MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401261	Electronics (1)	3	3 T

INSTRUCTOR/COORDINATOR	
Name	Dr. Ziyad Al Tarawneh
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Office Hours	11:00-12:00 (Sun, Tues, Thur)

TEXTBOOK	
Title	Electronic Devices and Circuit Theory
Author/Year/Edition	Robert Boylestad,11th edition
Other Supplemental Materials	
Title	Principles of Electronic Circuits,
Author/Year/Edition	by: Stanley G.Burns, Second Edition

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

This course aims to provide students with information about : Semiconductor Materials ,the Doping ,N-type and P-type semiconductors, the PN junction, Diode Operation Diode Models ,Half-Wave Rectifiers, Full-Wave Rectifiers, Power Supply Filters and Regulators, Diode Limiters and Clampers, Voltage Multipliers, Solar Power as an application The Zener Diode, LED,Photo-diodes,Varactor diodes. Bipolar Junction Transistors(BJT) :Operation ,Structure, Characteristics, and Biasing. BJT as an amplifier and switch. DC load line and the Q-point. BJT configurations :CE, CB,and CC. Junction Field Effect Transistor (JFET) :Characteristics ,parameters,and Biasing. D-MOS and E-MOS : Analysis and Design of amplifier circuits (common source,and common drain).

B. Pre-requisites (P) or Co-requisites (C)

Electric Circuits (1) (0401211) **(P)**

C. Course Type (Required or Elective)

Required

SPECIFIC GOALS

A. Course Learning Outcomes (CLOs)

By the end of this course, the student should be able to:
CLO1: Understand semiconductor fundamentals [1].
CLO2: Understand the structure and the operation of the electronic devices like diodes, and Transistors BJT and FET [1].
CLO3: Analyze electronic circuits as rectifier circuit, clamper, and clipper circuits [1].
CLO4: Understand theory, DC models, and biasing of bipolar junction transistors [1].
CLO5: Understand the theory, DC models, and biasing of field effect transistors [1].

B. Student Learning Outcomes (SOs) Addressed by the Course

1	2	3	4	5	6	7
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BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Semiconductor Materials	1	3
Doping, The P-type and N-type	2	6
The PN junction ,The Diode	2	6
Diode applications : Rectifiers ,Clampers, Clippers	3	9
Bipolar Junction Transistors	1	3
BJT biasing	2	6
Field Effect Transistors	1	3
FET biasing	2	6
Total	*14*	*42*

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)		
	Relationship to program outcomes	
ABET 1-7		**Engineering Student Outcomes**
1	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3		an ability to communicate effectively with a range of audiences.
4		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.