



MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering



Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401362	Electronics (2)	3	3 T

INSTRUCTOR/COORDINATOR

Name	Dr. Ayman Allawama
Email	Lawama@mutah.edu.jo
Office Hours	12:00-13:00 (Sun, Tues, Thur)

TEXTBOOK

Title	Principles of Electronic Circuits
Author/Year/Edition	Stanley G. Burns, Paul R. Bond/1997/Second Edition

Other Supplemental Materials

Title	Electronic Devices and Circuit Theory
Author/Year/Edition	Mic Robert Boylestad, Louis Nashelsky/2012/11 th edition

SPECIFIC COURSE INFORMATION

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

Biasing of discrete BJT and MOSFET . BJT amplifiers. MOS Amplifiers.
Analysis and design of different configurations. Cascade Amplifiers Circuit. Frequency analysis of BJT amplifiers and MOSFET amplifiers. Bode plots. Operational Amplifier. Differential Amplifiers.

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

Electronics (1) (0401261) (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 the configurations of CE, CB, CC configurations [1].

CLO2: Understand the configurations of CS,CG,CD configurations [1].

CLO3: Analyze and design cascade amplifier circuit [2].

CLO4: Analyze and design operational and differential amplifier [2].

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

1	2	3	4	5	6	7
✓	✓					

BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Introduction to BJT and MOSFET circuits.	1	3
DC biasing of BJT and MOS amplifiers . Design stability.	2	6
Small signal analysis using h-parameters of Common Emitter, Voltage swing limitations, Common collector and common base amplifiers - Darlington amplifier.	2	6
Small signal analysis of JFET amplifiers- Small signal analysis of MOSFET, Common Source amplifier, Source follower and Common Gate amplifier.	2	6
Frequency analysis of BJT and MOSFET amplifiers. Bode Plots.	2	6
Analysis and design cascade amplifier circuit.	1	3
Operational amplifiers .Inverting and noninverting configurations. Integrator and Differentiator. op-amp applications.	3	9
Differential amplifier circuits.	1	3

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)

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.