Important Information

Before starting this course, please review the following pages:

- COVID-19 Guidelines
- Accessibility and Accommodation
- Academic Misconduct Statement

*The professor reserves the right to change or modify the syllabus at any time during the semester.

Catalog Description: Beginning of the Major Design Experiment of the Profession ethics, oral communications, project feasibility study, proposal writing, system design methodology, human factors, intellectual property, liability, and schedules.

Course Description:

The main objective of the course is to prepare students for the realization of a Capstone Project. Emphasis is placed on Successful Design, an idea that involves Local and Global Acceptance. Local Acceptance is achieved by careful analysis of client and user needs and Global Acceptance by taking into account the input from persons of different countries and cultures plus International Technical Standards and eliminating barriers to trade. Rules of the World Trade Organization (WTO) are used to illustrate issues impacting international trade.

In EEL-4920, students engage in a close to real-life project design and management experience. Early in the semester, students must organize in teams on their own. The requirements are that teams must be multidiscipline and contain a minimum number of 3 students per team. Usually, the number of members is 4 or 5. Each team selects a team leader and finds 3 potential topics of interest. Armed with these topics, the team finds a Mentor and negotiates the topic of the design. After this point, teams must engage in proposal preparation for the project that will be carried during EEL-4921C. Students must clarify the need for their project during the proposal preparation, considering the mentor/client's point of view, survey results, and group brainstorming. The proposal should persuade the audience to buy into the project. The proposal also includes a Feasibility and Risk Analysis, a survey of related projects and patents, plus a Theory Model Analysis of potential Ethical Dilemmas of the project, Health, Safety, Sustainability, Standards, and Globalization issues.
Prerequisite: Senior standing.

Corequisite: N/A


Course Objectives:

- Develop the ability to outline and plan an engineering project with several phases and participants from distinct disciplines
- Conduct a team-based project
- Perfect communication and analysis of technical concepts and alternatives

Global Learning Objectives:

- This course is a Discipline-specific Global Learning course that counts towards the graduation requirement.
- Use a Global Perspective to achieve a design that will have Global Acceptance and minimal barriers to trade.

ABET Relationship of course to program outcomes:

In this course, students will be evaluated on the following program outcomes

(c) an ability to design a system, component, or process to meet desired needs
(d) an ability to function on multi-disciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) a knowledge of contemporary issues

Relationship of course objectives to Global Learning outcomes

(i) an ability to demonstrate Global Awareness about local, global, international, and intercultural issues that may affect a successful design.
(ii) an ability to conduct a Global Perspective analysis to understand the needs of local, global, international, and intercultural markets.
(iii) an ability to demonstrate Global Engagement by taking actions towards a global, international, and intercultural successful design.

Global Learning Required Reading

- Globalization and Standards

Global Learning Recommended reading

- The WTO in brief
- Understanding the WTO
- Standards Education
- UNIDO Role of Standards
Topics Covered:

1. Introduction/Teamwork
2. Proposal and Technical Research writing
3. Components
5. Feasibility Analysis, Operating environment,
6. Intellectual Property
7. Intended user(s) and intended use(s), Background
8. Globalization and Standards
9. Health and Safety Considerations
10. Manufacturability Considerations
11. Environmental Considerations
12. Ethics
13. Concept Development, End Product Description, and Other Deliverables
14. SOW/GANTT CHARTS
15. Oral Presentation Skills
16. Functions and Specifications
17. Electric Grounds
18. Power Supplies

Department regulations concerning incomplete grades:

1. Must not be able to complete the course through documented circumstances beyond his/her control.
2. Must be passing the course before that part of the course that is not completed.
3. Must contact the instructor or the secretary immediately before or during the part missed so that the instructor will be aware of the circumstances causing the incomplete.
4. Must make up the incomplete work through the course instructor and should not be allowed to sit through an entire course to make up the incomplete.
5. Must make proper arrangements with the instructor to complete the course before the last two weeks of the second term.

Learning Activities:

- Project Conception and Management
  - Students form in multidiscipline teams
  - Members of each team select a team leader
  - Teams find 3 potential topics of interest
  - Teams negotiate with potential mentors their mentorship and the topic. Mentor and topic are chosen.
- Communication
  - Teams prepare a Project Proposal with two partial deliveries with revisions.
  - Teams present to the class their project in two deliveries.
  - Teams specifically present why their team is multi-disciplined.
  - Teams specifically present their Global Content as Impact of Standards on Trading in a Global Market, acceptance of their project in a different culture, and collaboration tools.
- Global Positioning
  - Students upload to youtube.com a presentation on their project where they introduce their team and provide demonstrations and explanations about the starting project.
These videos are accessible to people in any country with no internet restrictions.
- Samples can be found in Google with keywords: "YouTube FIU senior design projects."

Lecture Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Lecture</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Sponsors’ Presentations</td>
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<tr>
<td>2</td>
<td>Thee Topics Presentation</td>
<td>Style (Proposal Writing)</td>
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<td>3</td>
<td>Need Analysis</td>
<td>Specifications</td>
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<td>4</td>
<td>Concept Generation – End Product</td>
<td>Ethics</td>
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<td>Description</td>
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<td>5</td>
<td>Intellectual Property</td>
<td>Positive use of Body Language</td>
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<td>6</td>
<td>Preparing Oral Presentations</td>
<td>Video Production</td>
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<td>7</td>
<td>Paper review</td>
<td>First Round of Presentation</td>
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<td>8</td>
<td>Second Round of Presentation</td>
<td>Third Round of Presentation/ First Exam</td>
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<tr>
<td>9</td>
<td>Feasibility Analysis</td>
<td>Globalization and Standards</td>
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<td>10</td>
<td>Statement of Work</td>
<td>Sustainability</td>
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<td>11</td>
<td>Health and Safety</td>
<td>Design for Manufacturability / Final Details</td>
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<td>12</td>
<td>Paper review</td>
<td>Fourth Round of Presentation</td>
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<tr>
<td>13</td>
<td>Fifth Round of Presentation</td>
<td>Sixth Round of Presentation / Second Exam</td>
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<td>14</td>
<td>Campaign Video</td>
<td>Proposal</td>
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Presentations Rubric:

Do not copy without the express written consent of the instructor.

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Do not copy
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<th>Deductions</th>
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**Global Grading:** 4=Excellent, 3=Good, 2=Fair, 1=Poor, 0=Noncompliance

Global awareness: Was the team able to identify, analyze, and integrate international standards effects in multiple markets and cultures?

Global perspective: Did the team demonstrate an ability to conduct a Global Perspective analysis leading to understanding the needs of local, global, international, and intercultural markets

Global engagement: Were the students able to demonstrate Global Engagement by taking actions towards a global, international, and intercultural successful design.

**COMMENTS:**

**Examination Policy:**

- Make-up tests will be given only with official written confirmation of reasons.
- Inform the instructor about the problem to make special arrangements by the next class. You may inform the instructor about your issue by:
  - Sending an email to arellano@fiu.edu
  - Leaving a message at 305-348-4905
  - In Person
  - Using a messenger

*Failing to follow notification guidelines will make you non-eligible for a make-up exam. All excuses must be submitted in original and include contact information for verification purposes.*

- Make-up tests will be comprehensive
- Cheating in an examination will result in an "F" in the course.

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*A signed EEL 4921C proposal is required to pass

No Late Assignments

All notifications or changes will be emailed only to your FIU email address or posted on the Course Web Site. Please make sure that the instructor has your correct email address and check the Website frequently.