Department of Electrical and Computer Engineering

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

Instructor :
Office :
Phone :
Email :

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

Prerequisites: EEL 4920

Course Description:
This course's objective is to guide students in completing the design and implementation of the Capstone Project. Students have prepared the proposal during EEL4920, emphasizing successful design that involves local and global acceptance. They will have the opportunity to work on a realistic engineering project with local and global constraints under the guidance of a faculty and possibly an industry mentor. Capstone design experience will integrate previous design work with design theory and methodology. This group project will integrate specifications based on 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 a globalization retrospective. Students will develop skills used in the engineering profession: 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 the ECE curriculum.
- Learn about the project life cycle from design through prototyping, debugging, and testing.
- Scheduling 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 designated course that counts toward your FIU Global Learning 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 the design objective
4. Evaluate the global impact of project design
5. Create alternative engineering solutions

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

Relationship of course objectives to program outcomes:
In the course EEL 4921C, students will be evaluated on the following program outcomes

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

Relationship of course objectives to Global Learning outcomes:
1. **Global Awareness**: Students will have an ability to demonstrate global consciousness about local, global, international, and intercultural issues that may affect a successful design.
2. **Global Perspective**: Students will have an ability to conduct a global standpoint analysis leading to understand the needs of local, global, international, and intercultural markets.
3. **Global Engagement**: Students will have an ability to demonstrate global commitment by taking actions towards a global, international, and intercultural successful design.

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

Global Impact Research
> Research the global impact of your design by reading the related articles and standards and content specific to your project. You must use your findings to write the Globalization Retrospective chapter in the final report.

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 additional communication with your international contacts and provide their opinion, at the end of the project, about your global success, specifically concerning any changes made to the original idea.
- Is there any new standard or 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's 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:
- Progress reports will be used to prepare the final project report. The final project report must include the completed prototype's Health, Safety, Sustainability, Standards, and Global features.

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	9/17/2021	10%
Progress report 2	10/15/2021	10%
Progress report 3	11/12/2021	10 %
Project Presentation and Demonstration	12/3/2021	20%
Senior Design Project Report	12/3/2021	20%
Production of internet videos	12/1/2021	20%
Globalization Retrospective	12/3/2021	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 actions 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 by 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	