Petrochemical Safety, Health, and Environment

Subject: Career and Technical Education
Grade: 11
Expectations: 28
Breakouts: 92

(a) Introduction.

1. Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.

2. The Energy Career Cluster focuses on Texas's diverse economic landscape, geography and natural resources, including renewable energy potential, transportation system, labor force, and leadership in environmental research.

3. Petrochemical Safety, Health, and Environment addresses the shortage of process technology operators/technicians by educating students on the safety rules, regulations, and operations of the petrochemical process technology operator. Students enrolled in this course will learn about the knowledge and skills required in occupational safety, health, and environment as well as the governing regulatory authorities and the legal aspects of the industry in order to maintain a safe work environment.

4. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.

5.

(C) identify the importance of safety, health, and environment as they relate to the performance of all job tasks and regulatory compliance issues within the industries, including, but not limited to, petrochemical plants, refineries, oil and gas production, and power generation; and

(i) identify the importance of safety as [it] relates to the performance of all job tasks

(ii) identify the importance of health as [it] relates to the performance of all job tasks

(iii) identify the importance of environment as [it] relates to the performance of all job tasks

(iv) identify regulatory compliance issues within the industries, including, but not limited to, petrochemical plants

(v) identify regulatory compliance issues within the industries, including, but not limited to, refineries

(vi) identify regulatory compliance issues within the industries, including, but not limited to, oil and gas production

(vii) identify regulatory compliance issues within the industries, including, but not limited to, power generation

(D) explain the importance of interpreting the safety, health, and environmental procedures standards, requirements, and regulations as a process technology operator/technician.

(i) explain the importance of interpreting the safety procedures standards, requirements, and regulations as a process technology operator/technician

(ii) explain the importance of interpreting the health procedures standards, requirements, and regulations as a process technology operator/technician.

(iii) explain the importance of interpreting the environmental procedures standards, requirements, and regulations as a process technology operator/technician.

(2) The student examines compliance standards to ensure safe work practices as they relate to safety, health, and environmental regulations. The student is expected to:

(A) identify the legal governing agencies and describe regulatory requirements as they apply to the petrochemical industry, its employees, and the community;

(i) identify the legal governing agencies

(ii) describe regulatory requirements as they apply to the petrochemical industry

(iii)

(D) determine types of administrative controls and permitting systems to ensure safe work practices, especially as the controls relate to confined spaces and log-out and tag-out (LOTO);

(i) determine types of administrative controls to ensure safe work practices, especially as the controls relate to confined spaces and log-out and tag-out (LOTO)

(ii) determine types of permitting systems to ensure safe work practices, especially as the controls relate to confined spaces and log-out and tag-out (LOTO)

(E) demonstrate the proper usage of typical safety equipment and systems used in local plants;

(i) demonstrate the proper usage of typical safety equipment used in local plants

(ii) demonstrate the proper usage of typical safety systems used in local plants

(F) describe how engineering controls are designed to allow process technology operators/technicians to operate equipment with system safeguards;

(i) describe how engineering controls are designed to allow process technology operators/technicians to operate equipment with system safeguards

(G) describe the different types of personal protective equipment (PPE), including fire resistant clothing (FRC), hard hats, safety shoes, hearing protection, safety glasses, and acid suits;

(i) describe the different types of personal protective equipment (PPE), including fire resistant clothing (FRC)

(ii) describe the different types of personal protective equipment (PPE), including hard hats

(iii) describe the different types of personal protective equipment (PPE), including safety shoes

(iv) describe the different types of personal protective equipment (PPE), including hearing protection

(v) describe the different types of personal protective equipment (PPE), including safety glasses

(vi) describe the different types of personal protective equipment (PPE), including acid suits

(H) evaluate the types of monitors that measure exposure ratings for noise, heat, and radiation;

(i) evaluate the types of monitors that measure exposure ratings for noise

(ii) evaluate the types of monitors that measure exposure ratings for heat

(iii) evaluate the types of monitors that measure exposure ratings for radiation

(I) describe the different types of respiratory protection according to their levels of protection, including air purifying, air supply, escape packs, and self-contained breathing apparatus (SCBA); and

(i) describe the different types of respiratory protection according to their levels of protection, including air purifying

(ii) describe the different types of respiratory protection according to their levels of protection, including air supply

(iii) describe the different types of respiratory protection according to their levels of protection, including escape packs

(iv) describe the different types of respiratory protection according to their levels of protection, including self-contained breathing apparatus (SCBA)

(v) describe how to protect the point of access and the site, including contractors who might have limited safety knowledge

(vi) describe how to protect the point of access and the site, including new equipment installation

(vii) describe how to protect the point of access and the site, including traffic control

(viii) describe how to protect the point of access and the site, including training on heavy machinery

(C) determine how weather conditions can adversely impact safety at a petrochemical plant or other process industry, including heat stress, hurricanes, freeze precautions, adverse weather conditions, lightning, and wind.

(i) determine how weather conditions can adversely impact safety at a petrochemical plant or other process industry, including heat stress

(ii) determine how weather conditions can adversely impact safety at a petrochemical plant or other process industry, including hurricanes

(iii) determine how weather conditions can adversely impact safety at a petrochemical plant or other process industry, including freeze precautions

(iv) determine how weather conditions can adversely impact safety at a petrochemical plant or other process