Course: HVAC114 Heat Principles and Applications

Department: HVAC

Course Description: This course is an in-depth study of heat principles, gaseous and liquid heating fuels, heating equipment, and distribution systems. Also discussed is the removal of combustion by-products through ventilation and venting requirements as prescribed in the state and national codes. High efficiency heating units and their special venting requirements are covered. In a laboratory setting, the student is exposed to instrumentation, methods of metering and proper fuel delivery, and adjusting heating equipment to achieve maximum performance.

COURSE OUTCOMES	SAMPLE OUTCOMES ACTIVITIES	SAMPLE ASSESSMENT TOOLS
Upon successful completion of this course students will be able to:	To achieve these outcomes students may engage in the following activities:	Student learning may be assessed by:
1. Identify the various HVAC equipment used for heating CCT, WC	• Open discussions • Textbook reading • Workbook assignments • Lab demonstrations	• Tests & Quizzes • In-class conversations • Laboratory work
2. Converse knowledgeably about all heating equipment CCT, IL, WC	• Open discussions • Textbook reading • Workbook assignments • Lab demonstrations	• Tests & Quizzes • In-class conversations • Laboratory explanations
3. Comprehend the sequence of operations for electric, gas and oil heating equipment IL, WC	• Textbook and on-line readings • Video presentations • HVAC Trainers • Classroom demonstrations	• Tests, quizzes • Classroom discussion • Laboratory work
4. Ability to repair, maintain and evaluate electric, gas and oil heating systems IL, WC	• Familiarity of individual HVAC heating equipment • Operate electric, oil and gas trainers in the lab • Textbook reading • Workbook assignment • Classroom demonstrations	• Tests, quizzes • Written assignments • Lab evaluations

5. Illustrate the working operation of HVAC heating systems CCT, IL, WC	• Textbook readings • Classroom demonstrations • Working on HVAC/R trainers • Connecting the HVAC/R components with free hand illustrations	• Tests, quizzes • Mechanical drawings • Homework assignments • Laboratory assignments
6. Understand the operation of the HVAC heating using the main components with their safety devices IL, WC	• Textbook reading • Classroom presentations • Laboratory presentations • Video presentations • On-line working assignments	• Test, quizzes • Written assignments • Laboratory work
7. Evaluate the efficiency rating of an oil burner and a gas heating unit IL, WC	• Textbook readings • Classroom discussions • Laboratory presentations • Video presentations • Laboratory use of proper tools	• Tests quizzes • Written assignments • Laboratory assignments • Laboratory work
8. Be familiar with the HVAC heating tools of the trade CCT, IL, WC	• Textbook reading • Laboratory HVAC heating tools • Classroom collaborative learning • Laboratory use of tools	• Tests, quizzes • Laboratory tool use observations •

This course includes the following core competencies IL, WC, CCT