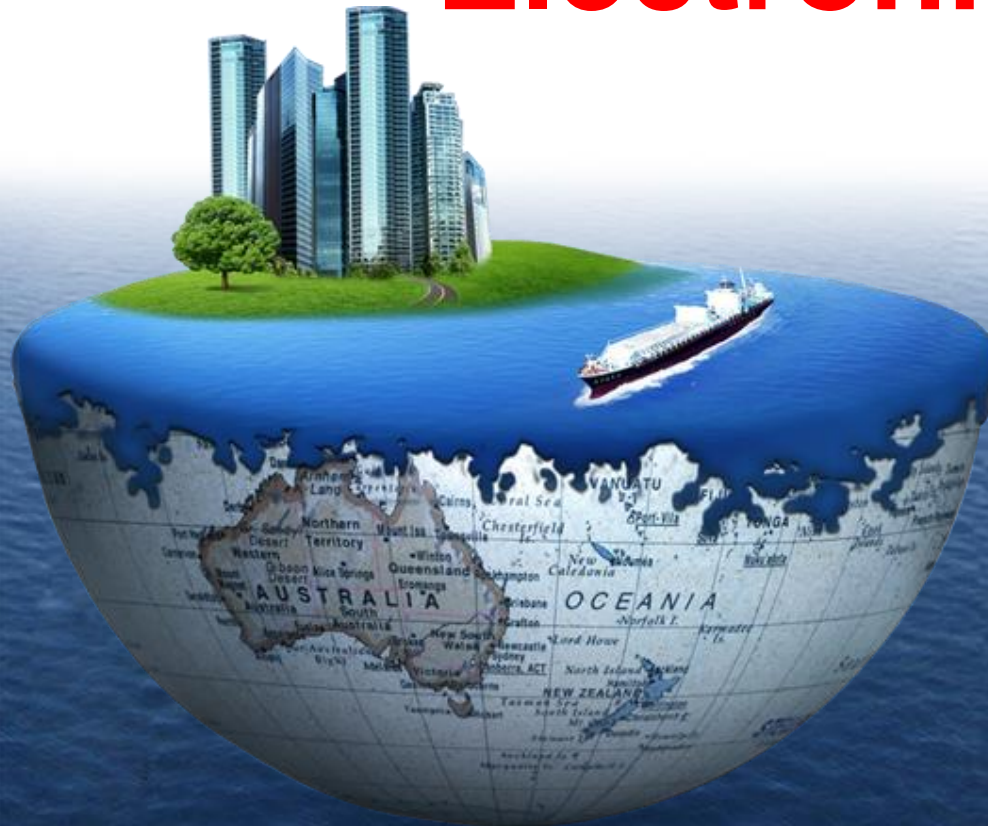




Electronic Engineering COM 121



**Assist. Prof.
Basma M. Yousef**

Course Aims

No.	Aims
#1	Explain skills and use of amplifier circuits and their design specifications related to frequency response and feedback topologies to the development of multiple engineering fields.
#2	Demonstrate practical skills in simulation, construction and testing of MOSFET and simple amplifier circuits

A2.	Use computational facilities and techniques, measuring instruments, workshops and laboratories equipment to design experiments, collect, analyze, and interpret results and assess the findings and conclude remarks.
A10.	Maintain management of self/ Time, flexibility to adapt to change, working under contradictory conditions and engage in long-life-self learning

Course Learning Outcomes

LO1	Solve engineering problems related to Transistors circuit applications
LO2	Solve engineering problems related to biasing circuits of JFET and MOSFET
LO3	List the construction, operation, characteristics, design and analysis of Amplifier and Filter Circuits
LO4	Simulate transistor, FET ,MOSFET ,OP-AMP and filter circuits using spice simulation.

Teaching Hours

Number of weekly contact hours:

Course name	Lecture	Tutorial /Laboratory	Total contact	Term work	O/L	Final	Total
Electronic Engineering	3	2	5	30	30	90	150

Chapter 1 Bipolar Junction Transistors Biasing

1.1 Introduction

1.2 Operating Point

1.3 Fixed-Bias Circuit

1.4 Emitter-Stabilized Bias Circuit

1.4 Voltage-Divider Bias

1.5 DC Bias with Voltage Feedback



CONTENTS

Chapter 2

Field Effect Transistors

2.1 Introduction

2.2 Construction and Characteristics of JFETs

2.3 Transfer Characteristics Specification Sheets(JFETs)

2.4 Instrumentation

2.5 Important Relationships

2.6 Depletion-Type MOSFET

2.7 Enhancement-Type MOSFET

Chapter 3

FET Biasing

3.1 Introduction

3.2 Fixed-Bias Configuration

3.3 Self-Bias Configuration

3.4 Voltage-Divider Biasing

3.5 Depletion-Type MOSFETs

3.6 Enhancement-Type MOSFETs

Chapter 4

Operational Amplifiers

4.1 Introduction

4.2 Differential and Common-Mode Operation

4.3 Op-Amp Basics

4.4 Practical Op-Amp Circuits

Chapter 5 Active Filter

- ✓ 5.1 Introduction***
- ✓ 5.2 Low Pass Filter***
- ✓ 5.3 High Pass Filter***
- ✓ 5.4 Band Pass Filter***
- ✓ 5.5 Band Stop Filter***

Chapter 6

Power Supplies and Voltage Regulations

6.1 Introduction

- ✓ **6.2 Discrete Transistor Voltage Regulation**
- ✓ **6.3 IC Voltage Series Regulators**
- ✓ **6.4 IC Voltage Shunt Regulators**

Assessments

No.	Evaluation method	Weights
1	Mid-term examination	9 %
2	final examination	60%
3	Reports-sheets	3%
4	Practical examination	10%
5	Quiz	3 %
6	Report	10%
7	Mini project	10%
8	Attendance	5%
	Total	100%

References

No.	Reference List
1	Boylestad, Robert L., and Louis Nashelsky. Electronic devices and circuit theory. Pearson Education India, 2009.
2	Floyd, Thomas L. Electronic devices (electron flow version). Prentice-Hall, Inc., 2007.
3	Sedra, A., K. C. Smith, T. Chan Carusone, and V. Gaudet. "Microelectronic circuits 8th edition." (2020): 1235-1236.

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