SYLLABUS

DATE OF LAST REVIEW: 02/2013
CIP CODE: 46.0201
SEMESTER: Departmental Syllabus
COURSE TITLE: Sprinkler Fitting (Level 1)
COURSE NUMBER: CONS0155
CREDIT HOURS: 2
INSTRUCTOR: Departmental Syllabus
OFFICE LOCATION: Departmental Syllabus
OFFICE HOURS: Departmental Syllabus
TELEPHONE: Departmental Syllabus
EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: KBOR approved Core Curriculum.
OSHA 10. Math Level 3 Recommended

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required tests for your particular class.

COURSE DESCRIPTION: This is the basic course in Sprinkler Fitting. It is in alignment with NCCER (selected modules) and the Kansas Board of Regents. The course topics include: Environmental sustainability, Orientation to the Trade, Introduction to Components and Systems, Steel Pipe, CPVC Pipe and Fittings, Copper Tube Systems and Underground Pipe.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. They may include but are not limited to lecture, multimedia, cooperative/collaborative learning, demonstrations, labs, on-the-job, internships, performance tests, and other learning experiences outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:

I. MODULE 18101-07 - ORIENTATION TO THE TRADE
   A. Fire sprinkler codes.
   B. Work environment.
   C. Career opportunities.
   D. Personal responsibilities.
   E. Sprinkler fitter hazards.
   F. Handling and storing materials.
   G. Sprinkler fittering drawings.
   H. Tools, materials, and fire sprinkler systems.

II. MODULE 18102-07 - INTRODUCTION TO COMPONENTS AND SYSTEMS
   A. Listed terms.
   B. Listing agency.
   C. Common sprinkler heads.
   D. Aboveground pipe.
   E. C-factor.
   F. Types of pipe hangers.
   G. Control valves, check valves, water flow alarms, and fire department connections.

III. MODULE 18103-07 - STEEL PIPE
    A. Safety precautions.
    B. Types of steel pipe and fittings.
    C. Tools for cutting and threading.
    D. Takeouts.
    E. Set up equipment.
    F. Steel pipe.
    G. Assemble pipe.
    H. Pipe-end preparation.
    I. Read a fitting.

IV. MODULE 18104-07 - CPVC PIPE AND FITTINGS
    A. Safety precautions.
    B. Chemical compatibility.
    C. Types of CPVC pipe.
    D. Tools for cutting CPVC pipe.
    E. Takeouts.
    F. Set up equipment.
    G. Cement CPVC pipe.
    H. Pipe ends.
    I. Joining and curing CPVC pipe.

V. MODULE 18105-07 - COPPER TUBE SYSTEMS
    A. Safety precautions.
    B. Copper tube pipe and fittings.
    C. Cast bronze fittings.
D. Wrought fittings.
E. Dielectric fittings.
F. Soldering and brazing copper joints.
G. Takeouts.
H. Set up equipment.
I. Cut, chamfer, and clean copper tube pipe.
J. Pipe ends.

VI. MODULE 18106-07 - UNDERGROUND PIPE
A. Types and properties of soil.
B. Trenching safety.
C. Sloping requirements.
D. Digging trenches.
E. Excavation support.
F. Types of bedding material.
G. Types of underground pipe.
H. Thrust blocks and restraints.
I. Hydrants, yard valves, hydrant hoses.
J. Testing, inspection, and chlorinating of underground pipe.
K. Test certificate.

VII. 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.

EXPECTED LEARNER OUTCOMES:

A. Module 18101-07 The student will be able to identify and describe the basic codes, careers, responsibilities, tools, drawings, materials and hazards relating to the trade.
B. Module 18102-07 The student will be able to identify and describe types of components, C-Factor, and listing agencies related to the trade.
C. Module 18103-07 The student will be able to identify and describe the types of fittings, safety, cutting and assembling steel pipe.
D. Module 18104-07 The student will be able to identify and describe cpvc pipe cutting, safety, joining and cementing plastic pipe and fittings.
E. Module 18105-07 The student will be able to identify and describe the types of fittings, setup and soldering of copper tube systems.
F. Module 18106-07 The student will be able to identify and describe the types of soil, types of trenching and testing of underground pipe.
G. The student will identify and describe sound environmental practices for Sprinkler Systems including waste disposal, life cycle analysis, green practices and low impact.

**COURSE COMPETENCIES:**

*Module 18101-07* The student will be able to identify and describe the basic codes, careers, responsibilities, tools, drawings, materials and hazards relating to the trade.

1. The student will be able to identify specific codes and standards that apply to the fire sprinkler industry.
2. The student will be able to identify and describe the types of soil, types of trenching and testing of underground pipe.
3. The student will be able to identify and define the typical work environment of a sprinkler fitter.
4. The student will be able to identify career opportunities in the fire sprinkler industry.
5. The student will be able to identify and describe the personal responsibilities of sprinkler fitters.
6. The student will be able to identify and recognize safety hazards that you may come across as a sprinkler fitter.
7. The student will be able to identify and describe procedures to best handle and store trade materials.
8. The student will be able to identify and recognize drawings typically seen by sprinkler fitters in the field.
9. The student will be able to identify basic tools, materials, and fire sprinkler systems used in the sprinkler fitter trade.

*Module 18102-07* The student will be able to identify and describe types of components, C-Factor, and listing agencies related to the trade.

10. The student will be able to identify and define the term Listed and explain how the term relates to sprinkler systems.
11. The student will be able to identify and explain the purpose of a Listing agency.
12. The student will be able to identify and describe the characteristics of common sprinkler heads.
13. The student will be able to identify and state the important characteristics of aboveground pipe, including wall thickness and joining methods.
14. The student will be able to identify and define C-factor and list the advantages of a higher C-factor.
15. The student will be able to identify and describe the types of pipe hangers and sway bracing.
16. The student will be able to identify the characteristics of control valves, check valves, water flow alarms, and fire department connections.

*Module 18103-07* The student will be able to identify and describe the types of fittings, safety, cutting and assembling steel pipe.
17. The student will be able to identify and follow basic safety precautions for preparing and installing steel pipe.
18. The student will be able to identify and describe the types of steel pipe and fittings.
19. The student will be able to identify and recognize tools for cutting and threading steel pipe.
20. The student will be able to identify and calculate takeouts.
21. The student will be able to identify and set up equipment, including power threading machines.
22. The student will be able to identify and measure, cut, ream, and thread steel pipe.
23. The student will be able to identify and assemble threaded, grooved, and plain-end pipe.
24. The student will be able to identify and check for correctness of pipe-end preparation.
25. The student will be able to identify and read a fitting.

Module 18104-07 The student will be able to identify and describe cpvc pipe cutting, safety, joining and cementing plastic pipe and fittings.

26. The student will be able to identify and follow basic safety precautions for preparing and installing CPVC pipe.
27. The student will be able to identify and recognize chemical compatibility issues when joining CPVC pipe to other materials.
28. The student will be able to identify and approved types of CPVC pipe and fittings.
29. The student will be able to identify and recognize tools for cutting and chamfering CPVC pipe.
30. The student will be able to identify and calculate takeouts.
31. The student will be able to identify and set up equipment.
32. The student will be able to identify, cut, chamfer, and cement CPVC pipe.
33. The student will be able to identify and properly prepare pipe ends.
34. The student will be able to identify, join and cure CPVC pipe.

Module 18105-07 The student will be able to identify and describe the types of fittings, set-up and soldering of copper tube systems.

35. The student will be able to identify and follow basic safety precautions for preparing and installing copper tube pipe.
36. The student will be able to identify approved types of copper tube pipe and fittings.
37. The student will be able to identify and describe cast bronze fittings.
38. The student will be able to identify wrought fittings.
39. The student will be able to identify and select dielectric fittings.
40. The student will be able to identify and solder and braze copper tubing joints.
41. The student will be able to identify and calculate takeouts.
42. The student will be able to identify and set up equipment.
43. The student will be able to identify, cut, chamfer, and clean copper tube pipe.
44. The student will be able to identify and properly prepare pipe ends.

Module 18106-07 The student will be able to identify and describe the types of soil, types
of trenching and testing of underground pipe.

45. The student will be able to identify types and properties of soil.
46. The student will be able to identify trenching safety requirements.
47. The student will be able to identify and explain sloping requirements for different types of soil.
48. The student will be able to identify and explain how to dig trenches.
49. The student will be able to identify and describe excavation support (shoring) systems.
50. The student will be able to identify and describe types of bedding material.
51. The student will be able to identify and describe types of underground pipe.
52. The student will be able to identify and describe thrust blocks and restraints.
53. The student will identify and describe hydrants, yard valves, hydrant hoses, and associated equipment.
54. The student will be able to identify and explain testing, inspection, and chlorinating of underground pipe.
55. The student will be able to identify and fill out an underground test certificate.

The student will identify and describe sound environmental practices for Sprinkler systems, including waste disposal, life cycle analysis, green practices and low impact

56. The student will be able to identify and describe waste disposal methods for this industry according to EPA and industry guidelines.
57. The student will be able to identify and describe the process of life cycle analysis in this industry based on industry guidelines.
58. The student will be able to identify recycled materials by label and industry practice.
59. The student will be able to identify new “low emission” and give two examples.
60. The student will be able to identify new “green” materials now being introduced or currently used in this industry.
61. The student will be able to identify and describe new “green” practices and methods being instituted or currently employed within this industry.
62. The student will be able to identify and explain the term “low Impact” as it relates to the environment.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means that include, but not limited to, exams, written assignments, performance tests, and class participation.

SPECIAL NOTES:
This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.
Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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