SYLLABUS

DIVISION: Business and Engineering Technology **REVISED:** Spring/2014
CURRICULA IN WHICH COURSE IS TAUGHT: Air Conditioning & Refrigeration
COURSE NUMBER AND TITLE: Air 155- Heating Systems II
CREDIT HOURS: 3 **HOURS/WK LEC:** 2 **HOURS/WK LAB:** 2 **LEC/LAB COMB:** 4

I. CATALOG DESCRIPTION:

Introduces types of fuels and their characteristics of combustion; types, components and characteristics of burners, and burner efficiency analyzers. Studies forced air heating systems including troubleshooting, preventive maintenance and servicing.

II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:

- Acquire an understanding of the different types of gases
- Gain knowledge of each component on a gas furnace and how it operates
- Ability to troubleshoot and repair a gas furnace
- Ability to perform preventative maintenance on a gas fired system
- Gain an understanding to identify the different types of gas appliances and their efficiency

III. REQUIRED BACKGROUND/PREREQUISTIES:

- None

IV. COURSE CONTENT:

- Types of gases
- Types of Gas valves
- Ignition systems
- Components of a Gas Furnace
- Troubleshooting

V. THE FOLLOWING GENERAL EDUCATION OBJECTIVES WILL BE ADDRESSED IN THIS COURSE

- **Communications**
  1.1 understand and interpret complex materials;
  1.3 use standard English;
  1.5 use listening skills; and
- **Critical Thinking**
  2.4 weigh evidence and decide if generalizations or conclusions based on the given data are warranted;
  2.5 determine whether certain conclusions or consequences are supported by the information provided; and
  2.6 use problem solving skills.
- **Quantitative Reasoning**
  6.1 use logical and mathematical reasoning within the context of various disciplines;
  6.2 interpret and use mathematical formulas;
  6.3 interpret mathematical models such as graphs, tables and schematics and draw inferences from them;
  6.4 use graphical, symbolic, and numerical methods to analyze, organize, and interpret data;

VI. LEARNER OUTCOMES

VII. EVALUATION

Types of Gases • Understand the different types of gases • Identify the btu rating for each type • Understand the properties of gas and how to handle properly • Understand how to read and set gas pressure	**Evaluation method** Lab exercises Written test
Types of Gas Valves • Understand the operation of each gas valve • Identify the parts of a gas valve • Ability to diagnose and troubleshoot a non-operational valve	**Evaluation method** Lab exercises In class assignments Written test
Ignition Systems • Identify the different types of ignition systems available • Understand how each ignition system operates • Ability to troubleshoot electrically with a meter a faulty ignition system	**Evaluation method** Lab exercises Homework Assignments Written test
Components of a Gas Furnace • Identify components in a gas appliance • Understand the operation of each component • Ability to troubleshoot electrically with a meter a faulty component	**Evaluation method** Lab exercises Homework Assignments Written test
Maintenance and Troubleshooting • Understand the correct service procedure of a gas appliance • Identify problems that may occur with working parts of the appliance when performing maintenance • Ability to service and troubleshoot problems associated with gas fired appliances	**Evaluation method** Lab exercises In class assignments Written test