COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Safety Orientation
COURSE NUMBER	CONS 0101
DIVISION	Career and Technical Education
DEPARTMENT	CONS
CIP CODE	46.0201
CREDIT HOURS	1
CONTACT HOURS/WEEK	Class: 1 Lab: Clinical:
PREREQUISITES	KBOR approved Core Curriculum. OSHA 10, Math Level 3 Recommended

COURSE DESCRIPTION

This is the basic safety course. It is in alignment with NCCER and the Kansas Board of Regents. It is also a component of the Core Curriculum for the KCKCC Construction Technology program and the KCKCC Building and Property Maintenance Program. The course topics include: OSHA 10 certification, Environmental sustainability, Introduction to Safety Orientation, Hand and Power Tool Safety, Hazard Recognition - Evaluation and Control, Elevated Work and Fall Protection, Construction Health, Work Permit Systems, Personal Protective Equipment, Trenching Safety, Signs - Signals and Barricades, Materials Handling and Storage, Housekeeping, Emergency Response, Electrical Hazards, Specialty Work, and Fire Protection and Prevention. Hazard Communication, WorkZone Safety, High-Voltage Hazards, Welding Safety, Steel Erection, Walking and Working Surfaces, Ladders and Scaffolding, Horizontal Directional Drilling Hazards, Heavy-Equipment, Crane, and Rigging Safety, Trenching Safety, Forklift Safety, Lockout/Tagout, Confined Spaces, and Concrete and Masonry.

PROGRAM LEARNING OUTCOMES

1. Demonstrate appropriate safety practices and procedures.
2. Demonstrate proper methods for building a structure using provided blueprints.
3. Demonstrate proper installation of windows, doors, and stairs.

TEXTBOOKS

http://kckccbookstore.com/

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

I. Safety Orientation

A. OSHA safety.
B. OSHA's *General Duty Clause* and *1926 CFR Subpart C*.
C. Impact of accidents.
D. Four high-hazard areas.
E. Hazard recognition.
F. Construction health.
G. Fall, electrical, fire, trenching, materials handling, and heavy equipment hazards.
H. Appropriate personal protective equipment.
I. Signs, signals, barricades, markers, and tags.
J. Housekeeping procedures.
K. Assured equipment grounding.
L. Hand- and power-tool safety.
M. Fall protection procedures.
N. Ladders and scaffolding.
O. Work permits and lockout/tagout.
P. Emergency procedures.
Q. Manual lifting.
R. Hazards of heavy equipment.
S. Rigging safety.
T. Hand signals.

II. Introduction to Safety
A. Compliance and best practices.
B. Function of the Occupational Health and Safety Administration (OSHA).
C. Accident costs.
D. Materials handling.

III. Hazard Communication
A. Warning labels.
B. Material safety data sheet (MSDS).
C. Safety information on an MSDS.
D. On-site safety.

IV. Personal Protective Equipment
A. Personal protective equipment (PPE).
B. Use and care for personal protective equipment (PPE).
C. Three main types of respirators.

V. Work-Zone Safety
A. Signs, signals, and barricades.
B. Highway work zones.

VI. Electrical and High-Voltage Hazards
A. Electricity and high voltage.
B. Effects of electrical shock.
C. Insulation and grounding.
D. Ground fault circuit interrupter (GFCI).
E. Ground fault circuit interrupter is requirement.
F. Assured equipment grounding conductor programs.
G. Lockout/tagout.

VII. Fire Protection and Prevention

A. Fuel sources.
B. Sources of ignition.
C. Handling and storage.
D. Fire extinguishers.
E. Types of fire extinguishers.
F. Uses a fire extinguisher.

VIII. Hand- and Power-Tool Safety
A. Types of power tools.
B. Uses of power tools.
C. Common power sources.
D. Risks associated with hand tools.
E. Risks associated with power tools.
F. Minimize the risks.

IX. Welding Safety
A. Safety hazards associated with welding.
B. Hot work permit.
C. Fire hazards in welding.
D. Handling and storing compressed gases.
E. Toxic fumes.
F. Prevention of injury to workers.

X. Fall Protection
A. Safety hazards.
B. Fall-protection equipment.

XI. Steel Erection
A. Steel-erection.
B. Safety hazards.
C. Damage to workers, equipment and property.

XII. Walking and Working Surfaces
A. Hazards of surfaces.
B. Accidents and injuries.
C. Responding to accidents.

XIII. Ladders and Scaffolding
A. Types of ladders and scaffolding.
B. Safely using ladders and scaffolding.
C. Set up and use ladders.

XIV. Horizontal Directional Drilling Hazards
A. Horizontal directional drilling (HDD).
B. Safety hazards.
C. Hazards associated with horizontal directional drilling.
D. Utility strikes.
E. Safety alert signs/symbols.

XV. Heavy-Equipment, Crane, and Rigging Safety
A. Types of heavy equipment.
B. Hazards of heavy equipment.
C. Safeguards and safety procedures.

XVI. Trenching Safety
A. Purpose of excavation.
B. Safety hazards.

C. On-site safety.
D. Causes of an unstable trench.
E. Recognizing soil types.
F. Shoring, sloping, and shielding safety.

XVII. Forklift Safety
A. Pre-shift inspection.
B. Safe traveling.
C. Safe load handling.
D. Safely on ramps and docks.
E. Working safely around a forklift.

XVIII. Lockout/Tagout
A. Lockout/tagout.
B. Safety hazards.
C. Safeguards with lockout/tagout.

XIX. Confined Spaces
A. Permit-required confined space and a non-permit-required.
B. Entry permit.
C. Confined spaces.
D. Worker responsibilities.
E. On-site safety.

XX. Concrete and Masonry
A. Hazards of concrete construction and masonry.
B. Personal protective equipment (PPE).

XXI. Environmental Sustainability
A. Environmentally safe waste disposal.
B. Life cycle analysis.
C. Recycled material.
D. Low VOC emissions.
E. New “green” materials.
F. New “green” methods and practices.
G. “Low impact” designs.

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. Identify and describe the four types of hazards, PPE, terms and signals.
1. Identify and explain the role of OSHA in job-site safety.
2. Identify and explain OSHA’s *General Duty Clause* and *1926 CFR Subpart C*.
3. Identify and describe the impact of accidents.
4. Identify and identify the four high-hazard areas.
5. Identify and demonstrate hazard recognition and risk assessment techniques.
6. Identify and explain the basics of construction health.
7. Identify and identify basic fall, electrical, fire, trenching, materials handling, and heavy equipment hazards, and explain the general safety procedures associated with them.
8. Explain and demonstrate the use of appropriate personal protective equipment.
9. Identify and explain and identify the various signs, signals, barricades, markers, and tags used on a job site.
10. Identify and demonstrate proper housekeeping procedures.

11. Identify and demonstrate an understanding of assured equipment grounding conductor programs and the use of GFCIs.
12. Identify and demonstrate and explain general hand- and power-tool safety guidelines.
13. Explain your company- or site-specific fall protection procedures and requirements.
14. Identify and demonstrate and explain the proper use of ladders and scaffolding.
15. Identify and explain the use of work permits and lockout/tagout procedures.
16. Identify and demonstrate and explain the emergency procedures for trenching accidents.
17. Identify and demonstrate proper manual lifting procedures.
18. Identify and identify the hazards of working around or on heavy equipment.
19. Identify and describe proper rigging safety procedures.
20. Identify and demonstrate use of hand signals.

B. Identify and describe OSHA best practices, accident costs and material handling.
   21. Identify and explain the difference between compliance and best practices.
   22. Identify and describe the purpose and function of the Occupational Health and Safety Administration (OSHA).
   23. Identify and explain how accident costs affect everyone on a job site.
   24. Identify and describe proper materials handling procedures and safeguards.

C. Identify and describe a MSDS and warning labels.
   25. Identify and identify different types of warning labels.
   26. Identify and explain how a material safety data sheet (MSDS) is used.
   27. Identify and identify and apply the safety information on an MSDS.
   28. Identify and demonstrate and explain proper on-site safety and emergency-response procedures.

D. Identify and describe the use and care of personal protective equipment, and the main types of PPE.
   29. Identify and describe, in general, the personal protective equipment (PPE) needed for working on a construction site.
   30. Identify and describe how to properly use and care for personal protective equipment (PPE).
   31. Identify and identify and describe the three main types of respirators used in construction.

E. Identify and define highway work zone safety, and perform hand signals correctly.
   32. Identify and identify signs, signals, and barricades that will help you perform your job safely.
   33. Identify and identify the hazards and safeguard of working in a highway work zone.

F. Identify and describe the types of electrical and high-voltage hazards, their effects, and lockout/tagout.
   34. Identify and describe the risks associated with working around electricity and high voltage.
   35. Identify and describe the effects of electrical shock on the human body.
   36. Identify and define insulation and grounding.
   37. Identify and describe how a ground fault circuit interrupter (GFCI) works.
   38. Identify and explain where a ground fault circuit interrupter is required.
   39. Identify and discuss the purpose of an assured equipment grounding conductor program.
   40. Identify and define lockout/tagout and describe how it protects workers.

G. Identify and describe fire protection and prevention, sources of ignition, and safe handling.

41. Identify and identify the typical fuel sources found on a construction site.
42. Identify and identify the typical sources of ignition found on a construction site.
43. Identify and explain the procedures for proper handling and storage of flammable materials.
44. Identify and explain the classes of fire extinguishers and name the type of fire for which each is most effective.
45. Identify and identify the type and use of a fire extinguisher from its label.
46. Identify and use a fire extinguisher to put out a fire.

H. identify and describe types and uses of hand- and power-tools, and safety risks.
47. Identify and identify different types of power tools.
48. identify and describe the uses of hand and power tools.
49. identify and list the five most common power sources for power tools.
50. identify and describe the risks associated with hand tools.
51. identify and describe the risks associated with each type of power tool.
52. identify and explain how to minimize the risks associated with operating hand and power tools.

I. Identify and describe welding hazards, handling safety, causes of fumes, and prevention of injury.

53. Identify and identify and describe the safety hazards associated with welding and metal cutting operations.
54. Identify and identify the purpose and characteristics of a hot work permit.
55. Identify and describe the fire hazards associated with welding operations.
56. Identify and identify the hazards associated with handling and storing compressed gases.
57. Identify and identify the hazards associated with toxic fumes generated by welding and cutting processes and the methods used to avoid these hazards.
58. Identify and describe the methods used to prevent injury to workers, including use of correct personal protective equipment.

J. Identify and describe fall protection PPE and hazards.
59. Identify and explain and identify safety hazards associated with working at elevated heights.
60. Identify and demonstrate how to properly use fall-protection equipment.

K. Identify and describe safety hazards, steel erection, and damage.
61. Identify and describe the steel-erection process.
62. Identify and identify common safety hazards associated with steel-erection jobs.
63. Identify and explain the safeguards that are required during a job to prevent personal injury and damage to equipment and property.

L. Identify and describe the hazards of walking and working surfaces, and accident reporting.
64. Identify and explain the hazards associated with walking and working surfaces.
65. Identify and describe how to avoid accidents and injuries on walking and working surfaces.
66. Identify and explain how to respond to accidents and injury on walking and working surfaces.

M. Identify and describe the types of ladders and scaffolding, set-up, and safety.
67. Identify and identify the different types of ladders and scaffolding used on a work site.

68. Identify and describe how to safely use ladders and scaffolding.
69. Identify and properly set up and use ladders and scaffolding.

N. Identify and describe symbols, safety, and hazards in horizontal directional drilling.
70. Identify and describe the horizontal directional drilling (HDD) process.
71. Identify and identify common safety hazards associated with horizontal directional drilling jobs.
72. Identify and describe how to avoid the hazards associated with horizontal directional drilling jobs.
73. Identify and respond to utility strikes that may cause personal injury, equipment damage, and property damage.
74. Identify and identify safety alert signs and symbols.

O. Identify and describe the hazards, types of heavy-equipment, crane, and rigging, and safeguards.
75. Identify and describe the types and uses of heavy equipment.
76. Identify and identify the hazards associated with the operation of heavy equipment, including cranes and rigging.
77. Identify and describe the safeguards and safety procedures used when working with heavy equipment.

P. identify and describe the hazards, safety practices, and identify soil types.
78. Identify and describe the process and purpose of excavation.
79. Identify and explain and identify safety hazards associated with excavation.
80. Identify and demonstrate and explain proper on-site safety and emergency-response procedures.
81. Identify and identify the indications and explain the causes of an unstable trench.
82. Identify and explain the importance of recognizing soil types with regard to excavation.
83. Identify and describe the procedures used in shoring, sloping, and shielding safety methods.

Q. Identify and describe forklift safety inspection.
84. Identify and explain the elements of a pre-shift inspection.
85. Identify and describe the practices for safe traveling.
86. Identify and describe the practices for safe load handling.
87. Identify and understand how to operate a forklift safely on ramps and docks.
88. Identify and explain how to work safely around a forklift.

R. Identify and describe proper lockout/tagout procedures.
89. Identify and describe the lockout/tagout process.
90. Identify and identify common safety hazards associated with lockout/tagout.
91. Identify and describe the safeguards associated with lockout/tagout.

S. Identify and describe worker responsibility, safety and permits for confined spaces.
92. Identify and describe the difference between a permit-required confined space and a non-permit-required confined space.
93. Identify and explain the purpose of an entry permit.
94. Identify and explain the hazards associated with confined spaces.

95. Identify and describe the responsibilities of all workers on the site.
96. Identify and demonstrate and explain proper on-site safety and emergency-response procedures.

T. Identify and describe the hazards and PPE for concrete and masonry work.
97. Identify and explain and identify safety hazards associated with concrete construction and masonry work.
98. Identify and demonstrate and explain proper on-site safety, including the use of personal protective equipment (PPE).

U. Identify and describe sound environmental practices for construction workers, including waste disposal, life cycle analysis, green practices and low impact.
99. Describe waste disposal methods for this industry according to EPA and industry guidelines.
100. Describe the process of life cycle analysis in this industry based on industry guidelines.
101. Identify recycled materials by label and industry practice.
102. Define “low emission” and give two examples.
103. Identify new “green” materials now being introduced or currently used in this industry.
104. Describe new “green” practices and methods being instituted or currently employed within this industry.
105. Identify and explain the term “low Impact” as it relates to the environment.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor’s course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.