ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Career and Technical Programs

COURSE: HVC 1240 – Design, Installation, and Servicing

Date:

Credit Hours: 3

Prerequisite(s): HVC 1210 or HVC 1220 with a grade of "C" or better

Delivery Method:

☒	**Lecture**	**2 Contact Hours** (1 contact = 1 credit hour)
☐	**Seminar**	**0 Contact Hours** (1 contact = 1 credit hour)
☒	**Lab**	**2 Contact Hours** (2 contact = 1 credit hour)
☐	**Clinical**	**0 Contact Hours** (3 contact = 1 credit hour)
☐	**Online**	
☐	**Blended**	

Offered: ☐ **Fall** ☒ **Spring** ☐ **Summer**

IAI Equivalent –***Only for Transfer Courses***-go to *http://www.itransfer.org*:

CATALOG DESCRIPTION:
This course is designed to provide the necessary skills and knowledge associated with the design of different air conditioning and heating systems, pipe lay-out, and components along with the service aspects and installation.

GENERAL EDUCATION GOALS ADDRESSED

[See the last page of this form for more information.]

Upon completion of the course, the student will be able:

[Choose those goals that apply to this course.]

- ☐ To apply analytical and problem solving skills to personal, social and professional issues and situations.
- ☐ To communicate orally and in writing, socially and interpersonally.
- ☐ To develop an awareness of the contributions made to civilization by the diverse cultures of the world.
- ☐ To understand and use contemporary technology effectively and to understand its impact on the individual and society.
- ☒ To work and study effectively both individually and in collaboration with others.
- ☒ To understand what it means to act ethically and responsibly as an individual in one's career and as a member of society.
- ☐ To develop and maintain a healthy lifestyle physically, mentally, and spiritually.
- ☒ To appreciate the ongoing values of learning, self-improvement, and career planning.

EXPECTED LEARNING OUTCOMES AND RELATED COMPETENCIES:

[Outcomes related to course specific goals.]

Upon completion of the course, the student will be able to:

Outcome 1.0: Identify and list the mechanical operating conditions of the equipment.

Outcome 2.0: Demonstrate how the equipment is designed to met the environmental requirements.

Outcome 3.0: Explain the operating conditions of the evaporator

Outcome 4.0: Match various environmental loads to the evaporator capacities.

Outcome 5.0: Explain the various grads of equipment.

Outcome 6.0: Perform hands-on equipment installation.

Outcome 7.0: Explain an overview of the various efficiency equipment ratings.

Outcome 8.0: Identify the various types of duct systems.

Outcome 9.0: List and identify the acceptable practices for installation.

Outcome 10.0: Explain and demonstrate good piping practices.

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Mechanical Operational Condition
2. Evaporator Operating Condition
3. Grades of Equipment
4. Equipment Efficiency Ratings
5. Duct Systems
6. Good Installation Practices
7. Correct Refrigerant
8. Piping Practices

INSTRUCTIONAL METHODS:

- Lecture
- Class discussion
- Class Demonstrations
- Handouts
- Lab assignments

INSTRUCTIONAL MATERIALS:

Textbook: Refrigeration & A/C Technology, William Whitman, W. Johnson Delmar

STUDENT REQUIREMENTS AND METHODS OF EVALUATION:

Daily class & lab attendance
Tests
Comprehensive Final Exam
Hands-on Lab Projects
A= 90-100
B= 80-89
C= 70-79
D= 60-69
F= 0-59

OTHER REFERENCES

Industry Service Manuals
Manufacturers Service Manuals

Course Competency/Assessment Methods Matrix

HVC 1240 Design, Installation , & Servicing	Assessment of Student Learning	Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
For each competency/outcome place an "X" below the method of assessment to be used.																																
Assessment Measures – Are direct or indirect as indicated. List competencies/outcomes below.	Direct/ Indirect	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	I	I	I	I	D	D	I	D				
Outcome 1.0: Identify and list the mechanical operating conditions of the equipment.								x																								
Outcome 2.0: Demonstrate how the equipment is designed to met the environmental requirements.					x	x														x												
Outcome 3.0: Explain the operating conditions of the evaporator								x																								
Outcome 4.0: Match various environmental loads to the evaporator capacities																		x										x				
Outcome 5.0: Explain the various grads of equipment.									x																							
Outcome 6.0: Perform hands-on equipment installation.						x			x									x										x				
Outcome 7.0: Explain an overview of the various efficiency equipment ratings.									x																							

HVC 1240 Design, Installation , & Servicing		Assessment Options																														
For each competency/outcome place an "X" below the method of assessment to be used.		Article Review	Case Studies	Group Projects	Lab Work	Oral Presentations	Pre-Post Tests	Quizzes	Written Exams	Artifact Self Reflection of Growth	Capstone Projects	Comprehensive Written Exit Exam	Course Embedded Questions	Multi-Media Projects	Observation	Writing Samples	Portfolio Evaluation	Real World Projects	Reflective Journals	Applied Application (skills) Test	Oral Exit Interviews	Accreditation Reviews/Reports	Advisory Council Feedback	Employer Surveys	Graduate Surveys	Internship/Practicum /Site Supervisor Evaluation	Licensing Exam	In Class Feedback	Simulation	Interview	Written Report	Assignment
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Outcome 8.0: Identify the various types of duct systems.					x			x																								
Outcome 9.0: List and identify the acceptable practices for installation.					x	x		x										x														
Outcome 10.0: Explain and demonstrate good piping practices.						x		x										x														