

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Microprocessor		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	ATU11505		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGIII	Semester of Delivery	
Administering Department		College	NETC
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	Name (if available)	e-mail	
Peer Reviewer Name	Nasir Hussein Selman	e-mail	Coj.nas@atu.edu.iq
Scientific Committee Approval Date	01/05/2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To view the development of microprocessor. 2. To study the hardware of 8085 microprocessor. 3. To learn programing the 8085 microprocessor. 4. To introduce some applications of 8085 microprocessor.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding hardware of 8085 microprocessor. 2. Programming 8085 microprocessor. 3. Understanding machine language. 4. Understanding the buses types in microprocessor. 5. Studying the interfacing between microprocessors and memories blocks
Indicative Contents المحتويات الإرشادية	1. 8085 microprocessor hardware. 2. 8085 microprocessor Programming. 3. Addressing modes. 4. Counter design using 8085 microprocessor.

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some

	sampling activities that are interesting to the students.
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Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	93	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	57	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	
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	2	10% (10)	5 and 9	LO #1, #2, and #4, #5
	Assignments	2	10% (10)	2 and 12	LO #3 and #5
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #2 and #3
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المناهج الاسبوعي النظري	
	Material Covered
Week 1	Architecture of 8085 microprocessor: development of microprocessors; block diagram; registers; ALU; control unit.
Weeks 2 &3	Pin out of 8085 microprocessor: Buses system; Control signals; some of digital circuits connected with 8085 microprocessor.
Weeks 4 &5	Timing Diagram: clock signals; 8085 microprocessor machine cycles; instruction fetch and execute cycle
Weeks 6 &7	Interrupts: definition of interrupts; interrupts types; overall structure of interrupts; operation of interrupts instructions.
Week 8	Stack and subroutine: definition of stack memory; PUSH & POP instructions; subroutine concepts and instructions; subroutines writing.
Week 9	Time delay and counters: time delay types; counter design using programming.
Week 10	Mid-Term Exam
Week 11	Addressing Modes: definitions of addressing modes; 8085 mic. addressing modes.
Weeks 12-13	Memories: types of memory; storage element; memory addressing; multi chips memory; interfacing between 8085 mic. and memory chips.
Week 14	I/O device interfacing: I/O ports; IN & OUT instructions; connections between 8085 mic. and I/O ports
Week 15	8086 microprocessor: block diagram; architecture; pin out; Introduction to programming.
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Understanding the kit program
Week 2	Data transfer operations
Week 3	Arithmetic operation (8-bit summation & subtraction)
Week 4	Arithmetic operation (16-bit summation & subtraction)
Week 5	logic operation (AND, OR & EX-OR operations)
Week 6	Clear of set memory locations
Week 7	Summation of set memory locations contents
Week 8	Counting even numbers
Week 9	Summation of odd order numbers
Week 10	Mid-Term Exam
Week 11	Finding largest number
Week 12	BCD to binary & binary to BCD conversion.
Week 13	I/O ports connection
Week 14	Controlling LED matrix using 8085 mic.
Week 15	Controlling stepper motor using 8085 mic.
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1- Microprocessor Architecture, Programming and Applications with 8085, Ramesh S. Goankar, 5th Edition, Prentice Hall	yes
Recommended Texts	1- Microprocessors, Atul P. Godse & Deepali A. Godse	yes
Websites		

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.