

## Administrative Master Syllabus

### Course Information

<b>Course Title</b>	Electronic Fabrication
<b>Course Prefix, Num. and Title</b>	CETT 1321 – Electronic Fabrication
<b>Division</b>	Technology & Business
<b>Department</b>	Electronics Engineering Technology
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	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
<b>Pre-Requisites</b>	None
<b>Co-Requisites</b>	None

### Semester Credit Hours

<b>Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours</b>	3:3:1
<b>Equated Pay Hours</b>	3.5
<b>Lab/Other Hours Breakdown: Lab Hours</b>	1
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	0
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	0
<b>Other Hours Breakdown</b>	0

### Approval Signatures

Title	Signature	Date
<b>Division Chair:</b>	David Kucera, Technology & Business Division Chair	08-01-2023

## 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).

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.
- Exposure to layout, and fabrication of printed circuit boards.
- 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.

### Course Learning Outcomes:

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

1. Apply electronic circuit fabrication techniques to industry standards
2. Document step-by-step procedures
3. Create schematic/wiring diagrams
4. Apply circuit description
5. Identify the tools required to produce a printed circuit board
6. Produce soldering connections.

#### Methods of Assessment:

Outcomes 1-6 will be assessed by:

- Exams – written, solder projects
- Homework
- Labs
- Quizzes
- Reassessed in Capstone Experience: CETT 2349 Final Project course

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

No Textbook Required

**Suggested Course Maximum:**

16

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

A laboratory with one workstation per student, equipped with industry-standard soldering and rework equipment. Good lighting and ventilation, and sufficient electrical service.

**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. 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 test.....60%  
Attendance ..... 10%  
Lab reports, homework, and quizzes .....15%  
Final examination ..... 15%

**Grade Scale:**

90 to 100:... A  
80 to 89: .....B  
70 to 79: .....C  
60 to 69: .....D  
0 to 59: .....F

**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