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:

(ICOM4009 or ICOM5016) and (ICOM5217 or INEL5206 or INEL5265)

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[1]

Outline	Contact Hours
Project Management and use of MS Project	4
Budgeting	1
Writing proposals	1
Teamwork	1
Effective meetings	1
Document and Information Management	1

[1] Refer to http://ece.uprm.edu/~icom5047/calendar.html , ICOM5047 – Schedule for details and updates.

Conflict Management	1
Oral Communications	1
Report writing	1
Environmental Impact	1
Ethics	2
Demonstrations	6
Oral presentations	6
Laboratory project work	45
Total hours: (equivalent to contact period)	75

8. Grading System

☒Quantifiable (letters) ☐ Not Quantifiable

9. Evaluation Strategies

	Quantity	Percent
Demonstration 1	**1**	**15%**
Demonstration 2	**1**	**15%**
Final Demonstration[2]	**1**	**Pass/Fail**
Proposal	**1**	**15%**
Progress Report	**1**	**15%**
Project Final Report 2	**1**	**20%**
Peer evaluation (3 per semester)2	**1**	**See footnote 2**
Team meetings attendance	**1**	**5%**
Attendance & Punctuality2	**1**	**5%**
Other (Specify): Discussion, blog, repository, homework, and participation.	**1**	**10%**
TOTAL:		**100%**

Grading Scale

Letter	Score
A	**100-90 and minimum grade of any item above 80**
B	**(Average 100-90 and one or more grades below 80) OR (80-89 and minimum grade of any item above 70)**
C	**(Average 89-80 and one or more grades below 70) OR (79-70 and minimum grade of any item above 60)**
D	**(Average 79-70 and one or more grades below 60) OR (69-60 and minimum grade of any item above 50)**
F	**(Average 69-60 and one or more grades below 50) OR Average 59-0**

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.

[2] Refer to "Policies and Norms for the course ICOM5047 – Design Project in Computer Engineering" for details.

• IEEE Standards. • ISO Standards. • Selected publications depending on project topic.
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 the technical specifications with the user/client.	(e)
2. Analize and discuss the problem as well as previous or related work	(a)
3. Write a project proposal to solve a computer engineering problem specifying the solution, the work breakdown structure, budget and realistic constraints.	(e)
4. Organize the teamwork and define individual tasks and responsibilities	(d)
5. Design implement and test a system to solve the desired needs, identify and design the components within realistic constraints and using engineering standards	(c)
6. Design a test plan for the system	(b)
7. Evaluate the ethical, legal, environmental, social, health and safety and other impacts of the system and propose the mitigation, or compensation measures when necessary	(f)
8. Write effective documentation using engineering standards, present the results and make demonstrations of system functionality	(g)
9. Use modern computer engineering tools for analysis of the problem, computer aided design, debugging, implementation and testing of the system.	(k)
10. Assess the final economical, environmental, legal and other aspects of the project in a post-mortem review	(h)
11. Make project decisions based on current literature and state-of-the-art tools available on campus, or provided by client/user when applicable	(i)
12. Assess Intellectual Property potential of the project and its implications in such issues as licensing, and marketing among others	(j)
13. Incorporate engineering standards and multiple realistic constraints	(c)