DATE OF LAST REVIEW: 02/2013
CIP CODE: 46.0201
SEMESTER: Departmental Syllabus
COURSE TITLE: Plumbing (Level 2)
COURSE NUMBER: CONS0242
CREDIT HOURS: 3
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 advanced course in Plumbing. It is aligned with NCCER (selected modules) and the Kansas Board of Regents. The course topics include: Environmental sustainability, Hangers - Supports - Structural Penetrations and Fire Stopping, Types of Valves, Installing and Testing Water Supply Piping, and Installing Water Heaters.

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 02203-05 – Hangers, supports, penetration and firestopping
   A. DWV and water supply systems.
   A. Pipe hangers and supports.
   B. Structural members.
   C. Types of fire-stopping materials.

II. MODULE 02207-05 – Installing and testing water supply piping
   A. Material takeoffs.
   B. Fixture rough-in.
   C. Water meters.
   D. Water heater, water softener.
   E. Water distribution systems.
   F. Structural members.
   G. Water service line.
   H. Water supply system test.

III. MODULE 02210-05 – Installing Water Heaters
    A. Operation of water heaters.
    B. Components of water heaters.
    C. Electric water heater.
    D. Gas water heater.
    E. Safety hazards.

IV. 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 02203-05. The student will be able to identify and describe the types of hangers, supports, structural penetrations, and fire stopping used in the trade.
B. Module 02207-05. The student will be able to identify and describe the steps of installing and testing water supply piping.
C. Module 02210-05. The student will be able to identify and describe how to install water heaters.
D. The student will identify and describe sound environmental practices for plumbers, including waste disposal, life cycle analysis, green practices and low impact.

**COURSE COMPETENCIES:**

_Module 02203-05. The student will be able to identify and describe the types of hangers, supports, structural penetrations, and fire stopping used in the trade._

1. The student will be able to identify and identify the hangers and supports used to install DWV and water supply systems and explain their applications.
2. The student will be able to identify and install pipe hangers and supports correctly according to local applicable codes and manufacturer’s specifications.
3. The student will be able to identify and modify structural members using the appropriate tools without weakening the structure.
4. The student will be able to identify and identify and install common types of fire-stopping materials used in penetrations through fire-rated structural members, walls, floors, and ceilings.

_Module 02207-05. The student will be able to identify and describe the steps of installing and testing water supply piping._

5. The student will be able to identify and develop a material takeoff from a given set of plans.
6. The student will be able to identify and use plans and fixture rough-in sheets to determine the location of fixtures and the route of the water supply piping.
7. The student will be able to identify and locate and size a water meter.
8. The student will be able to identify and locate a water heater, water softener, and hose bibs.
9. The student will be able to identify and install a water distribution system using appropriate hangers.
10. The student will be able to identify and modify structural members, using the appropriate tools, without weakening the structure.
11. The student will be able to identify and correctly size and install a water service line, including backflow prevention.
12. The student will be able to identify and test a water supply system.

_Module 02210-05. The student will be able to identify and describe how to install water heaters._

13. The student will be able to identify and describe the basic operation of water heaters.
14. The student will be able to identify and identify and explain the functions of the basic components of water heaters.
15. The student will be able to identify and install an electric water heater.
16. The student will be able to identify and install a gas water heater.
17. The student will be able to identify and describe the safety hazards associated with water heaters.

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

18. The student will be able to identify and describe waste disposal methods for this industry according to EPA and industry guidelines.

19. The student will be able to identify and describe the process of life cycle analysis in this industry based on industry guidelines.

20. The student will be able to identify and identify recycled materials by label and industry practice.

21. The student will be able to identify and define “low emission” and give two examples.

22. The student will be able to identify and identify new “green” materials now being introduced or currently used in this industry.

23. The student will be able to identify and describe new “green” practices and methods being instituted or currently employed within this industry.

24. The student will be able to identify and define 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.

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