Philadelphia University
Faculty of Engineering
Department of Computer
First semester, 2009/2010

Course Syllabus

Course Title: Modeling & Simulation	**Course code: 630573**
Course Level: 5th year	**Course prerequisite (s) and/or co requisite (s):** Department Approval
Class Time: 11:15 – 12:45	**Credit hours:3**

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Dr. Mohammed Mahdi Ali	Assistant Prof.	E-709	14:00-15:00 Weekly	m_selman@philadelphia.edu.j

Course description:

To cover the principles of modeling and simulation, identification, representation and processing. It covers the design and implementation of analog and digital simulation and their engineering applications.

Course objectives:
At Completing this course the student should be able to:
- Extract models.
- Simulate models in both analog and digital ways.
- Use Matlab package.

Course components

- **Books (title , author (s), publisher, year of publication)**

   B.S.Bennett, "Simulation Fundamentals",-Hall International 1995.

- **Support material (s) (vcs, acs, etc).**
  Matlab simulation program.

Teaching methods:
Lectures, tutorials, problem solving, and computer aided design and simulation.
Learning outcomes: upon completing this course, the student should have: -
- Knowledge and understanding
  - Basic understanding of modeling and simulation techniques.
  - Basic understanding of analog and digital simulation methods.
  - To be able to design real systems based on simulation results.

- Cognitive skills (thinking and analysis).

Be able to understand different available methods for modeling and simulation.
- Communication skills (personal and academic).

Key aspects of projects presentation are introduced.

- Practical and subject specific skills (Transferable Skills).
  - The student is able to design some kinds of real systems.
  - The use of Matlab software package tool will help the student in the design and analysis of real systems.

Course Intended Learning Outcomes									
A - Knowledge and Understanding									
A1.	A2.	A3.	A4.	A5.	A6.	A7.	A8.		
■	■	■			■		■		
B - Intellectual Skills									
B1.	B2.	B3.	B4.	B5.	B6.	B7.	B8.	B9.	
■		■	■		■		■		
C - Practical Skills									
C1.	C2.	C3.	C4.	C5.	C6.	C7.	C8.	C9.	C10.
■			■		■			■	
D - Transferable Skills									
D1.	D2.	D3.	D4.	D5.	D6.	D7.			
■		■			■				

Assessment instruments
- Short reports and/ or presentations, and/ or Short research projects
- Quizzes.
- Assignments.
- Final examination: 50 marks

Allocation of Marks	
Assessment Instruments	**Mark**
First examination	**15**
Second examination	**15**
Final examination: 50 marks	**50**
Reports, research projects, Quizzes, Assignments, Projects	**20**
Total	**100**

Documentation and academic honesty

- Documentation style (with illustrative examples)

There is no specific documentation.

Course academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Introduction	
(2)	Basic identification procedures	
(3)	OP-AMP operations	
(4)	Analog systems simulation	
(5)	Analysis and study of simulation results	
(6)	How to build real systems models based on simulation results	HW -1 Due
(7) First exam.	Introduction to digital simulation methods	
(8)	Analysis and study of digital simulation results	
(9)	Introduction to basic features of Matlab	
(10)	Applications using Matlab	
(11)	Review	HW-2 Due
(12) Second Exam.	Real-systems cases of study	
(13)	Real-systems cases of study	
(14)	Real-systems cases of study	
(15)	Simple project	HW-3 Due
(16) Final Examination	Simple project	

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute class/tutorial.

Attendance policy:

Absence from classes and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Course references

Books
N.Sinha and Kuszta, " Modeling and Identification of Dynamic System",Prentice Hall, 1997.

Duane Hanselman and Bruce Littlefield, " Mastering Matlab: A Comprehensive Tutorial and References", ", Prentice Hall,1998.