



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

EE420 Digital Electronic Circuits

Summer Semester 2022-2023

**Course Catalog**

3 Credit Hours. Diode, BJT and MOSFET states of operation, DTL, RTL and TTL gates, fan out, noise immunity and effect of capacitive load. ECL and PMOS, NMOS and CMOS gates. TTL- CMOS interfacing circuits. Sweep circuit techniques. Bistable, monostable and astable multivibrators circuit analysis and design using discrete component. A 555 timer and its applications in timing circuits. Sampling theory, analog to digital and digital to analog converters.

**Text Book**

<b>Title</b>	Introduction to digital microelectronic circuits, 1st Edition, IRWIN,1996
<b>Author(s)</b>	K.G. Gopalan
<b>Edition</b>	1st Edition
<b>Short Name</b>	Textbook
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
Ref#1	Digital Electronics Circuits, Prentice-Hall International,1988	G. M. Glasford	2nd Edition	
Ref#2	Digital Integrated Electronics, McGraw-Hill	Taub and Schilling	2nd Edition	
Ref#3	Electronic Circuit Analysis and Design	D. Neaman	2nd Edition	

**Instructor**

Name	<b>Prof. Nedal Al-Ababneh</b>
Office Location	E1L2
Office Hours	

Email	nedalk@just.edu.jo
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 18:00 - 19:30 Room: 150 منصة الكترونية

Prerequisites		
Line Number	Course Name	Prerequisite Type
243202	EE320 Electronic Circuits	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	1. Introduction to diode, BJT and MOSFET circuit as a switch	From <b>Textbook</b>
Weeks 2, 3, 4, 5	2. Diode and BJT logic gates and output stages, analysis and design	From <b>Textbook</b>
Weeks 6, 7, 8	3. PMOS, NMOS and CMOS logic gates, analysis and design	From <b>Textbook</b>
Week 9	4. Current and voltage sweep circuits, analysis and design	From <b>Textbook</b>
Weeks 10, 11	5. Bistable, monostable and astable multivibrator circuit analysis and design	From <b>Textbook</b>
Week 12	6. Comparator and Shmitt Trigger circuit analysis and applications	From <b>Textbook</b>
Weeks 11, 13	7. A 555 Timer and its applications in the timing circuits application.	From <b>Textbook</b>
Weeks 14, 15, 16	8. Analog to digital and digital to analog converters	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Ability to apply basic electronic circuit rules in logic gates [15ABET1]	15%	Final, First Exam
Ability to analyze and design the logic gates [30ABET1, 15ABET2]	45%	Final, First Exam, Second Exam
Ability to analyze and design multivibrators circuit. [15ABET1, 5ABET2]	20%	Final, Second Exam
Ability to analyze and design the A/D and D/A converters. [15ABET1, 5ABET2]	20%	Final

Relationship to Program Student Outcomes (Out of 100%)						
ABET1	ABET2	ABET3	ABET4	ABET5	ABET6	ABET7
75	25					

<b>Evaluation</b>	
<b>Assessment Tool</b>	<b>Weight</b>
Final	40%
First Exam	30%
Second Exam	30%

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