Jordan University of Science and Technology
Faculty of Engineering
Electrical Engineering Department

EE346 Microcontrollers Lab
Second Semester 2020-2021

Course Catalog
1 Credit Hours. Experiments using TTL family via implementation of logic functions using AND, OR, and NOT. Implementation of logic functions using MSI chips such as encoders, decoders, multiplexers, and EPROMS. Software and hardware experiments with a microcontroller system. Assembly language programming and simple input/output interfacing. Lab project (equivalent CPE 235 Digital Logic Design Lab)

Text Book	
Title	Digital Design
Author(s)	M. Mano and M. Ciletti
Edition	5th Edition
Short Name	Text Book
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Handouts	Experiment Handouts	Instructor and TA	4th Edition	

Instructor	
Name	**Dr. Ahmad Ababnah**
Office Location	-
Office Hours	Sun : 10:00 - 11:00 Sun : 12:00 - 13:00 Mon : 10:00 - 11:00 Tue : 10:00 - 11:00 Wed : 10:00 - 11:00 Wed : 11:15 - 12:15
Email	aaababnah@just.edu.jo

Instructor	
Name	**Prof. Ahmad Abu-El-Haija**
Office Location	E1 L-2
Office Hours	Sun : 10:30 - 12:30 Mon : 08:30 - 10:30 Tue : 08:30 - 10:30 Thu : 11:30 - 12:30
Email	haija@just.edu.jo

Class Schedule & Room

Section 1:
  Lecture Time: Thu : 08:30 - 11:30
  Room: LAB
 	
Section 2:
  Lecture Time: Thu : 14:30 - 17:30
  Room: LAB
 	
Section 3:
  Lecture Time: Mon : 14:30 - 17:30
  Room: LAB

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 2	Familiarization and Introduction to Logic Gates	From **Handouts**
Week 3	Combinational Logic: Half Adder and Full Adder	From **Handouts**
Week 4	Combinational Logic: Seven Segment BCD Decoders	From **Handouts**
Week 5	Combinational Logic: Decoders and Multiplexers	From **Handouts**
Week 6	BCD to Excess-3 Converter and Vice Versa	From **Handouts**
Week 7	Sequential Logic: Flip Flops	From **Handouts**
Week 8	Review of past experiments and make up for any missing experiment	
Week 9	Midterm exam - practical	
Week 10	Parallel Load and Shift Registers	From **Handouts**
Week 11	Sequential Logic: Counters	From **Handouts**
Week 12	Constructing a Memory Device	From **Handouts**
Week 13	Serial Adder	From **Handouts**
Week 15	Final exam	From **Handouts**

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Apply the fundamentals and basic theory of digital electronic devices through simple laboratory exercises [1ABET1, 1ABET2, 1ABET3, 1ABET5, 1ABET6]	10%	Midterm Exam, Lab work, Final
Recognize the various ICs (chips) and their functions [1ABET2, 1ABET5, 1ABET6]	20%	Midterm Exam, Lab work, Final, Quizzes
Design, construct and test basic logic circuits from a given specification [1ABET1, 1ABET2, 1ABET3, 1ABET5, 1ABET6]	70%	Midterm Exam, Lab work, Final, Quizzes

Relationship to Program Student Outcomes (Out of 100%)						
ABET1	ABET2	ABET3	ABET4	ABET5	ABET6	ABET7
16	22.67	16		22.67	22.67	

Evaluation	
Assessment Tool	**Weight**
Midterm Exam	20%
Lab work	25%
Final	50%
Quizzes	5%

Policy	
Attendance	This is a lab course. Students are expected to attend all sessions and perform all experiments. If a student is not able to attend one lab session, he/she may coordinate with the lab engineer for a substitution, if the engineer is available.
Assessment	Students should prepare a pre-lab report before each lab session. Template for this report is posted at the e-learning system. Assessment will be as follows: experiments 30 marks (15 for the pre-labs and 15 for performing the experiments or simulations), mid-term exam 20 points, and final exam 50 marks.

Date Printed: 2021-06-19