



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 - Electronic Fabrication

Course Prefix and Number - CETT 1321

Department – Electronics Eng. Tech.

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 # **3:3:1**

Equated Pay hours for course - 3.5

Course Catalog Description - A study of electronic circuit fabrication techniques including printed circuit boards, wire wrapping, bread boarding, and various soldering techniques. Skill in techniques of electronic equipment fabrication is gained through layout and construction of a complete unit. Component recognition, schematic symbols, soldering, wire wrapping, ESD considerations, and re-work techniques for discrete, leaded, and surface-mount components. IPC-A-610B training

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|--------------------------|
| List Lab/ Other Hours |
| Lab Hours 1 |
| Clinical Hours |
| Practicum Hours |
| Other (list) |

Prerequisites/Co requisites - - None

Prepared by David Kucera

Date 06/20/12

Reviewed by department head David Kucera

Date 06/20/12

Accuracy verified by Division Chair David Kucera

Date 08/03/12

Approved by Dean of Vocational Instruction or Vice President of Instruction 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):

Educational Objectives of CETT1321:

The following performance will be expected of any student completing this course with a passing grade. There is no absolute time limit on the performance of these objectives, unless noted, but the grade received by the student may depend, in part, on the relative speed and precision of the student’s performance in these tasks.

- Describe some of the factors that are taken into account when one designs electronic equipment.
- Identify components on preliminary sketches and formal drawings of electronic equipment.
- Describe and/or demonstrate safe and proper care and usage of hand tools, power tools, and measuring instruments which are commonly encountered in constructing electronic devices.
- Demonstrate the safe and proper care and usage of chemicals frequently used in electronic device cleaning and construction.
- Demonstrate several of the methods (soldering, crimping, and mechanical) of making electrical connections.
- Demonstrate the fabrication of various types of cables and connectors.
- Produce acceptable solder connections on assigned projects.
- De-solder components from circuit boards without causing any damage.
- Design, layout, and fabricate a printed circuit board.
- Exposure to fabrication and repair techniques of electrical connectors and components.
- Identify electronic components from their schematic symbols.
- Demonstrate ability to correctly mount several types of SMT (Surface Mount Technology) components
- Complete individual projects as assigned by the instructor.

II. Course Learning Outcomes

| Course Learning Outcome | Method of Assessment |
|---|--|
| <p>Apply modern electronic circuit fabrication techniques ensuring quality standards.</p> <p>Develop documentation including step-by-step procedures, schematic/wiring diagrams, and theory of circuit description.</p> <p>Identify the tools required to produce a printed circuit board and a good solder connection.</p> | <p>Assessed in Capstone Experience: CETT 2370 Final Project course</p> |

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

An appropriate electronics text covering fabrication techniques

IV. Suggested Course Maximum – 15

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course. A laboratory with workstation per student, equipped with industry-standard soldering and rework equipment. Good lighting and ventilation, and sufficient electrical service.

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

Evaluation of Performance:

Course grades will be determined by the percentage of course objectives for which the student can demonstrate mastery and by attendance as stated in the Departmental Policy sheet provided to the student. Mastery of course objectives will be determined by written examinations, physical soldering exams, an attendance grade as described in the Departmental Policy handout, a daily work grade which will include graded homework, graded laboratory work, and a comprehensive final exam.

Approximate Grade Evaluation Summary:

| | |
|--|-----|
| Major tests | 60% |
| Attendance..... | 10% |
| Lab reports, homework, and quizzes. | 15% |
| Final examination | 15% |

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