



JORDAN UNIVERSITY OF SCIENCE & TECHNOLOGY
MECHANICAL ENGINEERING DEPARTMENT
ME 320 Fundamentals of Electronics and Digital Logic
Semester

Catalog Data- 2013: 3 Credit hours (3 h lectures)

Provide electronic and digital Systems Fundamentals for mechatronics systems; Diodes, transistors, operational amplifiers and A/D and D/A conversion introduction to digital logic systems including ; combinational and sequential logic and slip-flops with application.

Text Book(s):

Introduction to Mechatronics and Measurements Systems, by David G. Alciatore, Michael B. Histan, 4th edition, McGraw Hill.

References:

Mechatronics: Electronic control systems in mechanical and electrical engineering, by W. Bolton, Pearson.

Instructor:

Class Schedule:

Office Hours:

Attendance:

The attendance to this course is mandatory. Any student who miss 20% and above of the classes will be barred from the class.

Pre/Co-Requisites:

EE 303: Fundamentals of Electrical Engineering

Outcomes:

After successfully completing this course, the students should be able to:

1. Understand the fundamentals of Mechatronics and Measurements systems.
2. Analyze electric circuits and its components.
3. Understand the functionality of the different semiconductor electronics and use them in a circuit.
4. Use operational amplifiers to process Analog Signals.
5. Understand the digital Circuits and use them in a mechatronics system.
6. Collect analog signals using a microcontroller/microprocessor.
7. Understand the different types of sensors and actuators and use them in a Mechatronics system.

Topics Covered:

1. General Principles.
2. Electric Circuits and Components.
3. Semiconductor Electronics.
4. Analog Signal Processing Using Operational Amplifiers.
5. Digital Circuits.
6. Data Acquisition.
7. Sensors.
8. Actuators.

Evaluation:

1st Exam :	20-30 % (Thursday 24/3/2015 @ 4:15 – 5:15 Pm)
2nd Exam :	20-30 % (TBA)
Assignments and Projects :	0-20 %
Final Exam :	40 %

Relationship of the Course to ME Outcomes:

ABET a – k	√	Level (L, M, H)	Mechanical Eng. Program Outcomes
a			a. Apply knowledge of mathematics, science, and engineering in practice.
b			b. Design and conduct experiments as well as analyze and interpret data.
c	√	M	c. Design a system, components, or process to meet desired needs.
d			d. Function on multidisciplinary teams.
e	√	M	e. Identify, formulate, and solve engineering problems.
f			f. Understanding of professional and ethical responsibility of an engineer.
g			g. Communicate effectively.
h			h. Broad education to understand the impact of engineering solutions in global and societal context.
i	√	L	i. Recognition of the need for, and possess the ability to engage in, lifelong learning.
j			j. Possess knowledge of contemporary issues.
k	√	H	k. Use the techniques, skills, and modern engineering tools necessary for engineering practice.

L: Low, M:Medium, H: High

ABET Category: Engineering Science 3 Credits
 Engineering Design 0 Credits

Prepared By: _____ **Date:** _____

- Rules and notes:**
- 1) Never come late to the classroom, you will disturb your mates and your instructor if you do so and will be considered absent.
 - 2) Turn OFF your cell phones during the class.
 - 3) **DO Not TALK** during the class please, unless you have a question for me.
 - 4) Make up exams are not held without an official signed and approved excuse from the **Department Chairman**. Please understand that this is a university law and I have no control over it.
 - 5) Office hours are the hours I dedicate for you to ask me. If you think they do not suit you, then we can still arrange for a time of our convenience by sending an e-mail to me (you should expect an approval from my side).
 - 6) The exams specified on the course syllabus are not subject to negotiations or change once approved by you **TODAY**. It is your responsibility to inform the other instructors about your assigned exams.
 - 7) Files will be posted on **e-learning** and you are only allowed to contact me through the **e-learning email**. Contacting me through **Facebook** is prohibited.
 - 8) You are not allowed to post my **emails** content on **Facebook** without my **prior permission**.