

Post Test

Assessment(s) Description/Directions:

Students should pass safety test with a score of 100 percent correct.

Attachments for Assessment(s): Please list.

General Safety Test

LEARNING EXPERIENCES

Instructional planning: Include lessons, activities and other learning experiences in this section with a brief description of the activities to ensure student acquisition of the knowledge and skills addressed in the standards. Complete the sequence of instruction for each lesson/task in the unit.

Sequence of Instruction

1. Identify the Standards. Standards should be posted in the classroom for each lesson.

- ENGR-EA-1 – Students will use selected discipline specific engineering tools, machines, materials, and processes.
- ENGR-STEM-5 – Students will apply principles of science, technology, engineering, mathematics, interpersonal communication, and teamwork to the solution of technological problems.
- CTAE-FS-7 – Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.
- CTAE-FS-9 – Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.
- CTAE-FS-11 – Entrepreneurship: Learners demonstrate understandings of concepts, processes, and behaviors associated with successful entrepreneurial performance. SCSh2. Students will use standard safety practices for all classroom laboratory and field investigations.
- ELA10C1. The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.
- ELAALRC3. The student acquires new vocabulary in each content area and uses it correctly.

2. Review Essential Questions.

- What is OSHA?
- How does an employer comply with OSHA Standards?
- What are the employee's rights?

3. Identify and review the unit vocabulary.

4. Assessment Activity.

Day 1

- Review Safety materials from Foundations and Concepts classes

Day 2

- PowerPoint presentation on OSHA – Developed by OSHA
- OSHA online Quiz *(Note: Some information is not found in the PowerPoint, so searching the web is also required.)*

Day 3

- Students will visit the Potential Hazards for Teen Workers Website by OSHA
- Divide students in groups of 2 or 3 and create a poster for one of the eight hazards. (*Note: Some hazards have more info than others. So students should also use the additional links provided on each page)*

Day 4

- General Safety Test

Attachments for Learning Experiences: Please list.

Notes & Reflections: May include notes to the teacher, pre-requisite knowledge & skills, suggestions, etc.

CULMINATING PERFORMANCE TASK

Culminating Unit Performance Task Title:

Poster

Culminating Unit Performance Task Description/Directions/Differentiated

Students will create a poster for a potential job hazard for teen workers. The poster should include adequate information and be visually appealing.

Attachments for Culminating Performance Task

UNIT RESOURCES

Web Resources:

Attachment(s): Supplemental files not listed in assessment, learning experiences, and performance task.

Materials & Equipment:

What 21st Century Technology was used in this unit:

	Slide Show Software		Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System	X	Desktop Publishing		Image File(s)
	Web Design Software		Blog		Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email		Website		