



**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 and Electrical Systems

**Course Prefix and Number -** CNST2321

**Department -** Engineering Design

**Division -** Technology and Business

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- 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 -** 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 0
Clinical Hours
Practicum Hours
Other (list)

**Prerequisites/Co requisites -** CNST1361

**Approvals – the contents of this document have been reviewed and are found to be accurate.**

Prepared by Jo Ann Lurker	Signature JALurker	Date 11-22-10
Department Head Jo Ann Lurker	Signature JALurker	Date 11-22-10
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Vice President of Instruction or Dean of Vocational Instruction Leigh Ann Collins	Signature Lac	Date 11-9-12



**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 of Mechanical and Electrical Systems
- Building codes and standards
- HVAC Systems Types, Design and Installation
- 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
- Noise and Vibration Control

**II. Course Learning Outcomes**

<b>Course Learning Outcome</b>	<b>Method of Assessment</b>
Upon the completion of the course students will demonstrate the ability to: <ul style="list-style-type: none"> <li>understand the components of basic mechanical and electrical systems</li> <li>understand the basic design principles of mechanical and electrical systems</li> <li>Perform simple calculations of cooling/heating loads/power demands</li> <li>understand selected installation methods for basic mechanical and electrical systems</li> <li>understand related building codes and standards</li> </ul>	A portfolio containing student work projects will be assessed using the rubric attached to this document. Eighty percent of the students will earn a minimum of 70% of the points available.

**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.**

**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**

Written exams, projects, and daily lab work.

- A = 100 -90
- B = 89-80
- C = 79-70
- D = 69-60
- F = 59 or below

"C" or above in all degree specific classes

**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.