

## SYLLABUS

**DIVISION:** Business and Engineering Technology

**REVISED:** Summer/2013

**CURRICULA IN WHICH COURSE IS TAUGHT:** Air Conditioning & Refrigeration

**COURSE NUMBER AND TITLE:** AIR 121 01/50 A/C and Refrigeration I

**CREDIT HOURS:** 3 **HOURS/WK LEC:** 2 **HOURS/WK LAB:** 2 **LEC/LAB COMB:** 4

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**I. CATALOG DESCRIPTION:** Studies refrigeration theory, tools and equipment, soldering, brazing, refrigeration systems, systems components, compressors, evaporators, metering devices. Provides laboratory application of refrigerators and freezers.

**II. RELATIONSHIP OF THE COURSE TO CURRICULA OBJECTIVES:**

- Acquire an understanding of the basic fundamentals of Refrigeration
- Acquire an understanding of how to use different types of torches
- Gain an understanding of tools used in refrigeration
- Gain an understanding of the components in a refrigeration system

**III. REQUIRED BACKGROUND/PREREQUISITIES:**

- Approval

**IV. COURSE CONTENT:**

- Refrigeration Cycle
- Soft Soldering and Brazing
- HVAC Tools
- Parts used in a Refrigeration System

**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**

<p><b>Refrigeration Cycle</b></p> <ul style="list-style-type: none"> <li>• Understanding how of the refrigeration cycle works</li> <li>• Ability to draw and complete a basic refrigeration cycle</li> <li>• Identifying the parts of a refrigeration cycle</li> <li>• Identify and solve problems with the refrigeration cycle</li> </ul>	<p><b>Evaluation method</b> Written test Completed handouts</p>
<p><b>Soft Soldering and Brazing</b></p> <ul style="list-style-type: none"> <li>• Understand how to operate the different types of torches</li> <li>• Ability to design, layout, and solder leak free copper projects</li> <li>• Identify the different types of solder used</li> </ul>	<p><b>Evaluation method</b> Lab exercises Lab Test</p>
<p><b>HVAC Tools</b></p> <ul style="list-style-type: none"> <li>• Understand the different types of tools used in Refrigeration</li> <li>• Ability to use tools properly</li> <li>• Ability to read a set of Refrigeration Gauges</li> <li>• Ability to cut and flare copper tubing properly</li> <li>• Ability to leak test, evacuate, and recharge refrigeration system</li> </ul>	<p><b>Evaluation method</b> Lab exercises Lab Test Written test</p>
<p><b>Parts used in a Refrigeration Cycle</b></p> <ul style="list-style-type: none"> <li>• Understanding of the main components of a refrigeration system</li> <li>• Ability to understand how each component works</li> <li>• Identify and label components</li> <li>• Ability to understand different types of evaporator and condenser coils</li> </ul>	<p><b>Evaluation method</b> Lab exercises In class assignments Written test</p>