Course Outline for Electronic Systems Technology 61

Catalog Description:

ESYS 61 - Electronic Systems Project Management 2.00 units
Planning, tracking, and completing electronics prototype projects; includes chassis, printed circuit board layout, connection and soldering techniques, use of hand tools, and machines in electronic fabrication. Use of computer software tools as applied to project management and electronic fabrication.

Strongly Recommended: ESYS 51 and ESYS 54

Grading Option: Letter Grade

Discipline:

<table>
<thead>
<tr>
<th>Units</th>
<th>Contact Hours</th>
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<tbody>
<tr>
<td></td>
<td>Week</td>
</tr>
<tr>
<td>Lecture</td>
<td>1</td>
</tr>
<tr>
<td>Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>Clinical</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>2.00</td>
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Prerequisite Skills:
None

Measurable Objectives:

Upon completion of this course, the student should be able to:
1. use industry-standard project management software to plan and track progress of a prototype electronics project;
2. identify common operating and safety practices used in industry;
3. demonstrate proper soldering technique for wiring and printed circuit assembly;
4. perform fabrication processes on a chassis for a prototype electronics project;
5. design, analyze, assemble and test a prototype electronics project.

Course Content:

1. Course Content, Lecture:
   A. Shop safety
   B. Project management concepts and tools
   C. Prototype project documentation
   D. Component specifications and selection
   E. Double-sided printed circuit board fabrication
   F. Prototype soldering and assembly
   G. Prototype testing and performance reports
2. Course Content, Laboratory:
   A. Shop safety
   B. Project management concepts and tools
   C. Prototype project documentation
   D. Component specifications and selection
   E. Double-sided printed circuit board fabrication
   F. Prototype soldering and assembly
   G. Prototype testing and performance reports

Methods of Presentation

1. Lecture/Discussion
2. Laboratory
3. Demonstration/Exercise
4. Online learning objects
5. Problem Solving
6. Instructor demonstrations of applicable laboratory techniques, including soldering, sheet metal fabrication, project testing, and related activities

Assignments and Methods of Evaluating Student Progress

1. Typical Assignments
   A. Choose a project for prototype development and generate a Gantt chart for tracking project progress.
   B. Create all schematic, fabrication, and assembly drawings for the selected project.
   C. Use PC board routing software to create the fabrication files for a double-sided printed circuit board.
   D. Solder components to the printed circuit board and assemble the board and supporting components into the chassis.
   E. Test and document the performance of the finished prototype.

2. Methods of Evaluating Student Progress
   A. Exams/Tests
   B. Papers
   C. Final project and related activity reports
3. **Student Learning Outcomes**

Upon the completion of this course, the student should be able to:

A. The student will evaluate the effectiveness of working in a team.
B. The student will plan, construct, document, track, and report a prototype electronics project in a team environment.

**Textbook (Typical):**

**Special Student Materials**
1. Computer with Internet access
2. Safety Glasses, and electronic components for the prototype project

**Abbreviated Class Schedule Description:**

Planning, tracking, and completing electronics prototype projects; includes chassis, printed circuit board layout, connection and soldering techniques, use of hand tools, and machines in electronic fabrication. Use of computer software tools as applied to project management and electronic fabrication.

**Strongly Recommended:** ESYS 51 and, ESYS 54