



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية



Module Information				
معلومات المادة الدراسية				
Module Title	Digital Logic		Module Delivery	
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar	
Module Code	CSIT1104			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		1
Administering Department	Cybersecurity	College	College of Computer Science & Information Technology	
Module Leader	Nabil Sadiq Abdul abbas		e-mail	nabeel@uowa.edu.iq
Module Leader's Acad. Title	Assist Lecturer	Module Leader's Qualification	M.Sc	
Module Tutor	Nabil Sadiq Abdul abbas		e-mail	nabeel@uowa.edu.iq
Peer Reviewer Name	Dr. Ali Kareem	e-mail	alialmujab@uowa.edu.iq	
Scientific Committee Approval Date	23/9/2026	Version Number	V1	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Non	Semester	...
Co-requisites module	Non	Semester	...

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Department Head Approval

Dean of the College Approval

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	This course aims to give fundamentals of the number systems arithmetic and representation. The course focuses on binary numbers, because the machine language is represented as binary patterns. After understanding the machine signals (zero and one), the course deals with logical gates, Boolean algebra and logical expression, and digital system design.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Knowing the numerical number systems used in logical circuits and performing arithmetic operations on them. 2. Knowledge of logical circuits and their design methods. 3. Simplify logic circuits by simplifying their equations. 4. Full knowledge of digital meters, dividers, and other electronic circuits. 5. Full knowledge of the use of signs and their representation in binary numbers. 6. Full knowledge of how to convert between number systems used in numerical operations. 7. How to integrate digital portals together and methods of calculating their outputs. 8. Design counters and dividers and link them together
Indicative Contents المحتويات الإرشادية	Logic gates are based on Boolean algebra [50 hrs]. At any given moment, every terminal is in one of the two binary conditions, false or true. False represents 0, and true represents 1. Depending on the type of logic gate being used and the combination of inputs, the binary output will differ [50 hrs]. Direct contact with students in theoretical or practical sessions for different subjects such as (Standard Forms of Boolean Expressions, Boolean Expressions and Truth Tables, The Karnaugh Map, Karnaugh Map SOP Minimization, Karnaugh Map POS Minimization, Basic Combinational Logic Circuits) [70 hrs].

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	various strategies can be employed to facilitate effective learning and engagement. Here are some learning and teaching strategies commonly used, Lectures: Delivering lectures to present theoretical concepts, principles, and foundational knowledge. Interactive Discussions: Encourage students to actively participate in discussions by asking questions, sharing their thoughts, and engaging in peer-to-peer learning. Discussions can focus on challenging concepts. Hands-on Lab Sessions: Conduct practical lab sessions where students can gain hands-on experience. Assessments and Feedback: Use a variety of assessment methods such as quizzes, assignments, projects, and exams to evaluate students' understanding

Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	5	10% (10)	7,12	1 to 5
	Assignments	2	5% (5)	11	3,6
	Lab.	10	15% (15)	1-10	All
	Projects / Pr.	1	5% (5)	14	All
	Seminar	2	5% (5)	15	2,3
Summative assessment	Midterm Exam	2hr	10% (10)	7	
	Final Exam	3hr	50% (50)	17	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Number Systems, Binary Numbers, Decimal-to-Binary Conversion
Week 2	Binary Arithmetic, Complements of Binary Numbers
Week 3	Signed Numbers, Arithmetic Operations with Signed Numbers
Week 4	Hexadecimal Numbers, Binary Coded Decimal (BCD) 100, Digital Codes
Week 5	Logic Gates
Week 6	Fixed-Function Logic Gates
Week 7	Boolean Operations and Expressions, Laws and Rules of Boolean Algebra
Week 8	Midterm Exam
Week 9	Standard Forms of Boolean Expressions

Week 10	Boolean Expressions and Truth Tables
Week 11	The Karnaugh Map
Week 12	Karnaugh Map SOP Minimization
Week 13	Karnaugh Map POS Minimization
Week 14	Basic Combinational Logic Circuits
Week 15	Implementing Combinational Logic
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Number Systems
Week 2	Logic Gates
Week 3	And , OR gates
Week 4	Arithmetic operation gate
Week 5	Addition, subtraction operations
Week 6	multiplication and division process
Week 7	XOR, XNOR gates
Week 8	Design for logic circuits
Week 9	convert from logic circuits to truth table
Week 10	Timing diagram
Week 11	The Karnaugh Map
Week 12	Karnaugh Map SOP Minimization
Week 13	Karnaugh Map POS Minimization
Week 14	Basic Combinational Logic Circuits
Week 15	Implementing Combinational Logic

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Thomas L. Floyed, “Digital Fundamentals”	
Recommended Texts	Digital Fundamentals 11 th Edition, 2015	
Websites	http://www.sasurieengg.com/e-course-material/I-year-E-course-material-II-sem/7.CS6201%20-DPSD.pdf https://www.scribd.com/doc/219587519/Digital-Principles-and-System-Dsign https://www.vidyarthiplus.com/vp/thread-17782.html#.WFrbFN96po	

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				