Course Syllabus

Course ID	0902204
Course Title	Electronics (1)
Prerequisite	0902204 Electronics (1)
Time & Date	
Coordinator	-
Instructor	**Assistant. Prof. Dr. Takialddin Al-Smadi** Faculty of Engineering E-mail: dsmadi@rambler.ru Telephone: ext.
Office hours	
Course Description	Semiconductor theory. PN junction. Diode circuits and applications. Bipolar junction transistor characteristics. DC biasing and small signal analysis. Field effect transistor theory and applications Pre0:90220
Course Objectives	1. Understand semiconductor fundamentals. 2. Understand the thoery and statics of PN junction diode 3. Understand small signal and large signal models of diode and ability to analyze diode circuits. 4. Understand theory , DC models, and biasing of bipolar junction transistors. 5. Understand theory , DC models, and biasing of field effect transistors
Course Outcomes	After successfully completing this course, the students should be able to: (a) An ability to apply knowledge of 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 program outcomes (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
Course Topics	Pre-Requisites by Topic 1. Circuits theory Topics 1. Semiconductor materials 2. intrinsic, N-type, and P-type semiconductor 3. carriers 4. density of state and Fermi function 5. Distribution of carriers 6. conductivity and drift current 7. Diffusion current 8. PN junction 9. depletion region characteristics 10. forward and reverse biasing; diode I-V characteristics 11. diode circuits and applications 12. bipolar junction transistor: theory , DC biasing, and symmetrical swing 13. field effect transistor: theory, DC biasing, and symmetrical swing.
Course Text Book	1-R. F. Pierret and G. W. Gerold, Modular series on Solid State Devices: Semiconductor Fundamentals, Secomd edition, Addison-wesley, 1989. 2-G. W. Gerold and R. F. Pierret, Modular series on Solid State Devices: The PN Junction Diode, Secomd edition, Addison-wesley, 1989. 3-D. Neamen, Microelectronics Circuits Analysis and Design, Third edition, McGraw-Hill, 2007.

Course References	1-D.L. Schilling and C. Belove, Electronic Circuits: Discrete and Integrated, Third Edition, McGraw-Hill,, 1989. 2- A. S. Sedra and K.C. Smith, Microelectronic Circuits, Fourth Edition, Oxford University, 1998. 3- T.L. Floyd, Electronic Devices, Second Edition,Merrill, 1988. 4- J. Millman, Microelectronics: Digital and Analog Circuits and Systems,First Edition, McGraw-Hill, 1979.
Course delivery	Lectures Tutorial Lab Homework Project Computer Internet Industrial Visit
Course Assessment	First Exam : 20% Second Exam: 20% Quizzes : 10% Final Exam : 50% Total : 100%
Updated	Dr. Takialddin /2009

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO12
CO1											
CO2											
CO3											
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CO1											
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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
(g) 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).