

Course: HVAC201 Refrigeration Principles and Applications

Department: HVAC

Course Description: This course is a concentrated study of the fundamentals of mechanical refrigeration systems, its components, and cycles used in cooling and heat pump applications. Utilization of thermodynamic principles, the students explore methods of heat transfer, nature and effect of heat energy in refrigeration, the physical characteristics of the common refrigerants, and refrigerant piping design. In the laboratory, through demonstration and experimentation, students validate these principles. Students are exposed to instrumentation and procedures utilized for testing and evaluating purposes.

COURSE OUTCOMES	SAMPLE OUTCOMES ACTIVITIES	SAMPLE ASSESSMENT TOOLS
Upon successful completion of this course students are able to:	To achieve these outcomes students may engage in the following activities:	Student learning may be assessed by:
1. Identify the refrigeration components and expound on their purpose. IT, WC, TS	<ul style="list-style-type: none">• Draw all components• Textbook reading• Laboratory testing	<ul style="list-style-type: none">• Assigned text readings• Class and lab workshops• Tests and quizzes
2. Completely explain the movement of heat throughout the refrigeration cycle IT, IL, WC	<ul style="list-style-type: none">• Textbook and on-line readings• Video presentations• Classroom discussions• Laboratory demonstrations	<ul style="list-style-type: none">• Tests & Quizzes• In-class conversations• Laboratory evaluations
3. Comprehend refrigerant flow through the refrigeration cycle IT, WC, OC	<ul style="list-style-type: none">• Textbook and on-line readings• ASHRAE Heat Load Worksheets• Video presentations• Classroom demonstrations	<ul style="list-style-type: none">• Tests, quizzes• Homework assignments• Classroom discussions• Laboratory work
4. Understand the correlations between refrigerant temperature and pressure IT, IL, WC, TS, OC	<ul style="list-style-type: none">• Textbook and on-line readings• Laboratory demonstrations• Class and Laboratory discussions• Classroom presentations	<ul style="list-style-type: none">• Tests and quizzes• Written assignments• Homework assignments• Laboratory assignments

<p>5. Proficiency use the tools of the industry IT, IL, WC, TS, OC</p>	<ul style="list-style-type: none"> • Textbook readings • On-line demonstration • Video presentations • Classroom discussions 	<ul style="list-style-type: none"> • Tests, quizzes • Evaluation of use of tools in the laboratory • Homework assignments
<p>6. Realize the career fields this course opens for employment IT, IL, WC, OC</p>	<ul style="list-style-type: none"> • Textbook readings • Video presentations • Classroom collaborative learning • Classroom discussions 	<ul style="list-style-type: none"> • Test quizzes • Homework assignments

This course includes the following core competencies: Information Literacy (IL), Information Technology (IT), Technical Skills (TS),
Written Communication (WC)