Republic of Iraq
The Ministry of Higher Education and Scintific Resrearch
Supervision and Scientific Evaluation Body

College : Shatt Al Arab University College
Department : Computer Science
Stage: First datge
Lecturer Name : Ayad Mohammed Jabbar
Academic Status : Associate Professor

Course Weekly Outline

Course Lecturer	**Ayad Mohammed Jabbar**			
e-mail	**ayadmohammed@sa-uc.edu.iq**			
Title	Digital electronics /FUND 9106			
Course Coordinator	Computer Science			
Course Objective	Providing students with the most important principles and basics of programming logic and explain how it works and use it in computers and electronic circuits			
Course Description	Providing graduates with the necessary knowledge on the basic knowledge and understanding of arithmetic operations and numerical systems that will be used in the future job in organizations.			
Textbook	Introduction to Digital Logic Design First Edition Digital Logic Design: Learn the Logic Circuits and Logic Design Digital Logic Design 4_{th} Edition			
References	Digital Fundamentals", Eleventh Edition, Thomas L. Floyd, 2015, Pearson Education, ISBN 13: 978-1-292-07598-3. "Digital Electronics: Principles, Devices and Applications", Anil K. Maini, 2007, John Wiley & Sons, Ltd. ISBN: 978-0-470-03214-5.			
Course Assessment	**Term Exam**	**Project**	**Quizzes and Attendance**	**Final Exam**
	30	**-**	**10**	**60**
General Notes	Teaching students how to apply electronic circuit analysis and simplification			

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Week	Date	Topics Covered	Number of Hours	Notes
1	2-10-22	Number systems (decimal, binary, octal, hexadecimal)	5	.Knowledge of the basics of logic and number systems Knowledge of computing operations between several systems and how to convert between them Understand the basic principles of logic gates Discovering and analyzing circuits with their simplification Know the basic principles of combinational and series circuits
2	9-10-22	Number systems (BCD, excess-3, gray code)	5	
3	16-10-22	Number systems (conversions, operations, complement's)	5	
4	23-10-22	Logic gates (AND, OR, NOT)	5	
5	30-10-22	Logic gates (NAND, NOR, XOR, XNOR)	5	
6	6-11-22	Logic gates (logic Simplification (Boolean, Demorgan's theorem))	5	
7	13-11-22	Karnaugh maps (2-variables, 3-variables)	5	
8	20-11-22	Karnaugh maps (4-variables, 5-variables)	5	
9	27-11-22	Karnaugh maps (SOP, POS, don't care)	5	
10	4-12-22	Arithmetic operations (adder, parallel binary adder)	5	
11	11-12-22	Arithmetic operations (subtractor)	5	
12	18-12-22	Arithmetic operations (decoder, encoder)	5	
13	25-12-22	Arithmetic operations (multiplexer, demultiplexer)	5	
14	1-1-23	Arithmetic operations (comparator)	5	
15	8-1-23	Arithmetic operations (code conversion)	5	
16	15-1-23	Flip-flops (SR latch, D latch)	5	
17	5-3-23	Flip-flops (T-latch, J-K F.F)	5	
18	12-3-23	Flip-flops (edge triggered)	5	
19	19-3-23	Flip-flops (conversion from one type to another)	5	
20	26-3-23	Counters (asynchronous)	5	
21	12-3-23	Counters (synchronous)	5	
22	19-3-23	Counters (decade, up/down)	5	
23	26-3-23	Counters (cascade, counter decoding)	5	
24	2-4-23	Shift-registers (serial in/serial out, serial in/parallel out, parallel in/ serial out, parallel in/parallel out)	5	
25	9-4-22	Shift-registers (bidirectional , shift register counter (Johnson counter, Ring counter))	5	
26	16-4-22	Multivibrators (definition, astable, bistable,)	5	

27	**23-4-22**	Multivibrators (monostable, 555 timer)	**5**	
28	**30-4-23**	A/D and D/A convertors (R/2R DAC, R/2nR DAC,flash ADC)	**5**	
29	**7-5-23**	A/D and D/A convertors (tacking ADC, slope ADC ,successive approximation ADC)	**5**	
30	**14-5-23**	A/D and D/A convertors (digital ramp ADC,delta sigma ADC)	**5**	

Lecturer signature **Head of Department Signature**