

Department of Electrical and Computer Engineering

EEL 4921C – Senior Design II - Project Implementation Global Learning Course

Instructor : Atoussa Tehrani
Office : EC 2945
Phone : (305)348.4943
Email : hosseini@fiu.edu

Catalog Description:

Design of a complete EE or CpE system including use of design methodology, formal specifications, alternative solutions, feasibility, economic, reliability, safety ethics and social impacts (2 Credits)

Prerequisites: EEL 4920

Course Description:

The objective of this course is providing guidance for students to complete the design and implementation of the Capstone Project. Students have prepared the proposal during EEL4920 with emphasis on successful design that involves local and global acceptance. They will have the opportunity to work in a realistic engineering project with local and global constraints under the guidance of a faculty and possibly industry mentor. Capstone design experience will integrate previous design work with design theory and methodology. This is a group project to integrate specifications based upon customer and engineering requirements to address Health, Safety, Sustainability, Standards and Globalization issues. Students must prepare a series of project progress reports, formal presentations, and a written report that includes globalization retrospective. Students will develop skills used in the engineering profession, these include: teamwork, effective meetings, safety, ethics, project management, time management and global awareness.

Course Objectives:

- Validate and test project design via physical experiments, physical models, prototypes, and computer simulations
- Utilize concepts, topics and resources developed in ECE curriculum.
- Learn about project life cycle from design through prototyping, debugging, and testing.
- Managing the project activities and dealing with the challenges of tight deadlines.
- Learn about project documentation, product specifications, test methods, debugging and troubleshooting.

Global Learning Objectives:

- This is a Discipline-specific Global Learning course that counts toward graduation requirement.
- Implement a project in accordance with its global, international, and intercultural design criteria.
- Demonstrate global commitment by evaluating Health, Safety, Sustainability, Standards and Globalization issues of the completed prototype.

Topic Covered:

1. Design CpE or EE system and/or components
2. Model circuits and system performance
3. Develop specifications for subsystems to meet design objective
4. Create alternative engineering solutions

Class Schedule: Students carry out work in ECE labs and home. Meetings with mentor and course coordinator are arranged at beginning of semester and scheduled throughout the semester.

Relationship of course objectives to program outcomes:

In the course EEL 4921C student will be evaluated on the following program outcomes:

- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function in multi-disciplinary teams
- (e) an ability to identify, formulate and solve engineering problems
- (g) an ability to communicate effectively
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Relationship of course objectives to Global Learning outcomes:

- i. **Global Awareness:** Students will be able to demonstrate knowledge of the interrelatedness of local, global, international, and intercultural issues, trends, and systems.
- ii. **Global Perspective:** Students will be able to conduct a multi-perspective analysis of local, global, international, and intercultural problems.
- iii. **Global Engagement:** Students will be able to demonstrate willingness to engage in local, global, international, and intercultural problem solving.

Assignment Description:

Each team must submit the following assignments by the specified due dates.

Globalization Retrospective

Write a new chapter in the final report on Globalization Retrospective. This chapter must be at least two pages and must address the following points:

- After completing the project, is there a change in your vision of your project's global success?
- Are there any changes in the project that affected your capability to minimize the barriers to trade?
- Have an additional communication with your international contacts and provide their opinion, at the end of the project, about your global success, specifically in relation to any changes made to the original idea.
- Is there any new standard, health and safety regulation that would impact the barriers to trade?
- Include a concluding paragraph summarizing the net impact of the changes in the project international acceptance?"

Reports

- Written progress reports are used to document all of the project activities and updates. These reports must include all the schematics, calculations, computer programs, and collected data.
- Students are required to meet with their instructor to discuss project progress after submitting the report.
- Progress reports must be sent by email to hosseini@fiu.edu.
- Progress reports will be used to prepare the final project report. The final project report must include Health, Safety, Sustainability, Standards and Global features of the completed prototype.

Videos

- Each team will produce one video per progress report and a final marketing video.
- Students will upload their final marketing video to youtube.com.
- These videos are accessible to people in any country with no internet restrictions.

Project presentation

- Students must present and demonstrate the project to their instructor, before the Senior Design Project day. Globalization aspects of the project must be included in the presentation.

Evaluation Criteria

Category	Due date	Weight
Progress report 1	2/1/2019	10%
Progress report 2	3/1/2019	10%
Progress report 3	3/19/2019	10 %
Project Presentation and Demonstration	4/18/2019	20%
Senior Design Project Report	4/18/2019	20%
Production of internet videos	4/16/2019	20%
Globalization Retrospective	4/18/2019	10%
Total		100%

Project Global Objectives Rubric

Grading: 4=Excellent, 3=Good, 2=Fair, 1=Poor, 0=Noncompliance		
Global awareness: Was the team able to evaluate if their prototype was in compliance with international standards in multiple markets and cultures?	10%	
Global perspective: Did the team demonstrate an ability to conduct a Global Perspective analysis leading to understand the needs of local, global, international, and intercultural markets?		
Global engagement: Were the students able to demonstrate Global Engagement by taking action towards a global, international, and intercultural design implementation?		
COMMENTS:		

Grading Scale:		Points per Credit hour:	University's Code of Academic Integrity http://academic.fiu.edu/academic_misconduct.html
A	92-100	4.00	"Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed to be responsible for their actions. All students are deemed to be responsible for their actions. All students are deemed to be responsible for their actions. The University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook."
A-	90-92	3.67	
B+	88-90	3.33	
B	82-88	3.00	
B-	80-82	2.67	
C+	78-80	2.33	
C	70-78	2.00	
D	60-70	1.00	
F	<60	0.00	

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