



Course: Electronics Lab for Mechatronics – 0908322 (1 Cr. – Core Course)
Lab Time (Mon: 12:30 – 15:30, Tue: 13:00 – 16:00 and Wed: 12:30 – 15:30)

Instructor: Eng.Nadeen Habash and Eng.Hisham Hatem
Office: MX, Telephone: 5355000 Ext: 23028
Office Hours: (Announced on office door)

Course Website: <http://elearning.ju.edu.jo>

Catalog Data: Diode characteristic and applications: Half Wave Rectifier (HWR), Full Wave Rectifier (FWR), Clipper, Clamper and Peak Detector. Zener Diode Characteristics & Voltage Regulator, Bipolar Junction Transistor Characteristics, BJT Applications, Frequency Response of BJT Amplifier, MOSFET characteristics and applications, Operational Amplifier Applications.

Prerequisites by Course: Electronics for Mechatronics (0908222) or Concurrently

Prerequisites By Topic: The student should have the basic knowledge of electrical and electronic circuits and the characteristics of their components.

Textbook: Lab. Manual

References:

- Donald A. Neamen. Microelectronics: Circuit Analysis and Design, 4th Edition, Mc-Graw-Hill.

Schedule & Duration: 11-12 Weeks, 10 lab sessions (3 hours each) plus exams.

Minimum Student Material: Lab notes, class handouts, instructor lab discussion, calculator and an access to a personal computer.

Instructional Methods

1. Pre-lab using MultiSim software
2. Conducting experiments
3. Writing lab reports

Minimum College Facilities: Lab room with whiteboard and laboratory instrumentation.

Course Objectives: The objectives of this course are to make the student perform set of experiments needed to examine the electronic components and how it works.

ABET SO:

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

Course Learning Outcomes and Relation to ABET Student Outcomes:

Upon successful completion of this course, a student should:

1. Learn the basics of electrical laboratory instrumentation, including multi-meters, power supplies, function generators, and oscilloscopes. (6)
2. Conduct experiment, analyze and interpret the results. (1,5)
3. Perform fundamental measurements on electrical circuits. (5,6)
4. Analyze basic diode and amplifier configurations. (1)
5. Analyze electronic circuits using simulation software such as MultiSim or PSpice. (6)

Course Topics:

	Topic Description	Hrs
1.	Introduction to Lab.	3
2.	Exp.1: -Lab Equipment Familiarization.	3
3.	Exp.2: -Diode Characteristics and Rectification.	3
4.	Exp.3: -Diode Clippers and Clampers.	3
5.	Exp.4: -Zener Diode Characteristics & Voltage Regulator.	3
6.	Exp.5: -Bipolar Junction Transistor (BJT) Characteristics	3
7.	Exp.6: -BJT Applications	3

8.	Exp.7: -Frequency Response of BJT Amplifier	3
9.	Exp.8.A: -Operational Amplifier Applications (1)	3
10.	Exp.8.B: -Operational Amplifier Applications (2)	3
11.	Exp.9: -MOSFET Characteristic and Applications	3

Ground Rules:

- **Attendance:**

Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered to.

- **Make up Examinations**

There will be no make up exams for any exam that will be taken during the course. exceptions to this rule is restricted only to the following cases:-

1. Death of only first order relatives (father, mother, sister, or brother).
2. Hospital entry (in-patient) during thr time of the examination.

Any other cases will be given the zero mark in the corresponding exam.

Assessments:

Exams, Quizzes, Reports(Lab Sheet), and Assignments.

Grading policy:

Assessments	Mark
Lab work	20
Quizzes	15
Midterm exam	25
Final exam	40
Total	100

Last Updated:

September. 2019