MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td colspan="2" align="center">Computer Organization</td><td>Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2" align="center">Core</td><td rowspan="4">☒Theory
☒Lecture
☒Lab
☐Tutorial
☐Practical
☐Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2" align="center">COM-123</td></tr>
<tr><td>ECTS Credits</td><td colspan="2" align="center">6</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2" align="center">125</td></tr>
<tr><td>Module Level</td><td>1</td><td>Semester of Delivery</td><td>2</td></tr>
<tr><td>Administering Department</td><td>Comp</td><td>College</td><td>COS</td></tr>
<tr><td>Module Leader</td><td>Bashar Talib AL-Nuaimi</td><td>e-mail</td><td>Alnuaimi _bashar@uodiyala.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Ass. Prof.</td><td>Module Leader's Qualification</td><td>Ph.D.</td></tr>
<tr><td>Module Tutor</td><td>Name (if available)</td><td>e-mail</td><td>E-mail</td></tr>
<tr><td>Peer Reviewer Name</td><td>Name</td><td>e-mail</td><td>E-mail</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>01/06/2023</td><td>Version Number</td><td>1.0</td></tr>
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<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>Prerequisite module</td><td>COM-114</td><td>Semester</td><td>1</td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
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Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- To impart basic concepts of computer architecture and organization, 2- To explain key skills of constructing cost-effective computer systems. 3- To familiarize the basic CPU organization. 4- To help students in understanding various memory devices. 5- To facilitate students in learning IO communication
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Identify various components of computer and their interconnection 2- Identify basic components and design of the CPU: the ALU and control unit. 3- Compare and select various Memory devices as per requirement. 4- Compare various types of IO mapping techniques 5- Critique the performance issues of cache memory and virtual memory
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. The module focuses on computer system hardware and how it is used to facilitate the execution of software, including topics such as data representation, digital logic, assembler, memory systems, I/O and microprocessor architecture. The aim of the module is to provide students with an understanding of the functional components of a computer system and how they are organised to facilitate execution. Student will also gain a range of practical skills in the application and construction of computer components that are capable of interfacing with microprocessors. This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ. Data Representation: Analog and digital data; number systems including number representations and conversions; binary variables including logic expressions and simplifications of binary variables; binary arithmetic, signed numbers; arithmetic structures, multiple precision arithmetic, Microprocessor architecture; instruction cycles, register transfer language (RTL); instruction set and addressing modes; assembly and machine code programming. Input/Output Mechanisms: Parallel I/O; memory-mapped and programmable I/O devices, eg VIA; I/O scheduling including programmed I/O, interrupt driven I/O, direct memory access (DMA); analog I/O. Memory systems: Motivation for memory hierarchy; devices including magnetic tape, floppy disks, disk formats, hard disks, optical data storage; elementary error detection and correction. Processor Architecture: Example combination of ALU, registers, and CPU; instruction set construction; control units including hardwired and microprogrammed control units.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Type something like: 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.

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**125**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	4 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to computer systems Main parts of computer system, organization and architecture
Week 2	Von Neumann architecture
Week 3	Computer generations
Week 4	Data presentation
Week 5	Introduction to Computer components (motherboard components in details (i.e cpu and memory details))
Week 6	INPUT OUTPUT SYSTEM: I/O Devices, Video Color Models
Week 7	CPU, CPU basic organization, Control units
Week 8	MEMORY SYSTEM, Memory hierarchy,
Week 9	Mid-term Exam
Week 10	Cache memory, Primary memory, Secondary memory, memory addressing,
Week 11	Semiconductor RAM Memories, Read Only Memories, Speed, Size, and Cost,
Week 12	Introduction to Secondary Storage
Week 13	Hard disk and magnetic drive
Week 14	Computer s/w
Week 15	Machine language, high level language
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1 Introduction to computer systems
Week 2	Lab 2: Overview of computer hardware and software
Week 3	Lab 3: Introduction to windows
Week 4	Lab 4: Shortcuts and Start menu.
Week 5	Lab 5: Open WordPad from the shortcut on the desktop. Open WordPad from the Start menu
Week 6	Lab 6: Introduction to Notepad and WordPad. Typing a letter. Opening a file and saving a file
Week 7	Lab 7: Opening a text document from a CD. Correcting a text document
Week 8	Lab 8: Mid-term Exam
Week 9	Lab 9: Working with multiple windows. Opening a document from a CD
Week 10	Lab 10: Creating a folder and saving a document to that folder. Deleting a file. The Recycle Bin.

Week 11	Lab 11: formatting windows
Week 12	Lab 12: Desktop Customizations
Week 13	Lab 13: Control Panel
Week 14	Lab 14: Internet and Computer Networks
Week 15	Preparatory week before the final Exam
Week 16	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Computer Architecture: A Quantitative Approach (5th edition) by J.L. Hennessy and D.A. Patterson (Morgan Kauffmann Publishers)	Yes
Recommended Texts	Computer System Architecture by M. Morris Mano (Pearson Publication)	No
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.