



**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**

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

**TEXTBOOK**

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

**Other Supplemental Materials**

<b>Title</b>	Electronic Devices and Circuit Theory
<b>Author/Year/Edition</b>	Mic Robert Boylestad, Louis Nashelsky/2012/11 <sup>th</sup> 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.