## Undergraduate Degree Program

### Program - CEC Electrical Engineering SLO (BS)

#### Mission Statement

The mission of the School of Electrical & Computer Enterprise Engineering is to provide excellence in undergraduate education so that our graduates become critical thinkers, creative problem solvers, and lifelong learners; to further the quality of our graduate programs by conducting impact-oriented research that responds to the needs of the State of Florida, in particular, and the nation, in general; and to serve our community.

### Electrical and Computer Engineering

#### Outcomes

**FIU graduates should be able to achieve the following:**

<table>
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<tr>
<th>Content Knowledge and Skills (including Technology)</th>
<th>Direct Measures</th>
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<tbody>
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<td><strong>Content Knowledge</strong></td>
<td><strong>Procedure:</strong></td>
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| Graduates will be able to apply knowledge of Mathematics in Electrical Engineering system analysis and design. | **Assessment Instrument:** Closed-ended Exam  
**Assessment Method:** A comprehensive exam is given to all students enrolled in "EEL 4611L Systems Lab" at the end of fall and spring semesters.  
This multiple choice exam tests the students' capability of using knowledge of (a) Probability and Statistics, (b) Complex Variables and Differential equations to solve control and communication problems. Students must show every step in solving each problem.  
The EE UPAC (Undergraduate Program Assessment Committee), consisting of three faculty members in the area of Electrical Engineering, reviews the exam results and recommends actions to the ECE faculty for discussion and approval. The Undergraduate Program Director chairs this committee.  
The scale measures the percentage of correct answers.  
If all participating students provided the correct answer to all the related questions, the score is 4.  
If 75% of answers are correct the score is 3.  
If 50% of answers are correct the score is 2.  
If 25% of answers are correct the score is 1.  
**Course Assessed:** EEL 4611L  
**Sampling:** All students enrolled in EEL 4611L Systems Lab.  
**Minimum Criteria for Success:** Students will score 3 or above for each of the three areas. |
| **Modern tools**                                     | **Procedure:**  |
| Graduates will be able to use modern tools for engineering practice in Electrical Engineering. | **Assessment Instrument:** Closed-ended Exam  
**Assessment Method:** 1)EE Senior students will participate in a comprehensive final exam. the overall scores for design and solve will be reported  
2)All projects in "EEL 4921C Senior Design II: Project Implementation" are presented on Senior Project Day at the end of fall and spring semesters. |
The proficiency of using modern tools in solving electrical engineering problems is evaluated by at least two members from the IAB (Industrial Advisory Board) (name changed to Academic Assessment Advisory Board in 2012) and program alumni. The EE UPAC reviews the project reports for this outcome.

The EE UPAC analyzes the collected results and proposes action items to the ECE faculty for discussion and approval.

The scale measures the percentage of correct answers. If all participating students provided the correct answer to all the related questions, the score is 4. If 75% of answers are correct the score is 3. If 50% of answers are correct the score is 2. If 25% of answers are correct the score is 1.

### Course Assessed: EEL 4921C

### Sampling: All students in "EEL 4921C Senior Design II: Project Implementation"

### Minimum Criteria for Success: 1) Students will score 2 or better on the comprehensive final exam. 2) Students will score 2 or better on section Q7 of the rubric.

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<th>Critical Thinking</th>
<th>Direct Measures</th>
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<td><strong>Graduates be able to evaluate different versions of design with various design methodologies and technologies.</strong></td>
<td><strong>Assessment Instrument:</strong> Other (Name Instrument and Describe Below) <strong>Assessment Method:</strong> Assessment methods used are: 1) Comprehensive Exam average scores in the areas of &quot;Tool&quot; and &quot;Experiment&quot; will be reported The scale measures the percentage of correct answers. If all participating students provided the correct answer to all the related questions, the score is 4. If 75% of answers are correct the score is 3. If 50% of answers are correct the score is 2. If 25% of answers are correct the score is 1 2) Industrial Advisory Board (name changed to Academic Assessment Advisory Board in 2012) review of Senior Design II proposals. All Senior Design proposals include two sections: (a) discuss and compare various design tools, methodologies, and technologies for the proposed system design (b) justify the selected methodology and technology using experiments and results. The EE UPAC reviews these two sections and makes recommendations of actions to the ECE faculty meeting to enhance student learning. <strong>Course Assessed:</strong>  <strong>Sampling:</strong> All students in the class. <strong>Minimum Criteria for Success:</strong> Students will score 2 or better.</td>
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<th>Communication (Oral or Written)</th>
<th>Direct Measures</th>
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<td><strong>Written Communication</strong></td>
<td><strong>Assessment Instrument:</strong> Rubric <strong>Assessment Method:</strong> 1) All the senior design project reports from EEL 4921C is evaluated at the end of Fall and Spring</td>
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Graduates will be able to communicate in writing effectively.
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<th>Oral Communication</th>
<th>Procedure</th>
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| Graduates will be able to communicate technical concepts effectively in verbal formats. | Assessment Instrument: Rubric  
Assessment Method: 1) All students present their senior design project at the Senior Design Showcase Event, at the end of each semester. Their presentation and oral communication skills are evaluated by the Academic Assessment Advisory Board (AAA) and the Senior Design Coordinator, using the designed rubric, at the end of Fall and Spring semesters. The EE UPAC members review the evaluation results and make recommendations of actions to the ECE faculty.  
The scale measures the percentage of correct answers. If all participating students provided the correct answer to all the related questions, the score is 4. If 75% of answers are correct the score is 3. If 50% of answers are correct the score is 2. If 25% of answers are correct the score is 1.  
**Course Assessed:** EEL 4921C  
**Sampling:** All students in EEL 4921C.  
**Minimum Criteria for Success:** Students will score 2 or better. |