



Course Syllabus

Course ID	0902511
Course Title	Microelectronic
Prerequisite	0902312
Time & Date	
Coordinator	
Instructor	Assoc. Prof. Dr. Head of Communication and electronics Department
Office hours	Mon 8:30 – 11:30am & Tue 9:00-11:00 am
Course Description	MOSFET transistor modeling, Basic IC elements , types of inverters and logic circuits, their dynamic & static performances, Construction & design of submicron logic circuits, Application to VLSI circuits.
Course Objectives	<ul style="list-style-type: none">-Understand the characteristics of digital electronics.-Design CMOS & NMOS.-Study modeling & design of MOSFET.-Study stages VLSI technology.-Understand the processes of integrated-circuit fabrication.-Study principles & some kinds of field programmable gate arrays (FPGAs).
Course Outcomes	After successfully completing this course, the students should be able to: (a) An ability to apply knowledge of and (b) An ability to design and conduct experiments, to analyze and interpret data (c) An ability to design a system, component, or process to meet desired needs (d) An ability to function on multi-disciplinary teams program outcomes (e) An ability to identify, formulate, and solve engineering problems

	<p>(f) An understanding of professional and ethical responsibility</p> <p>(g) An ability to communicate effectively</p> <p>(h) The broad education necessary to understand the impact of engineering solutions in a global and societal context</p> <p>(i) A recognition of the need for, and an ability to engage in life-long learning</p> <p>(j) A knowledge of contemporary issues</p> <p>(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice</p>
Course Topics	<p>(1) Introduction.</p> <p>(2)+(3)+(4) Digital Electronics Characterization</p> <p>(5)+(6) CMOS Logic Design.</p> <p>(6) First Exam</p> <p>(7)+(8)+(9) MOS Modeling & Design</p> <p>(10)+(11) Very Large Scale Integration Systems</p> <p>(11) Second Exam</p> <p>(12)+(13)+(14) Integrated-Circuit Fabrication</p> <p>(15)+(16) Field Programmable Gate Arrays.</p>
Course Text Book	Understanding Optical communication By Harry Dutton, isbn 0130201413
Course References	<p>1. Optical communication By Rao Mukunda, isbn 81710902</p> <p>2. optical fibre communication By Gerd Keiser, isbn 0070334676</p> <p>3 . Optical communication By Rave Kumar , isbn 813800415</p>
Course delivery	<p>Lectures</p> <p>Tutorial</p> <p>Lab</p> <p>Homework</p> <p>Project</p> <p>Computer</p> <p>Internet</p> <p>Industrial Visit</p>
Course Assessment	Assignments & short reports..... 10%

	2 exams @ 20% each 40%
	Final exam 50%
Updated	Dr. Saad 27/9/2009

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO12
CO1											
CO2											
CO3											
CO4											
CO5											
CO6											
CO7											
CO8											
CO9											

	a	b	C	D	e	f	g	h	i	j	K
CO1											
CO2											
CO3											
CO4											
CO5											
CO6											
CO7											
CO8											
CO9											

ABET a-k Engineering and Technology program outcome

- (a) An ability to apply knowledge of mathematics, science, and engineering
- (b) An ability to design and conduct experiments, to analyze and interpret data
- (c) An ability to design a system, component, or process to meet desired needs
- (d) An ability to function on multi-disciplinary teams
- (e) An ability to identify, formulate, and solve engineering problems
- (f) An understanding of professional and ethical responsibility
- (g) An ability to communicate effectively
- (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) A recognition of the need for, and an ability to engage in life-long learning
- (j) A knowledge of contemporary issues
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Plagiarism

Deliberate plagiarism is a serious act of academic misconduct. Students may be suspended from the University if they are found to have plagiarized their course work. Whether inadvertent or deliberate, plagiarism includes the following:

- (a) word-for-word copying of sentences or whole paragraphs or presenting of substantial extracts from either paper-based or electronic sources the work or data of others that are published or

- unpublished (such as books, internal reports, and lecture notes or tapes) without clearly indicating their origin;
- (b) using very close paraphrasing of sentences or whole paragraphs without due acknowledgement in the form of reference to the original work;
 - (c) submitting another student's work in whole or in part;
 - (d) using of another person's ideas, work or research data without acknowledgement;
 - (e) copying computer files, algorithms or computer code without clearly indicating their origin;
 - (f) submitting work that has been written by someone else on the student's behalf; and submitting work that has been derived, in whole or in part, from another student's work by a process of mechanical transformation (e.g., changing variable names in computer programs