University of Puerto Rico
Mayagüez Campus
College of Engineering
Department of Electrical and Computer Engineering
Bachellor of Science in Computer Engineering

Course Syllabus

1. **General Information:**
Alpha-numeric codification: ICOM5047 Course Title: Design Project in Computer Engineering Number of credits: 3 Contact Period: 1 hour lecture, 4 hours laboratory per week

2. **Course Description:**
English: Capstone course in which student teams design a project to solve a complete Computer Engineering Problem considering engineering standards and realistic constraints. The project should integrate both hardware and software.
Spanish: Curso integrador en le cual equipos de estudiantes diseñan un proyecto para resolver un problema completo de Ingeniería de Computadoras, tomando en consideración estándares de ingeniería y restricciones realistas. El proyecto debe integrar conceptos de "hardware" y "software."

3. **Pre/Co-requisites and other requirements:**
(INEL4215 and ICOM5007) or consent of the Director of Department

4. **Course Objectives:**
After completing the course, students should understand and manage all aspects related to the solution of a problem in Computer Engineering, thus demonstrating the knowledge acquired in previous courses. The student should demonstrate his/her capability to solve a real engineering problem.

5. **Instructional Strategies:**
☐conference ☐discussion ☒computation ☒laboratory ☒seminar with formal presentation ☐seminar without formal presentation ☒workshop ☐art workshop ☐practice ☐trip ☐thesis ☐special problems ☐tutoring ☐research ☐other, please specify:

6. **Minimum or Required Resources Available:**
The course includes 4 hours of laboratory work per week for the development, modeling and implementation of the project, depending on its scope and nature.

7. **Course time frame and thematic outline**

Outline	Contact Hours
Project Management and use of MS Project	3
Budgeting	1
Writing proposals	1
Teamwork	1
Effective meetings	1

Document and Information Management	1
Conflict Management	1
Oral Communications	1
Creativity	1
Report writing	1
Environmental Impact	1
New product development strategy	4
Ethics	2
Demonstrations	6
Oral presentations	6
Laboratory project work	44
Total hours: (equivalent to contact period)	75

8. Grading System

☒ Quantifiable (letters) ☐ Not Quantifiable

9. Evaluation Strategies

	Quantity	Percent
☒ **Demonstration 1**	1	10%
☒ **Demonstration 2**	1	10%
☒ **Final Demonstration**	1	20%
☒ **Proposal**	1	15%
☒ **Progress Report**	1	15%
☒ **Project Report**	1	20%
☒ **Attendance & Punctuality**		5%
☒ **Other (Specify): Discussion participation**		5%
TOTAL:		**100%**

10. Bibliography:

•   Smith, Karl A. Teamwork and Project Management. McGraw-Hill. Boston 2000. 2nd Edition.
•   Meredith, Jack R. and Mantel, Samuel J. Project Management: a Managerial Approach. John Wiley and Sons. 2003.
•   IEEE Standards.
•   ISO Standards.
•   Selected publications depending on project topic.

11. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

12. Course Outcomes	**Map to Program Outcomes**
1. Identify a problem or opportunity for a computer engineering solution or innovation and define realistic and measurable	(e)

objectives as well as detailed technical specifications with the user/customer or based on market expectations	
2. Critically review and analyze literature related to and in the context of the problem defined, including prior work on the project or similar ones	(a)
3. Carry out a work breakdown structure for a project and organize the teamwork, assessing required effort, allocating time and assigning individual responsibilities	(d)
4. Identify, define and allocate the skills needed for the project, assessing current skills of team members and allocating resources for training, and learning or consultancy services as needed for the project	(i)
5. Identify and define technical resources needed for the project considering economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability constraints	(c)
6. To compute the budget for the project, control and analyze expenditures	(c)
7. To define and apply metrics for measuring project progress, identify potential problems and actions to prevent, mitigate, compensate or correct them	(e)
8. Assess Intellectual Property potential of the project and its implications in such issues as patents, copyright, licensing, and marketing among others	(j)
9. To effectively present the project in detail and in summary, both orally and in writing to technical and non technical audiences	(g)
10. To assess the impact of the project in a global, economic, environmental, and societal context	(h)
11. To design, implement, test, and validate a system according to the definition of the problem and the project objectives, and specifications, incorporating appropriate engineering standards	(b)
12. To identify issues of the project related to the ethical and professional responsibility, analyzing and making decisions according to the corresponding codes	(f)
13. To identify, and use techniques, skills, and modern engineering tools necessary to productively collaborate and efficiently conduct the project to success	(k)