BARSTOW COMMUNITY COLLEGE COURSE OUTLINE – IMMT 77

Dept & Nbr: IMMT 77 **Abbrv Title:** Heater Furnaces Heat Exchangers Cooling.
Full Title: Heater Furnaces Heat Exchangers Cooling.
Old Number:

Title 5 Category: Associate Degree Applicable.
Certificate Applicable:

Units	Course Hrs per Week		Nbr of Weeks	Course Hrs Total	
Max: 2.0	Lecture	1.5	18	Lecture	27.0
Min: 2.0	Lab	.50		Lab	27.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	3.0		Contact Total	54.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Delivery method: Lecture and Online.
Selected Topic: No
Grading: Option (A-F) (P/NP)
Concurrent Course: None.

Repeat Code: May be taken two times with a grade of less than "C".

Basic Skills 0: This is not a basic skills class.

CATALOG DESCRIPTION:
Designed to give the student the fundamental skills necessary to work with various types of heaters, furnaces, heat exchanges, cooling towers and fin fans commonly found on the jobsite.

PREREQUISITES: None.

COREQUISITES: None.

RECOMMENDED PREPARATION: None.

CONTENT:
A. Basic types of heaters and furnaces.
B. Types of exchanges and cooling towers and their components.
C. Proper safety procedures and personal protective equipment.
D. Tube Work.

COURSE OBJECTIVES:

Upon success completion of this course the student will be able to:

1. Identify and describe the basic types of heaters and furnaces.
2. Explain the functions of heater and furnaces within industry.
3. Identify various types of exchanges and cooling towers and their components.
4. Discuss the functions of various types of exchangers.
5. Describe the proper safety procedures and personal protective equipment associated with each type of equipment.
6. Explain how to remove and install an exchanger.
7. Describe the construction and operation of a cooling tower.
8. Identify rolling equipment.
9. Identify problem tubes.

10. Explain method of rolling tubes, plugging tubes and extracting tubes.

COURSE-LEVEL STUDENT LEARNING OUTCOMES:

1. **Identify the components of heat exchangers.**

Assessment Method(s): Performance Evaluation.

- Communication.
- Critical Thinking.
- Global Awareness.
- Personal/Professional Development.

2. **Identify rolling equipment and select the tools necessary for rolling tubes.**

Assessment Method(s): Performance Evaluation.

- Communication.
- Critical Thinking.
- Global Awareness.
- Personal/Professional Development.

3. **Identify types of plugs.**

Assessment Method(s): Performance Evaluation.

4. Communication.
5. Critical Thinking.
6. Global Awareness.
7. Personal/Professional Development.

B. Critical Thinking Tasks/Assignments:

Critical thinking assignments include (but are not limited to) the following:

1. Identify options for using various types of heaters, furnaces, heat exchangers, cooling towers and fin fans used industrial Maintenance Mechanics.
2. Solve problems related to various situations.

C. Measurement of Student Learning Outcomes:

1. Substantial writing assignments, including:
   - Written homework
   - The course primarily involves skill demonstrations or problem solving.
2. Computational or non-computational problem-solving demonstration, including:
   - Exam(s)
   - Quizzes
   - Homework problems
3. Skill demonstration, including:
   - Class performance(s)
4. Objective examinations, including:
   - Multiple choice
   - Completion
5. Other
   - Attendance/Participation
   - Observation

REQUIRED READING, WRITING AND OTHER OUTSIDE-OF-CLASS ASSIGNMENTS:

Over an 18-week presentation of the course three hours of study are required for each unit of credit. Two hours of independent work done out of class are required for each hour of lecture. Outside of the regular class time the students in this class will be doing the following:

- Study
- Answer questions
- Skill Practice
- Required reading
- Problem solving activity or exercise
- Written work

BASIS FOR GRADES:

Writing Assignments	20%
Problem-Solving	20%
Skill Demonstrations	20%
Objective Examinations	20%
Attendance & Participation	20%
Other…….	%
TOTAL	**100%**

TEXTS/MATERIALS
Contren, Industrial Maintenance Mechanic Level1, Prentice-Hall 2007

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==========**Instructional Office Use Only - Signatures and Codes**==========

Instructional Vice President Approval: Steven Eaton, AAVP

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