

Republic of Iraq
The Ministry of Higher Education
& Scientific Research



University: Diyala
College: Engineering
Department: Communications
Stage: First
Lecturer name: Suha I. Alnassar
Academic Status: lecturer
Qualification: Ph.D.
Place of work: Communications
Dept.

Flow up the implementation of course syllabus

Course Instructor	Suha Ibrahim Al-nassar				
E_mail	suha_alnassar4@yahoo.com				
Title	Electronics Physics				
Course Coordinator	3 hours weekly				
Course Objective	Give the students the Fundamentals and principles of energy levels and the structure of atom , and understanding principal elements of electric circuits such as diodes and transistors by studying the principle of semiconductors materials				
Course Description	<p>The subject divided in to several chapters, as follow:</p> <p>Chapter One: Energy levels and atomic structure.</p> <p>Chapter Two: Wave Natural of Light</p> <p>Chapter Three: Band Theory of Solids</p> <p>Chapter Four: Crystal structure of Solids</p> <p>Chapter Five X-Ray Diffraction(Bragg's Law)</p> <p>Chapter Six: Electronic and Ionic Conduction)</p> <p>Chapter seven: Semiconductors.</p> <p>Chapter Eight: The mass action law</p> <p>Chapter Nine: Junction-Diode</p> <p>Chapter Ten: Diode Resistance</p> <p>Chapter eleven : Rectifier Circuits</p>				
Textbook	The electric and magnetic properties of materials :Dr. wakaa farman aljubory Dr: fahar khalib aljubory				
Course Assessment	First Term	Mid-Year	2 nd Term	Project	Final Exam
	20 %		20 %	----	60 %
General Notes	<ol style="list-style-type: none"> 1. P.R. Gray, R.G Meyer, 2009, "Analysis and Design of Analog Integrated Circuits", fifth edition, Wiley & Sons 2. Stephen A. Campbell, ,2007, "Fabrication Engineering at the Micro and Nanoscale" , Third Edition, Oxford University Press, ISBN13: 9780195320176, ISBN10: 0195320174 3. M.S. Tyagi, 1991, "Introduction to Semiconductor Materials and Devices", first edition, Wiley & Sons. 				

Course Weekly Outline

week	Date	Topics Covered	Lab. Experiment Assignments	Notes
1				
2				
3				
4				
5				
6				
7	1/11	The atom, models of atom		
8	8/11	wave nature of light function		
9	16/11	energy-band theory of metals		
10	21/11	Insulators and Semiconductors, Crystals structure ,		
11	28/11	Ionic Covalent and metallic bonding, energy band of crystals		
12	5/12	Internal structure of materials		
13	12/12	cell packing miller indices ,crystal and directions,		
14	19/12	Brag's law and x-ray diffraction ,electronic ballistics,Hall effect		
15	26/12	Mobility and conduction ,energy distribution of electrons hall effect,		
16	2/1	Fermi level work function		
Half-Year Break				
17	15/2	Semiconductors materials		
18	22/2	Intrinsic & Extrinsic semiconductors		
19	1/3	Fermi-level in semi conductor		
20	8/3	p-n junction in equilibrium, current-voltage characteristics		
21	15/3	Charge control decryption of a diode transition and diffusion capacitance		
22	22/3	Diode switching time ,diode models,		
23	29/3	Small-signal model ad load line concept		
24	5/4	Introduction to heterojunctions and double heterojunction		
25	12/4	Rectifiers ,zanier diodes voltage regulators.		
26	19/4	Clipping circuits,		

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27	26/4	Clamping circuits and wave form generation		
28	3/5	Varactor diode ,tunnel diode		
29	10/5	Photodiode and photovoltaic cell Light emitting diode,		
30	17/5	principle and operation of semiconductor laser		
31	24/5	Metal electronic palasisics semiconductor diode		
32	1/6	Review		

Instructor Signature:

Dean Signature: