

Department of Mechanical Engineering			
Electronics (63293)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : Electrical Cirucits (63292) OR Electrical Circuits (67212) OR Electrical Circuits (69231)		
Course Contents			
This course covers the following topics: introduction to semiconductor diodes types and applications, half-wave rectifiers, full-wave rectifiers, filters using capacitors and inductors, transistor operation, basic BJT, amplifier configuration, transistor characteristics and parameters, transistor bias circuits, field-effect transistors (FETS)			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	Ability to understand different structures of materials (Conductor, semiconductor and insulators) and the basic design and operation of diodes.	A	10 %
2	Ability to analyze circuits containing rectifier diodes, zener diodes, bipolar transistors, and FETS transistors	B	40 %
3	Ability to understand the characteristics of all kinds of diodes such as light emitting diodes, varactor diodes, photo diodes, zener diodes, bipolar transistors, and FET transistors	A	20 %
4	Ability to understand the different kinds of biasing for electronic circuits.	A	20 %
5	Have a basic understanding of amplifiers and their applications.	E	10 %
Textbook and/ or References			
Electronic Devices. Floyed			
Assessment Criteria		Percent (%)	
First Exam		20 %	
Second Exam		20 %	
Homeworks		10 %	
Final Exam		50 %	
Course Plan			
Wee k	Topic		
1	Introduction to semiconductors		
2	I-V characteristics of the Diodes and basic operation, half-wave rectifiers, full-wave rectifiers		
3	Diode limiters and clampers		
4	zener diodes characteristics and circuit analysis, zener diodes as voltage regulator, kinds of diodes such as light emitting diodes, varactor diodes, photo diodes, etc.		
5	Bipolar Junction Transistors basic operation		
6	Different kinds of biasing circuits for Transistors		
7	Different kinds of biasing circuits for Transistors		
8	First Hour Exam		
9	Transistor basic circuits (common emitter, common base, and common collector)		

10	Transistor basic circuits (common emitter, common base, and common collector)
11	Transistor applications as they amplify signals and as electronic switches.
12	Second hour exam
13	Small signal equivalent circuit of all transistor circuits (CE, CB, CC), (Hybrid system). Introduction to FETS.
14	FET transistors characteristics and circuit analysis
15	Amplifiers and their applications.
16	Review and final exam