



**Purpose:** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

**Course Title** – Mechanical, Plumbing & Electrical Systems in Construction I

**Course Prefix and Number** – CNBT 1302

**Department** - Engineering Design

**Division** - Technology and Business

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core) Unique Needs
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y  or N )

**Semester Credit Hours #: Lecture Hours #: Lab/Other Hours #:** 3:3:0

**Equated Pay hours for course -** 3

**Course Catalog Description** – A presentation of the basic mechanical, plumbing, and electrical components in construction and their relationship to residential and light commercial buildings.

Introduction to the planning and construction of mechanical and electrical systems common to construction projects; basic calculations of cooling/heating loads, determination of temporary power demands and sizing of pipes, AC equipment and ducts.

List Lab/ Other Hours
Lab Hours
Clinical Hours
Practicum Hours
Other (list)

**Prerequisites/Co-requisites** - CNBT 1309 (or archived CNST 1361)

**Prepared by:** Division of Technology and Business

**Date:** 06-11-15

**Reviewed by Department Head:** Jo Ann Shimek

**Date:** 06-11-15

**Accuracy Verified by Division Chair:** David Kucera

**Date:** 07/15/15

**Approved by Dean or Vice President of Instruction:** Leigh Ann Collins

**Date:** 12-18-15



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

- Overview and design principles of Mechanical and Electrical Systems
- Equipment and components used in electrical, plumbing, heating, air conditioning, and ventilation systems
- Building codes and standards
- HVAC Systems Types, Design and Installation
- Cooling Heating loads and power demands
- Plumbing Systems Design and Installation
- Fire Protection Design and Installation
- Electrical Systems Design and Installation
- Communication Systems Design and Installation
- Lighting Systems Design and Installation
- Relationships between mechanical, plumbing and electrical systems
- Sustainable building system design
- Noise and Vibration Control

**II. Course Learning Outcomes**

<b>Learning Outcomes</b>	<b>Methods of Assessment</b>
<p><b>Upon successful completion of this course, students will:</b></p> <ol style="list-style-type: none"> <li>1. Identify equipment and components of electrical, plumbing, heating, air conditioning, and ventilation systems</li> <li>2. Describe the relationships between the mechanical, plumbing, and electrical systems; and discuss implications of sustainable building systems on design</li> <li>3. Explain the basic design principles of mechanical and electrical systems</li> <li>4. Perform simple calculations of cooling/heating loads/power demands</li> <li>5. Explain selected installation methods for basic mechanical and electrical systems</li> <li>6. Evaluate related building codes and standards</li> </ol>	<p>Outcomes 1 – 6 will be assessed by a combination of:</p> <p>Daily work Tests Semester project</p>

**III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.**

Mechanical and Electrical Systems in Buildings, by Tao and Janis, Prentice Hall

**IV. Suggested Course Maximum - 20**

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

None

**VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course**

Student's grade will be determined by:

**Approximate grade summary**

Daily Work - 20%

Four major tests (drop the lowest one) – 20% \* 3 = 60%

Semester Project – 20%

A = 100 -90

B = 89-80

C = 79-70

D = 69-60

F = 59 or below

**Students must earn a "C" or above in all degree specific classes in order to graduate**

**VII. Curriculum Checklist**

- **Academic General Education Course** (from ACGM – but not in WCJC Core)  
No additional documentation needed

- **Academic WCJC Core Course**  
Attach the Core Curriculum Checklist, including the following:

- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

- **WECM Courses**  
If needed, revise the Program SCANS Matrix & Competencies Checklist.