Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Heat Pumps
Course Prefix, Num. and Title	HART 2349 Heat Pumps
Division	Vocational Science
Department	Air Conditioning, Heating, Refrigeration and Electrical Technology
Course Type	WECM Course
Course Catalog Description	A study of heat pumps, heat pump control circuits, defrost controls, auxiliary heat, air flow, and other topics related to heat pump systems.
Pre-Requisites	HART 1301 and HART 1307; or Program Director Approval
Co-Requisites	Enter Co-Requisites Here.

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	3:3:1
Equated Pay Hours	3.5
Lab/Other Hours Breakdown: Lab Hours	1
Lab/Other Hours Breakdown: Clinical Hours	Enter Clinical Hours Here.
Lab/Other Hours Breakdown: Practicum Hours	Enter Practicum Hours Here.
Other Hours Breakdown	List Total Lab/Other Hours Here.

Approval Signatures

Title	Signature	Date
Prepared by:	Robert Sanchez Digitally signed by Robert Sanchez Date: 2020.08.21 08:36:37 -05'00'	08-21-2020
Department Head:	Robert Sanchez Digitally signed by Robert Sanchez Date: 2020.08.21 08:22:19 -05'00'	08-21-2020
Division Chair:	Timothy Guin Digitally signed by Timothy Guin DN: cn=Timothy Guin, o=Division Chair, ou=VOCS, email=guint@wcjc.edu, c=US Date: 2020.08.21 14:08:23 -05'00'	08-21-2020
Dean/VPI:	Paul Quinn Digitally signed by Paul Quinn DN: cn=Paul Quinn, o=DVI, ou=WCJC, email=quinnp@wcjc.edu, c=US Date: 2020.08.25 13:48:26 -05'00'	
Approved by CIR:	Paul Quinn Digitally signed by Paul Quinn DN: cn=Paul Quinn, o=DVI, ou=WCJC, email=quinnp@wcjc.edu, c=US Date: 2020.08.25 13:48:46 -05'00'	

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

- Reverse cycle
- Heat pump operation
- Cooling
- Heating
- Emergency heating
- Defrost
- COP
- Geothermal

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

1. Explain reverse cycle
2. List mechanical and electrical components
3. Explain operation of cooling, heating, and emergency modes
4. Explain balance point and COP and geothermal heat pumps

Methods of Assessment:

1) Chapter questions, quiz, and computer simulations.
2) Chapter questions, quiz, and computer simulations.
3) Chapter questions, quiz, and computer simulations.
4) Chapter questions, quiz, and computer simulations.

Required text(s), optional text(s) and/or materials to be supplied by the student:

Refrigeration & Air Conditioning Technology Delmar Cengage Learning ISBN 13:978-1-4283-1936-3

Suggested Course Maximum:

30

List any specific or physical requirements beyond a typical classroom required to teach the course.

Fully equipped HVAC and Electrical Lab

Course Requirements/Grading System:

Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

90% to 100%	= A
80% to 89%	= B
70% to 79%	= C
60% to 69%	= D
Below 60%	= F

The semester final grade is based on the percentage basis between daily lab work, daily classroom assignments, and semester final.

Daily lab work counts for 50% of final: Daily Classroom work is 20% of final: End of semester written final and lab final is 30% of final average.

Curriculum Checklist:

☐**Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.

☐**Administrative WCJC Core Course**. Attach the Core Curriculum Review Forms

- ☐Critical Thinking
- ☐Communication
- ☐Empirical & Quantitative Skills
- ☐Teamwork
- ☐Social Responsibility
- ☐Personal Responsibility

☒**WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist