

1.

(2025)

1. Basic Information

Course Title (according to the bylaw)	(Logic Circuits (1			
Course Code (according to the bylaw)	ELC 131			
Department/s participating in delivery of the course	.Electrical Engineering Dept			
Number of credit hours/points of the course (according to the bylaw)	Theoretical	Practical	Other (specify)	Total
	3	2	3	3
Course Type	.Choose an item			
Academic level at which the course is taught	الفرقة/المستوي الثاني			
Academic Program	Computer and Control EngineeringDept.			
Faculty/Institute	Engineering			
University/Academy	Suez canal university			
Name of Course Coordinator	Reham hassen			
Course Specification Approval Date	2021			
Course Specification Approval (Attach the decision/minutes of the department /committee/council)				

2. Course Overview (Brief summary of scientific content)

The course aims: give the students the basics of logic circuits, gain students the skills of analyzing and designing of logic circuits such as combinational circuits, sequential circuits, registers, and counters. (PEO1 and PEO4).

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

(3). Learning Outcomes of Course (LOs)	
A2 .1	Analyze and evaluate logic circuits.
B2 .1	Design, model of logic circuits or component for a specific application; and identify the tools required to optimize this design.
B3 .1	Design and implement elements, modules, sub-systems, or systems of logic circuits such as combinational circuits, sequential circuits, registers, and counters.

4. Teaching and Learning Methods

No.	Teaching Method
1.	Interactive lectures
2.	Active learning e.g. group discussion, brain storming, demonstration.
3.	Problem and Project based learning

4.	Labs
5.	Self-Learning

Course Schedule

(4). Course Contents					
Week No.	Topics	Lecture	Tutorial	Practical	Total
1	Introduction-Numbering systems	2	2		4
2	Boolean Algebra	2	2		4
3	Simplification Methods - De Morgan Theories	2	2		4
4	Logic Gates	2	2		4
5	Humming and Multiplication Addition	2	2		4
6	Karnaugh Maps	2	2		4
7	Combinational Circuits: Analysis and Design Procedures - Arithmetic Circuits: Half-adder, Full-adder	2	2		4
8	Midterm exam				
9	Combinational Circuits: Decoder-encoder- Multiplexer-Demultiplexer	2	2		4
10	Sequential circuits: NAND Gate Latch- NOR Gate Latch- Clocked S-R FLIP-FLOP	2	2		4

11	Sequential circuits: Clocked J-K FLIP-FLOP- Clocked D FLIP-FLOP	2	2		4
12	Shift register	2	2		4
13	Counters-Asynchronous (Ripple) Counters- Synchronous (Parallel) Counters	2	2		4
14	Programmable Logic Arrays-ROM	2			2
15	Oral exam				
16	Final exam				
	total	26	24	0	50

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Exam 1written (Semester work)	3	10	10
2	Exam 2 (Semester work)	3	10	10
3	Final Written Exam	15	50	50
	Final Practical/Clinical/... Exam	13	10	10
	Final Oral Exam	13	10	10
	Assignments / Project /Portfolio/ Logbook	13	10	10
	Field training		-	-
	Other (Mention)		-	-

* The methods mentioned are examples, the organization may add and/or delete

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	The main (essential) reference for the course (must be written in full according to the scientific documentation method)	<ul style="list-style-type: none"> R. J. Tocci, "Digital Systems Principles and Applications", Pearson Education, Upper Saddle River, New Jersey, 10th edition, 2007. T. Floyd "Digital Fundamentals", 11th edition, 2015. Digital fundamental, Thomas L. Floyd 10th ed., Pearson International edition, 2009. https://www.allaboutcircuits.com/
	Other References	-
	Electronic Sources (Links must be added)	-
	Learning Platforms (Links must be added)	-
	Other (to be mentioned)	-
Supportive facilities & equipment for teaching and learning *	Devices/Instruments	yes
	Supplies	yes
	Electronic Programs	
	Skill Labs/ Simulators	yes
	Virtual Labs	
	Other (to be mentioned)	

* The list mentioned is an example, the institution may add and/or delete depending on the nature of the course

Name and Signature
Course Coordinator

Reham hassen

Name and Signature
Program Coordinator

