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Department of Electrical Engineering	
Electronic Circuits I (63214)	
Total Credits	**3**
major compulsory	
Prerequisites	P1 : Electrical Circuits I (63211) OR Electrical and Electronic Circuits (63291)

Course Contents

Semiconductor materials , J diode and applications , Graphical analysis of diode circuits ,Zener diodes , other diodes , optoelectronic diodes, BJT construction , Biasing and circuits , FET types , Biasing FET circuits , Introduction to Op-Amps

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	The student will learn about Semiconductor materials	A	10 %
2	The student will learn the construction of basic electronic devices J- Diode, BJTs and FETs	A	10 %
3	The student will learn how to design circuits containing basic electronic devices	C	30 %
4	The student will learn how to analyze the above circuits under DC conditions	E	40 %
5	The student will learn how to analyze basic Op-Amps circuits	E	10 %

Textbook and/ or Refrences

Electronics Design and Circuit theory , Boylestad and Nashelskey,Prentice Hall. &Electronics lecture notes Mazen Rasekh , An- Najah Univ.

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Homeworks	10 %
Final Exam	50 %

Course Plan

Week	Topic
1	The Atomic Structure, Energy Levels , Classifications of solids in terms of their conductivities Semi- conductor materials The N and P Types Current Distribution / flow in semi- conductor materials
2	The Junction Diode ,The Basic Configurations of the diode forward and reversed biased ,Diode Capacitance ,Influence of Temperature on the operation of the diode
3	Diode Circuit Analysis ,The DC and AC resistances of the diode ,The diode equivalent models ,Power dissipation
4	Diode Circuits and Applications ,Rectifiers , limiters and clippers circuits
5	Graphical analysis of diode circuits ,Dc and AC load lines , The dynamic and transfer curves ,Zener Diodes ,Voltage regulators
6	Tutorials and First Exam
7	Other diodes ,Varactor Diodes ,The Schottkey diode, Tunnel diodes Opto-Electronic diodes, Photodiodes, Infrared (IR) Emitters. Light emitting diodes LED s Solar cells
8	The Bipolar Transistors, Basic Construction and operation of a transistor The NPN / PNP Transistors ,Amplifying action of the transistor :

9	The Eber-Moll Transistor Model ,The basic configurations transistor circuits (Common Base , Common , Collector and Common Emitter)
10	DC Biasing of Transistors and graphical solutions for maximum symmetrical swings in iC and vCE
11	Tutorial and second Exam
12	The Field Effect Transistor , Basic construction and operation , N and P channel FETs Enhancement and Depletion MOSFETs
13	FETs DC analysis , FET circuits and Graphical solutions
14	Introduction to Op-Amp circuits
15	Tutorial and revisions
16	Final Exam