

**Ministry of Higher Education and Scientific Research Scientific
Supervision and Scientific Evaluation Apparatus Directorate of
Quality Assurance and Academic Accreditation Accreditation
Department**



Academic Program and Course Description Guide

2025-2026

Academic Program Description Form

University Name: Wasit University

Faculty/Institute: College of Computer Science and Information Technology

Scientific Department: Computer Science Department

Academic or Professional Program Name: Bachelor's degree. Computer Science

Final Certificate Name: Bachelor of Science in Computer Science

Academic System: Semesters (First Semester)

Description Preparation Date: 22/9/2025

File Completion Date: 1/10/2025

Signature:

Head of Department Name:

Dr. Mohamed H. Galeb

Date: 1/10/2025

Signature:

Scientific Associate Name:

Dr. Abdul Hadi M. Alaidi

Date: 1/10/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:


Approved of the Dean
Saif Ali Alsaadi
Dean College of Computer Science
& Information Technology

1/10/2025

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fundamentals of Programming 1		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☒ Seminar
Module Code	cs-101		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	UGI	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Abdul Hadi Mohammed	e-mail	alaidi@uowasit.edu.iq
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	22/9/2025	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	The objective of this module is to introduce students to the fundamentals of programming using Python. The course aims to develop logical thinking and problem-solving skills by teaching core programming concepts such as variables, data types, control structures, functions, and basic data structures. It also seeks to familiarize students with writing clean, readable, and well-structured Python code that can be applied to simple computational problems and real-world scenarios. Upon completion of this course, the student will be able to: 1. Understand computers and classify programming languages. 2. Write simple Python program. 3. Learn data types, variables, arithmetic operators, assignment and input statements. 4. Learn relational operators and logical expressions. 5. Using selection in program like if/if...else, block statements, switch structures. 6. Develop executable programs by using repetition control structures: While Looping, Do...while Looping, For Looping, Break and continue Statements. 7. Learn how to define String type with string Operations
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this module, students will be able to write and execute Python programs to solve basic programming problems. They will demonstrate an understanding of fundamental programming constructs, including conditional statements, loops, functions, and basic data structures such as lists and dictionaries. Students will also be able to debug simple programs, use built-in Python libraries, and apply problem-solving strategies to develop efficient and correct solutions.
Indicative Contents المحتويات الإرشادية	The module covers an introduction to programming concepts and the Python programming environment. Topics include Python syntax and semantics, variables and data types, input and output operations, conditional statements, looping constructs, define String type with string Operations.

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,
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	homework's and examples. Practical examples help students to understand the course material.
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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	136	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	200		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	10% (10)	5 and 10	LO #1-#5 and #5-#10
	Assignments	1 week / 3	10% (10)	2,6 and 12	LO #2, #6 and, #12
	Projects / Lab.	3 month / 2	10% (10)	Continuous	All
	Report	1 month / 1	10% (10)	13	All
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	LO #1 - #6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Programming
Week 2	Python programming environment, syntax, and semantics, Assignments.
Week 3	Declaration and use of variables, numeric types, and type conversion
Week 4	Reading input from the user and displaying formatted output
Week 5	Decision-making using <code>if</code> , <code>if-else</code> , and nested conditions, Quizzes
Week 6	Iteration using <code>for</code> loops and <code>while</code> loops, Assignments.
Week 7	Mid-term Exam
Week 8	Definition of string data type and basic string operations
Week 9	String indexing, slicing, concatenation, formatting, and common methods
Week 10	Definition of lists, creating lists, indexing, slicing, updating elements, and common list operations, Quizzes.
Week 11	Introduction to tuples, immutability, indexing, and basic tuple operations
Week 12	Definition of dictionaries, key–value pairs, creating dictionaries, accessing, updating, and deleting elements, Assignments.
Week 13	Common dictionary methods, looping through keys and values, and practical use cases
Week 14	Definition of sets, creating sets, uniqueness of elements, and basic set operations
Week 15	Union, intersection, difference, and membership testing
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
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Week 1	Introduction to the Python environment, installing Python, and writing the first simple program
Week 2	Basic input and output operations and simple arithmetic expressions
Week 3	Working with variables and data types, including type conversion
Week 4	Applying of Arithmetic Operators - Relational Operators - Logical Operators – Assignment Operators,
Week 5	Implementing conditional statements using <code>if</code> , <code>elif</code> , and <code>else</code>
Week 6	Implementing iteration using <code>for</code> loops, Implementing iteration using <code>while</code> loops
Week 7	Mid-term Lab Test
Week 8	Working with strings: indexing, slicing, and common string operations
Week 9	Implementing and manipulating lists
Week 10	Working with dictionaries: key–value operations
Week 11	Implementing set data structures and set operations
Week 12	Introduction to lists: creation, indexing, slicing, and basic list operations
Week 13	Introduction to dictionaries: key–value pairs, creation, and access methods, Dictionary operations: insertion, deletion, updating values, and iteration
Week 14	Introduction to sets: creating sets and understanding uniqueness, Set operations: union, intersection, difference, and symmetric difference
Week 15	Combined use of lists, dictionaries, and sets in problem-solving tasks

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to Programming Using Python by Liang, Y. D. (2013), Pearson.	yes
Recommended Texts	Programming and problem solving with Python: comprehensive sixth edition, Nell Dale and Chip Weems. Computer Science Textbook class XI, First Edition, 2019. Python Primer Plus, Sixth Edition	yes

Websites	https://alaidi.net/ https://realpython.com/
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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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Computer Fundamentals		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	cs-102			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	UGI	Semester of Delivery		
Administering Department	Computer science	College	CSIT	
Module Leader	Zainab mohanad issa ansaf		e-mail	zansaf@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PHD	
Module Tutor		e-mail	E-mail	
Peer Reviewer Name		e-mail	E-mail	
Scientific Committee Approval Date	22/9/2025	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	Computer fundamentals refer to the way in which the hardware components of a computer system are arranged and interconnected. It implements the provided computer architecture and covers the “How to do?” aspect of computer design. The aim of computer organization is to provide a clear understanding of the operation of a computer system.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• Discussing the fundamentals of computer-based systems and how a range of design choices are influenced by applications • Understanding different processor architectures and system-level design processes and microprocessor bus. • Understanding the structure, function and characteristics of computer systems. • Understanding the design of the various functional units and components of computers. • Identifying the elements of modern instructions sets and their impact on processor design. • Explaining the function of each element of a memory hierarchy. • Identifying and comparing different methods for computer I/O. • Grasping the basic elements of logic circuits and other higher-level modules. • Demonstrating computer organization & its programming consideration.
Indicative Contents المحتويات الإرشادية	1. Introduction to Computer Organization: - o Basic concepts and terminology in computer organization. - o Historical development and evolution of computer generation. 2. Data Representation and Arithmetic: - o Number systems: binary, decimal, hexadecimal. - o Signed and unsigned integer representation. 3. Central Processing Unit (CPU): - o Instruction set architecture (ISA) and machine language. - o CPU organization and components. - o Control unit, instruction fetching, and execution , microprocessor bus. 5. Memory Systems: - o Memory hierarchy and storage technologies. - o Cache memory organization, principles, and mapping techniques. - o Main memory organization and addressing modes. - o External memory. 6. Input/Output (I/O) Systems: - o I/O devices, interfaces, and data transfer methods. - o Interrupt handling and interrupt-driven I/O. - o Direct Memory Access (DMA) and its role in data transfer. 7. Pipeline Processing: - o Instruction pipelining concepts and stages. - o Hazards and techniques for hazard detection and resolution. - o Performance metrics and improvements in pipeline processing. 8. Parallel Processing and Multiprocessor Systems: - o Concepts of parallel processing and its benefits. - o Types of parallel architectures: SIMD, MIMD,

	and multicore. o Interconnection networks and communication among processors. 9. Performance Evaluation and Optimization: o Performance metrics and measurement techniques. o Bottleneck identification and performance analysis. o Techniques for optimizing computer system performance. 10. Emerging Trends and Advanced Topics: o Advanced topics in computer organization, such as superscalar processors, out-of-order execution, and speculative execution. o Emerging technologies and their impact on computer organization, such as quantum computing and computing.
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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 للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (hr/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (hr/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (hr/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (hr/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (hr/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Computer fundamentals , Overview of computer systems and the computer generation
Week 2	Part of computer and classification of computer
Week 3	Input and output devices
Week 4	Central Processing Unit (CPU)
Week 5	Instruction set architecture (ISA) and machine language, Quizzes.
Week 6	CPU organization and components, Assignments.
Week 7	Control unit and instruction execution and microprocessor bus & (mid-term exam)
Week 8	Memory Hierarchy
Week 9	Internal memory
Week 10	Cache memory: principles, levels, and mapping techniques, Quizzes.

Week 11	External memory
Week 12	Pipelining and Superscalar Techniques, Assignments.
Week 13	Multiprocessors and Parallel Computer Architecture.
Week 14	Performance Evaluation and Benchmarking
Week 15	Reviewing lessons before the final exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction about the PC
Week 2	Introduction software system
Week 3	Principle of windows
Week 4	Microsoft office
Week 5	Office Word
Week 6	Office word
Week 7	Office word
Week 8	Office word
Week 9	Power point
Week 10	Power point
Week 11	Excel sheet
Week 12	Excel sheet
Week 13	Hardware parts
Week 14	Hardware parts

Week 15	Exam
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Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1. Tanenbaum,A.S.,& Austin, T.(2012).structured computer organization (6 th ed.) pearson education. 2. Patterson, D. A.&Hennessy,J.L.(2017).computer organization and design : the hardware/software interface (5 th ed.).morgan kaufmann.	Yes
Recommended texts	Hennessy,J.L.,Patterson ,D.A.(2019). Computer architecture : a quantitative approach (6 th ed.).morgan kaufman.	No
websites	https://api.pageplace.de/preview/DT0400.9780273775331_A24590434/preview-9780273775331_A24590434.pdf	

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Discrete Structures		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar
Module Code	cs-103		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	GUI	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Esraa Hashem Yahya	e-mail	elamiri@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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. The student will become familiar with the subject's concepts and the main approaches to studying it. 2. Mathematical Logic: Propositions, logical statements, and truth tables. 3. Sets and Relations: Operations on sets, functions, and different types of relations. 4. Graph Theory: The study of graphs and them applications in networking and programming. 5. Number Theory: Dealing with integers and their properties. 6. Mathematical Induction: Various techniques of mathematical proof.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Teaching the student the basic principles of differential and integral calculus (variance, slope, the relationship between derivative and continuity, logarithm, functions and their types) that help in describing and interpreting the phenomena of natural motion and preparing the student on how to explain or interpret these phenomena and their laws. . How to use this knowledge to benefit from the applications available in life Explaining real examples that the student experiences in his life
Indicative Contents المحتويات الإرشادية	The concept of logic and their properties The concept of sets The concept of operation on sets The concept of cardinality The concept of cartesian product The concept of partisan sets The concept of quantifier properties The concept of domain and range Expression properties of binary relations Expression the composition of relations The concept of mathematical induction

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Discrete structures are a branch of mathematics and computer science that deals with discrete entities, that is, entities that cannot be continuously divided. These structures include things like integers, graphs, mathematical logic, sets, relationships, combinatorics, and graph theory. Mathematics facilitates the exploration of the universe and the development of science, and it fosters logical and critical thinking. It equips learners with the skills to solve problems systematically and logically. Arab and Muslim mathematicians have made significant contributions to the development of this science.

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	102	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	7
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	10 minutes / 2	20% (20)	5 and 10	LO #1-#5 and #5-#10
	Assignments	1 week / 2	10% (10)	6 and 13	LO #1-#6 and #8-#13
	Projects / Lab.				
	Report	1 month / 1	10% (10)	13	All
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	LO #1 - #6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	The concept of logic and their properties
Week 2	The concept of sets

Week 3	Explain the concept of sets and their properties
Week 4	The concept of operation on sets (union, intersection)
Week 5	The concept of principle, Quizzes.
Week 6	The concept of cartesian product, Assignments.
Week 7	Mid-term Exam
Week 8	The concept of partisan sets
Week 9	The concept of cardinality
Week 10	The concept of quantifier properties, Quizzes.
Week 11	The concept of domain and range
Week 12	Expression properties of binary relations
Week 13	Expression the composition of relations, Assignments
Week 14	The concept of power set
Week 15	The concept of mathematical induction
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	K. H. Rosen, <i>Discrete Mathematics and Its Applications</i> , 8th ed. New York, NY, USA: McGraw-Hill Education, 2018.	Yes
Recommended Texts	S. S. Epp, <i>Discrete Mathematics with Applications</i> , 5th ed. Boston, MA, USA: Cengage Learning, 2018.	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
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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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Mathematics 1		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	cs-104		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	GUI	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Ahmed Mohammed idkeel	e-mail	Ah.adkheel@uowasit.edu.iq
Module Leader's Acad. Title	Assistant lecturer	Module Leader's Qualification	MSc
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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	This course examines the mathematical elements of computer science. Topics include proposed logic; predicative logic; mathematical logic; proof techniques; mathematical inference; set theory; number theory; matrices; sequences and combinations; functions, relations, and their properties; elementary graph theory; and trees.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students will calculate limits, derivatives, and integrals of single-variable functions, manipulate matrices and complex numbers, and apply these core analytical techniques to solve practical engineering and scientific problems
Indicative Contents المحتويات الإرشادية	In general, mathematics is the study of numbers, quantities, and shapes. It is a subject used in everyday life and is essential in many professions such as engineering, science, and finance.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy to be adopted in delivering this unit is to encourage student participation in exercises, while simultaneously refining and expanding their critical thinking skills. This will be achieved through interactive classroom and educational programs, and by considering simple experiments that include some interesting sampling activities for students
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	102	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	7
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	20% (20)	5 and 10	LO #1-#5 and #6-#10
	Assignments	2	10% (10)	6 and 12	LO #1-#6 and #8-#12
	Projects / Lab.				
	Report	1	10% (10)	13	All
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	Solution of non-linear equations, Newton Raphson method for approximating, Lagrange approximation.
Week 2	Numerical differentiation and numerical integration, The Solutions of Integral equations, Trapezoidal method Simpsons method
Week 3	Simpsons method(3/8)
Week 4	Fourier series for odd and even functions, Half range Fourier sin and cosine series
Week 5	Change of interval, Quizzes.
Week 6	Formation of Partial differential equations Assignments.
Week 7	Mid-term Exam
Week 8	Types of partial differential equations,wave equation,heat equation

Week 9	Numerical differentiation, Euler method, modified Euler method
Week 10	Rung Kutta method, Rung Kutta- merson method, Quizzes.
Week 11	Numerical analysis, Elimination and iterative methods
Week 12	Cramer's rule, solve by inverse matrices, Assignments.
Week 13	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas Calculus”, 12thED, George B. Thomas Jr., Maurice D. Weir, Joel R. Hass, 2009 Differential Equations (Schaum’s Outlin Series).	Yes
Recommended Texts	Calculus (Haward Anton)	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	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	English Language 1		Module Delivery	
Module Type	Support		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	WUO2			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGI	Semester of Delivery		one
Administering Department	Computer science	College	CSIT	
Module Leader	HAYDER ZAIBIL MAREEDH AL_SHIHMANI		e-mail	drtghy73@gmail.com
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	MSc	
Module Tutor	HAYDER ZAIBIL MAREEDH AL_SHIHMANI		e-mail	drtghy73@gmail.com
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date	22/9/2025	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	This module aims to enhance students' English language proficiency through the Headway Plus coursebook, with particular emphasis on communicative competence, grammar reinforcement, and extended practice. The course develops the four core language skills—listening, speaking, reading, and writing—while strengthening students' confidence in using English for academic and everyday communication.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon successful completion of this module, students will be able to: 1. Comprehend spoken and written texts aligned with the Headway Plus level. 2. Use core grammatical structures accurately through extended and supported practice. 3. Apply a broad range of functional and academic vocabulary in context. 4. Communicate orally with improved fluency and accuracy in guided and semi-guided tasks. 5. Produce well-structured written paragraphs and short texts using appropriate language forms. 6. Interpret and respond to reading passages using effective comprehension strategies. 7. Participate actively in pair and group communicative activities. 8. Demonstrate increased learner autonomy through self-study and revision tasks.
Indicative Contents المحتويات الإرشادية	• Diagnostic review of basic English skills • Grammar consolidation and expansion (Headway Plus focus) • Vocabulary enrichment and functional language • Reading comprehension (extended texts from Headway Plus) • Listening practice using Headway Plus audio materials • Speaking activities: role-plays, discussions, and presentations • Writing skills: guided and semi-free compositions • Integrated skills practice and cumulative revision units

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	• Interactive and student-centered lectures • Communicative Language Teaching (CLT) approach
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	• Task-based learning and extended practice activities • Pair and group work • Audio-visual learning using Headway Plus digital resources • Continuous formative assessment and feedback
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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1-#5 and #6- #10
	Assignments	2	10% (10)	6 and 13	LO #1-#6 and #8-#13
	Projects / Lab.				
	Report	1	10% (10)	13	all
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	Week Material Covered
Week 2	Course orientation; diagnostic assessment; introduction to Headway Plus; review of basic sentence structure
Week 3	Present Simple & Present Continuous; daily routines; vocabulary for everyday activities
Week 4	Past Simple; regular and irregular verbs; reading: short narratives
Week 5	Past Continuous; describing past events; listening and speaking practice, Quizzes.
Week 6	Present Perfect; life experiences; vocabulary expansion, Assignments.
Week 7	Comparison of tenses (Past Simple vs. Present Perfect); integrated skills practice
Week 8	Mid-Term Exam
Week 9	Future forms (will, going to, present continuous); planning and predictions
Week 10	Modal verbs (can, could, must, should); advice and obligation, Quizzes.
Week 11	Countable & uncountable nouns; articles; functional language
Week 12	Reading skills: skimming and scanning; extended Headway Plus texts
Week 13	Writing skills: paragraph structure; guided and semi-guided writing, Assignments.
Week 14	Speaking skills: role-plays, discussions, and presentations
Week 15	Integrated skills revision; grammar and vocabulary consolidation
Week 16	Practice tests; exam-oriented activities; feedback and clarification

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Soars, J., & Soars, L. Headway Plus (appropriate level). Oxford University Press.	Yes
Recommended Texts	Headway Plus Workbook (corresponding level) • Oxford Online Practice and Skills Resources	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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Human Rights & Democracy		Module Delivery	
Module Type	support		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	WUO4			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGI	Semester of Delivery		one
Administering Department	Computer science	College	CSIT	
Module Leader	ahmed kudhaer		e-mail	E-mail: gl1207@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	22/9/2025	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- تعزيز قيم التسامح والاحترام بين الطلبة مهما اختلفت آراؤهم او دياناتهم 2- تعريف الطلبة بحقوقهم وواجباتهم مثل الحق في التعليم والحرية والكرامة 3- تنمية روح المشاركة والمسؤولية من قبيل الحوار والتصويت

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- تنمية قيم الاحترام والتسامح 2- تعزيز روح المشاركة والديمقراطية 3- اكتساب المعرفة بحقوق الانسان
Indicative Contents المحتويات الإرشادية	بلا

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	استخدم طرق متنوعة لتعليم الطلبة المفردات المتعلقة بحقوق الانسان من قبيل المحاضرات والسمنرات والتقارير فضلا عن الحلقات النقاشية والكوزات
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1-#5 and #6- #10
	Assignments	2	10% (10)	6 and 13	LO #1-#6 and #8-#13

	Projects / Lab.				
	Report	1	10% (10)	13	all
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)	Total assessment	100% (100 Marks)

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	مقدمة تعريفية عن مفردات حقوق الانسان والديمقراطية
Week 2	أهمية وخصائص حقوق الانسان
Week 3	حقوق الانسان في دستور جمهورية العراق لعام 2005
Week 4	السياق التاريخي لحقوق الانسان
Week 5	حقوق المرأة والطفل والشباب، اختبار مفاجئ
Week 6	حقوق ذوي الإعاقة والأقليات، واجبات
Week 7	Mid-term Exam
Week 8	الاتفاقيات الدولية لحماية جميع الأشخاص من الاختفاء القسري 2006
Week 9	الانتهاكات الجسيمة لحقوق الانسان في الفترة السابقة لعام 2003
Week 10	الانتهاكات الجسيمة لحقوق الانسان بعد العام 2003، اختبار مفاجئ
Week 11	التحديات التي تواجه حقوق الانسان
Week 12	مفهوم الديمقراطية ونشاته التاريخية
Week 13	أنماط الديمقراطية وتطورها، واجبات
Week 14	الأحزاب السياسية، المفهوم والأنواع

Week 15	أدوار المجتمع المدني، وجماعات الضغط
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	حقوق الانسان والديمقراطية/ منهج دراسي لطلبة المرحلة الأولى في الجامعات العراقية	نعم
Recommended Texts		
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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Object-Oriented Programming 1		Module Delivery
Module Type	core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☐ Seminar
Module Code	cs-201		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Huda lafta majeed	e-mail	hulafta@uowasit.edu.iq
Module Leader's Acad. Title	Ass. Professor	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	cs-101, cs-121	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives	1- The module aims to introduce fundamental object-oriented programming concepts using C++, focusing on classes, objects, inheritance, and

أهداف المادة الدراسية	polymorphism, while enhancing problem-solving skills. 2- Students will learn to design, implement, and debug C++ programs using best practices in object-oriented design.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students will be able to apply object-oriented programming principles in C++ to design and develop efficient software solutions, utilizing classes, inheritance, polymorphism, and encapsulation. They will also be able to debug, test, and optimize C++ programs for real-world applications.
Indicative Contents المحتويات الإرشادية	The "Object-Oriented Programming 1 (C++)" module covers essential C++ syntax, control structures, and functions, along with foundational object-oriented principles such as classes, objects, inheritance, and polymorphism. Advanced topics include operator overloading, exception handling, and file I/O. Practical programming exercises reinforce the application of these concepts in real-world scenarios.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategy for delivering the "Object-Oriented Programming 1 (C++)" module is to foster active student engagement through hands-on programming exercises, encouraging practical application of concepts. This will be achieved through a combination of lectures, interactive coding tutorials, and real-world problem-solving tasks, helping students refine their coding abilities while developing critical thinking skills. Collaborative projects and continuous feedback will further support the learning process
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)	Total assessment	100% (100 Marks)

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Overview for functions and parameter transmission, inline functions
Week 2	function overloading and default arguments Week
Week 3	3 Introduction to OOP and its main features
Week 4	Defining a Simple Class
Week 5	Defining a Simple Class, with inline Member Functions, Quizzes.
Week 6	Constructors and destructors functions, Assignments.
Week 7	Mid-term Exam
Week 8	Friends functions concept
Week 9	Friend class
Week 10	Constant Members and Scope Operator, Quizzes.

Week 11	Member Initialization List methods and Static members
Week 12	Class object members, Assignments.
Week 13	Class object members
Week 14	Define simple Object Array
Week 15	Object Arrays
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	C++ Program to write functions and inline function
Week 2	C++ Program to deal with function overloading and default arguments
Week 3	C++ Program to deal with function overloading and default arguments
Week 4	OO Program to define a Simple Class
Week 5	OO Program to define a Class with Inline Member Functions
Week 6	OO Program to define a Class with Inline Member Functions
Week 7	Mid
Week 8	OO Program to write Friends functions
Week 9	OO Program to write Friend class
Week 10	OO Program deals with Constant Members and Scope Operator
Week 11	OO Program deals with Member Initialization List, and Static members Week 12 OO Program deals
Week 12	OO Program deals with pointers to objects and reference members
Week 13	OO Program to write Class object members
Week 14	OO Program to write Class object members
Week 15	Final exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Joyce Farrell, "Object-Oriented Programming Using C++" , Fourth Edition, Course Technology, 2010 youry gromov	Yes
Recommended Texts	Bjarne Stroustrup, "Programming Principles and Practice Using C++", Second Edition, Addison-Wesley, 2014	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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Graphics		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	cs-202		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Hussein Khidair Ibrahim Al-Ogaili	e-mail	hkhudher@uowasit.edu.iq
Module Leader's Acad. Title	Ass.Prof.	Module Leader's Qualification	PHD.
Module Tutor	Hussein Khidair Ibrahim Al-Ogaili	e-mail	hkhudher@uowasit.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	22/9/2025	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. The student learns what is meant by computer drawing (advantages and reasons for studying it). 2. The student learns about Display Screens and types. 3. The student learns about of the screen's clarity qualities. 4. The student learns about the Elementary Figures. 5. Plotting Points, Line Drawing, Circle Drawing, 6. The student learns about Geometric Transformations 7. Two-Dimensional Transformations 8. The student learns about transformation. 9. The student learns about the factor of scaling. 10. The student learns about Clip point. 11. The student learns about Clip line 12. The student learns about Polygon Point, Polygon line. 13. The student learns about Trans formation. (Transition, Scaling, Rotation, Minor, Shear) 14. The student learns about Writing and Reading Graphics Data Files. 15. The student learns about Three-Dimensional (3-D) Graphics Coordinates systems 16. The student learns about methods of evaluating computer drawing
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Study computer graphics. 2- Show the advantages and disadvantages of computer graphics. 3- Study the characteristics of the system and its behavior 4- Know how to improve systems, study mathematical models. 5- Choose the appropriate computer graphics program. 6- Then develop computer graphics systems, then evaluate performance. 7- Analyze and learn computer graphics on the Internet.
Indicative Contents المحتويات الإرشادية	Study computer graphics and show the advantages and disadvantages of computer graphics, study the characteristics of the system and its behavior, know how to improve systems, study mathematical models, choose the appropriate computer graphics program, then develop computer graphics systems, then evaluate performance, analyze and learn computer graphics on the Internet. The student learns what is meant by computer drawing (advantages and reasons for studying it) and the student learns about Display Screens and types, so that The student learns about of the screen's clarity qualities and The student learns about the Elementary Figures. 1. Plotting Points, Line Drawing, Circle Drawing, 2. The student learns about Geometric Transformations 3. Two-Dimensional Transformations for example factor of scaling, Clip point, Clip line, Polygon Point, Polygon line, Transition, Scaling, Rotation, Minor, Shear. 4. The student learns about Writing and Reading Graphics Data Files. 5. The student learns about Three-Dimensional (3-D) Graphics Coordinates systems 6. The student learns about methods of evaluating computer drawing

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. Theoretical knowledge of the prescribed curriculum with a link to practical life through practical examples. • Guiding students to some websites to benefit from them. • Holding research seminars in which modern technologies and their uses are explained.
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Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12

	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)	Total assessment	100% (100 Marks)

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Computer Graphics (advantages and reasons for studying it).
Week 2	Display Screens and types and the screen's clarity qualities.
Week 3	factor of scaling.
Week 4	Plotting Points, Line Drawing.
Week 5	Circle Drawing, Quizzes.
Week 6	Transformation Clip line +Clip point), Assignments.
Week 7	Polygon Point.
Week 8	Polygon line.
Week 9	Two-Dimensional Transformations.
Week 10	Scaling, Rotation, Quizzes.
Week 11	Minor, Shear.
Week 12	Writing and Reading Graphics Data Files.
Week 13	Three-Dimensional (3-D), Assignments.
Week 14	Graphics Coordinates systems.
Week 15	Methods of Evaluating Computer Drawing.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: C++ Language Review
Week 2	Lab 2: Line function
Week 3	Lab 3: set color function
Week 4	Lab 4: get max color
Week 5	Lab 5: setline style function
Week 6	Lab 6: circle function
Week 7	Lab 7: arc function
Week 8	Lab 8: rectangle function
Week 9	Lab 9: ellipse function
Week 10	Lab 10: set fill style, flood fill
Week 11	Lab 11: pies lice function
Week 12	Lab 12: out text function
Week 13	Lab 13: Move to function
Week 14	Lab 14: out text xy function
Week 15	Lab :15 set text style function
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1-"Principles of Interactive Computer Graphics", William M. Newman and Robert F. Sprooull, McGraw-Hill International Book Company, 1984. 2- "Computer Graphics with Pascal", Marc Berger, the Benjamin / Cummings Publishing Company, 1986. 3- "Computer Graphics", Zhigang Xiang and Roy A. Plastock, Schaum's outline Series, McGraw-Hill Company, 1992.	Yes
Recommended Texts	"Computer Graphics C Version", Donald Hearn and M. Pauline Baker, Prentice-Hall Company, 1997.	No

Websites	https://finearts.uobabylon.edu.iq/lecture.aspx?depid=1&lcid=8755 http://adel900046.atSPACE.com/Division4.HTML http://adel900046.atSP -menggambar-aplikasi-10- https://altitudetvm.com/ar/komputer/1498 digunakan.html-mudah-paling-laptop-pc-untuk
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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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Architecture		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Practical ☒ Tutorial ☒ Seminar
Module Code	cs-203		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Zainab Mohanad issa Ansaf	e-mail	Zansaf@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PHD.
Module Tutor			
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	01/09/2024	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	cs-122	Semester	Two
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Aims: Goal: The main goal of this course is to provide students with the knowledge related to digital design, computer architecture and assembly language. Objectives: • Understand Logic gates • Design Combinational and Sequential Circuits • Write and Analyze Assembly programs
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	this course introduces students to basic concepts about computer architecture from security perspectives. Its emphasis is on the lower level abstraction of a computer system. Topics included: digital logic, instruction set, ALU design, memory and assembly language programming. The course offers programming practice with an assembly language to provide practical application of concepts presented in class
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ... A-Knowledge and understanding: with the ability to ... A1) Understand the Boolean algebra theorems and properties. A2) Understand the main concepts of gate-level minimization. A3) Understand the combinational logical circuits. A4) Understand the sequential logical circuits. A5) Understand the main components of a computer system. A6) Understand the information representation in a computer A7) Understand the main structure of an assembly language. A8) Understand the main concept of a virtual memory. B- Intellectual skills: with the ability to ... B1) Simplify Circuits B2) Convert Boolean functions into standard and canonical forms B3) Link truth table, Boolean functions and circuit diagrams together. B4) Identify the different types of circuits. B5) Identify the different types of registers. B6) Relate C programs into Assembly language. B7) Identify the different parts of a virtual memory. B8) Identify the different encoding of information. B9) Identify different types of overflow attacks. C- Subject specific skills – with ability to ... C1) Design combinational circuits C2) Design sequential circuits. C3) Develop an assembly program. C4) Analyze and Debug a C and Assembly programs. D- Transferable skills – with ability to

	D1) Debug and Analyze programs in Linux OS Components and active devices – Components vs elements and circuit modeling, real and ideal elements. Introduction to sensors and actuators, self-generating vs modulating type sensors, simple circuit interfacing. [7 hrs] Diodes and Diode circuits – Diode characteristics and equations, ideal vs real. Signal conditioning, clamping and clipping, rectification and peak detection, photodiodes, LEDs, Zener diodes, voltage stabilization, voltage reference, power supplies. [15 hrs]
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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.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية
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		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	digital Systems and Binary Numbers
Week 2	boolean Algebra and Logic Gates
Week 3	gate Level Minimization
Week 4	Combinational Circuits
Week 5	Sequential Circuits, Quizzes.
Week 6	Register and Memory, Assignments.
Week 7	Mid-term Exam
Week 8	Introduction to Computer System
Week 9	Introduction to Computer System
Week 10	Information Representation: Integer and Float, Quizzes.
Week 11	Program Representation: Data Movement and Control
Week 12	Program Representation: Function and Virtual Memory
Week 13	Program Representation: Heap and Data, Assignments.
Week 14	System Calls

Week 15	Revision
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	(1). Construct an Arithmetic Unit capable of performing 4-bit subtraction and Addition using 2's complement method. Use Parallel Adders and other necessary logic gates.
Week 2	2). Construct a logical Unit using logic gates capable of performing 4-bit, Bitwise ORing, ANDing, XORing and inversion.
Week 3	Construct an 4-bit ALU unit which can perform the following operation;
Week 4	Construct a 2-bit Carry Look Ahead Adder using logic gates.
Week 5	Study and Construct a 1-digit BCD/Decimal adder using parallel adders and other necessary logic gates
Week 6	Construct a Binary Multiplier using basic logic gates.
Week 7	Mid-term Exam
Week 8	Construct a Binary Divider using basic logic gates.
Week 9	Subtraction with 1's complement method using parallel adders and other necessary logic gates.
Week 10	Construction of BCD Subtractor with 9'S complement method using parallel adders and logic gate
Week 11	Construction of BCD Subtractor with 10'S complement method using parallel adders and logic gates
Week 12	Binary magnitude comparators (up to 4 bits) using parallel adder and logic gates
Week 13	Construct a Binary 4-bit and 8-bit adder using logic gates.
Week 14	Construct a Serial in Serial out 4-Bit register.
Week 15	Construct a 4-Bit Universal Shift register.

Learning and Teaching Resources مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	. Digital Design, M. Mano and Michael D. Ciletti, Pearson, 6th edition, 2019	Yes
Recommended Texts	Randal E. Bryant and David R. O'Hallaron, Computer Systems A Programmer's Perspective, 3rd edition, Pearson, 2016.	yes
Websites	Google, Course website: elearning.ju.edu.jo	

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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Theory of Computation		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☒ Seminar
Module Code	cs-204		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	UGII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Melad Jameel Hmood	e-mail	mieladjameel@uowasit.edu.iq
Module Leader's Acad. Title	Assistant teacher	Module Leader's Qualification	Master's
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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	The module aims to introduce the fundamental concepts of computational theory, including automata, formal languages, and Turing machines, to understand the limits of computation. Students will develop a deep

	understanding of algorithmic problem-solving and the theoretical foundations of computer science.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students will be able to analyze and classify formal languages and automata, construct and evaluate computational models, and apply the concepts of decidability and complexity. They will also be able to solve problems using Turing machines and understand the theoretical limits of computation.
Indicative Contents المحتويات الإرشادية	The indicative contents of the "Computational Theory" module include foundational topics such as formal languages, automata theory (finite automata, pushdown automata), regular and context-free grammars, and Turing machines. It also covers topics like decidability, complexity classes (P, NP), and reductions, providing a comprehensive understanding of the theoretical underpinnings of computation and problem-solving. Practical applications of computational models are explored through problem sets and case studies.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering the "Computational Theory" module is to promote conceptual understanding through a blend of theoretical instruction and practical problem-solving. This will be achieved through lectures, interactive discussions, and problem-based learning activities, encouraging students to actively engage with abstract concepts. Regular assignments and collaborative projects will help reinforce the application of theory to real-world computational challenges.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	67	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation					
تقييم المادة الدراسية					
As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	20% (20)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.				
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Computational Theory and Languages
Week 2	Regular Expressions and Properties of Regular Languages
Week 3	Regular Languages and Finite Automata
Week 4	Deterministic Finite Automata (DFA) and Non-Deterministic Finite Automata (NFA).
Week 5	Convert NFA to DFA, Convert NFA with e-move to NFA, Quizzes.
Week 6	Context-Free Languages, Context-Free Grammars (CFGs), Assignments.
Week 7	Mid-term Exam
Week 8	Regular grammar, Left linear grammar, right linear grammar
Week 9	Derivations, parse trees, and ambiguity in CFGs
Week 10	Chomsky normal form and Greibach normal form, Quizzes.
Week 11	Convert from CNF to GNF
Week 12	Pushdown Automata (PDA)
Week 13	Converting CFGs to PDAs and vice versa, Assignments.
Week 14	Turing Machine and Fundamental Concepts
Week 15	Turing Machine Modifications and Computable Sets

Week 16	Preparatory week before the final Exam
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Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1- H.R.Lewis And G.H Papadimitiou,"Elements Of The Theory Of Computation", Prentig-Hall, 1981. 2- R.W.Floyd And R.Beigel,"The Languae Of Machine:An Introduction To Computability And Formal Languages"Computer Science Press, Network,.	Yes
Recommended Texts	M.Sipser."Introduction To The Theory Of Computation" ,Boston Pws Pub ,1996.	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
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Arabic Language 2		Module Delivery
Module Type	support		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	WUO5		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	م.م. رسل داود سلمان	e-mail	E-mail
Module Leader's Acad. Title	Assistant teacher	Module Leader's Qualification	Master's
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2026	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	no	Semester	
Co-requisites module	no	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives	١- تنمية المهارات اللغوية الاساسية ٢- تنمية مهارة الاستماع وفهم المسموع
أهداف المادة الدراسية	

	٣-اتنمية مهارة التحدث بطلاقة وسلامة ٤- تنمية مهارة القراءة وفهم النصوص
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	١- فهم النصوص المسموعة واستيعاب أفكارها الرئيسية ٢- تحديد التفاصيل المهمة في الحديث ٣- التعبير عن الأفكار بوضوح ودقة ٤- استخدام لغة سليمة خالية من الأفكار الشائعة ١- معرفة قواعد اللغة العربية الأساسية النحو والصرف ٢- التعرف على أنواع الجمل الاسمية والفعلية ٣- تنمية حب اللغة العربية والاعتزاز بها
Indicative Conte المحتويات الإرشادية	١- مهارات التفكير (التحليل الاستنتاج والنقد) ٢- المهارات اللغوية (القراءة الكتابة الاستماع التحدث) ٣- تنمية الانتماء الوطني والهوية الثقافية ٤- تعزيز القيم الأخلاقية والاجتماعية

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	١- تحسين فهم اللغة العربية ٢- تعزيز المشاركة الصفية ٣- رفع مستوى التحصيل الدراسي

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem)		Structured SWL (h/w)	
الحمل الدراسي المنتظم للطلاب خلال الفصل	33	الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem)		Unstructured SWL (h/w)	
الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2
Total SWL (h/sem)	50		
الحمل الدراسي الكلي للطلاب خلال الفصل			

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	20% (20)	5 and 10	LO #1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	LO #1-#6 and #6-#13
	Projects / Lab.		-	-	-
	Report	1 month / 1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	LO #1 - #7
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	مفهوم الاخطاء اللغوية - فواعد كتابة التاء المربوطة والتاء المفتوحة
Week 2	الالف الممدودة والمقصورة -الحروف الشمسية والقمرية
Week 3	كتابة الهمزة (الوصل والقطع – الهمزة المتوسطة - الهمزة المتفرقة)
Week 4	الاسم والفعل والحرف
Week 5	المفاعيل (المفعول به -المفعول لاجلة – المفعول المطلق – المفعول معه), اختبار
Week 6	تطبيقات الاخطاء اللغوية الشائعة، واجب
Week 7	معاني حروف الجر
Week 8	قاعدة الالف الفارقة
Week 9	الجوانب الشكلية للخطاب الاداري
Week 10	فجوانب اللغوية الخطاب الاداري، اختبار
Week 11	تنمية المهارات البحثية والتحليلية والنقدية والابتكارية
Week 12	اللغة العربية لاغراض خاصة مثل اللغة العربية في المجالات العلمية
Week 13	البلاغة والاعراب والتراكيب اللغوية، واجب
Week 14	دراسة النحو والصرف وتعليم القواعد النحوية والصرفية
Week 15	تعليم القواعد الاملائية والترقيم الصحيح وتدريب الطلاب على الاملاء الصحيح
Week 16	التحضير والمراجعة للامتحان النهائي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	النحو - اقسام الكلام - الاسم - الفعل - الحرف - انواع المعارف - العلم - الضمائر - اسم الاشارة - الاسماء الموصولة - المعارف بال - المعارف بالاضافة - المثني - جمع المذكر السالم - معلقة زهير مع الشرح - بواعث النهضة الادبية في العصر الحديث - بدر شاكر السياب - نازك الملائكة - التاء المربوطة والتاء المبسوطة	yes
Recommended Texts	النصوص الادبية القديمة والقصص القصيرة الحديثة والنصوص الصحفية والاعلامية والنصوص العلمية	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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Crimes of the baath regime in iraq		Module Delivery	
Module Type	Support		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	WUO6			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	UGII	Semester of Delivery		three
Administering Department	Computer science	College	CSIT	
Module Leader	HAYDER ABDOUN MUTTAIR ALSARRAY		e-mail	haider.abduon@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	22/9/2025	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	تهدف المادة الى تعريف الطلبة بالأحداث التي مرة فيها العراق في الحقبة التي تولى فيها نظام حزب البعث في الحكم
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	سنناول في هذه المادة من ناحية جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م والجرائم النفسية والاجتماعية وأثارها، وأبرز انتهاكات النظام البعثي في العراق والجرائم البيئية لنظام البعث وجرائم المقابر الجماعية

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تمثل الاستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة في تشجيع الطالب على المشاركة في التدريبات ، مع تحسين مهارات التفكير لديهم وتوسيعه في نفس الوقت سيتم تحقيق ذلك من خلال الفصول والبرامج التعليمية التفاعلية ومن خلال النظر في أنواع التجارب البسيطة التي تتضمن بعض أنشطة وأخذ العينات التي تهم الطالب

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	10 minutes / 2	20% (20)	5 and 10	LO #1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	LO #1-#6 and #6-#13
	Projects / Lab.		-	-	-

	Report	1 month / 1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	LO #1 - #7
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	جرائم نظام البعث في العراق وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥م
Week 2	مفهوم الجرائم واقسامها .
Week 3	انواع الجرائم الدولية .
Week 4	القرارات الصادرة من المحكمة الجنائية العليا .
Week 5	الجرائم النفسية والاجتماعية واثارها وابرز انتهاكات النظام البعثي في العراق
Week 6	الجرائم الاجتماعية
Week 7	Mid-term Exam
Week 8	الجرائم البيئية لنظام البعث في العراق
Week 9	التلوث الحربي والاشعاعي وانجار الالغام
Week 10	تدمير المدن والقرى
Week 11	تجفيف الاهوار
Week 12	تجريف بساتين النخيل والاشجار والمزروعات
Week 13	جرائم المقابر الجماعية
Week 14	احداث مقابر الابادة الجماعية المرتكبة من النظام البعثي في العراق
Week 15	التصنيف الزمني لمقابر الابادة الجماعية في العراق ١٩٦٣-٢٠٢٣
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	مقرر دراسي للجامعات الحكومية والاهلية صادر عن وزارة التعليم العالي والبحث العلمي	yes
Recommended Texts	كتب التاريخ التي تتحدث عن جرائم نظام البعث في العراق	yes
Websites	Googl.com	

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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Artificial Intelligence		Module Delivery	
Module Type	core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	cs-301			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		five
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Yousif Raad		e-mail	yousif@uowasit.edu.iq
Module Leader's Acad. Title	Associate Professor		Module Leader's Qualification	Ph.D.
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	22/9/2025	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- The module aims Introduce students to the fundamental concepts of Artificial Intelligence and its applications in various fields such as machine learning, natural language processing, and computer vision. 2-Enable students to use AI techniques to design innovative solutions for complex problems using modern tools and technologies.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students will be able to demonstrate a thorough understanding of key AI concepts, including algorithms for machine learning, natural language processing, and computer vision. Apply AI methodologies to solve real-world problems, showcasing the ability to develop AI-based models and systems.
Indicative Contents المحتويات الإرشادية	Indicative contents for the Artificial Intelligence module include an introduction to AI concepts, search algorithms, knowledge representation, and machine learning. It covers natural language processing, computer vision, robotics, and AI ethics. The module also includes practical AI tools, model building, and case studies on AI applications and future trends.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy for delivering the "Artificial Intelligence" module is to foster active student engagement through hands-on AI projects and practical application of concepts. This will be achieved through a combination of interactive lectures, coding exercises, and real-world problem-solving tasks, allowing students to refine their skills in AI techniques while developing critical thinking abilities. Collaborative learning, along with continuous feedback, will further support the learning process and ensure a comprehensive understanding of AI concepts and applications.

Student Workload (SWL) الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	introduction of AI
Week 2	Search Algorithms
Week 3	Knowledge Representation
Week 4	Uninformed Search
Week 5	A* Search and Heuristics, Quizzes.
Week 6	Constraint Satisfaction Problems, Assignments.
Week 7	Mid-term Exam
Week 8	Constraint Satisfaction Problems II
Week 9	Game Trees: Minimax
Week 10	Game Trees: Expectimax, Utilities, Multiplayer, Quizzes.
Week 11	Markov Decision Processes I
Week 12	Expert system
Week 13	Advanced AI Applications, Assignments.

Week 14	Ethics in AI
Week 15	Heuristic functions
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المناهج الاسبوعي للمختبر	
	Material Covered
Week 1	Install and set up Python, Jupiter Notebook, and AI libraries (Tensor Flow, Koras, Sickie-learn).
Week 2	implement Breadth-First Search (BFS) and Depth-First Search (DFS) in Python
Week 3	implement Breadth-First Search (BFS) and Depth-First Search (DFS) in Python
Week 4	Solve problems using propositional and first-order logic in Python
Week 5	Greedy algorithm
Week 6	Implement AI algorithm
Week 7	Mid-term Exam
Week 8	Apply project to solve Constraint Satisfaction Problems II
Week 9	Apply project to solve Game Trees: Minimax
Week 10	Apply project to solve Game Trees: Expectimax, Utilities, Multiplayer
Week 11	Apply project to solve Markov Decision Processes I
Week 12	Expert system
Week 13	Fine-tuning models and hyperparameter optimization.
Week 14	Final Project Implementation
Week 15	Project Presentations and Review

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig (4th Edition, 2020)	Yes
Recommended Texts	Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" by Aurélien Géron (2nd Edition, 2019)	yes

Websites	
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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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Software Engineering		Module Delivery
Module Type	core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	cs-302		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Hassanin Hazem		e-mail
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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	1. To understand the basics of software development. 2. To understand the characteristics of software.

أهداف المادة الدراسية	3. To understand the concepts of software process model.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Get an idea of the structure of the software. 2. Recognize how software is developed. 3. List the various terms associated with software development. 4. Discuss the various software process model.
Indicative Contents المحتويات الإرشادية	Introduction to SW engineering, Computer software, What is software engineering, The evolving role of software, Software characteristics, Software engineering principles, The Characteristic of software engineer, Software applications, Software systems, Software development, A crisis on the horizon, The attribute of good software, Software lifecycle, Software Engineering-A Layered technology, Software process models, The waterfall model, The prototype model , The RAD model, Evolutionary software process models, The incremental model, The spiral model, Component based development, Introduction to Software process and project metrics, Measures , Metrics and Indicators, Metrics in the process and project domains, Process metrics, Project metrics, Software measurement, size oriented metrics, function oriented metrics, computing function point, Software Quality Metrics, Defect removal efficiency ,Integration metrics with software process, Statistical process control, Metrics for small organization, Establishing a software metrics program.

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 type 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	34	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem)	91	Unstructured SWL (h/w)	6

الحمل الدراسي غير المنتظم للطالب خلال الفصل		الحمل الدراسي غير المنتظم للطالب أسبوعيا	
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	10 minutes / 2	20% (20)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.				
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to Software engineering, Computer software
Week 2	What is software engineering, the evolving role of software, software characteristics , software Engineering principles
Week 3	What is software engineering, the evolving role of software, software characteristics , software Engineering principles
Week 4	The characteristic of software engineer, software application, software systems ,software development, a crisis on the horizon
Week 5	The attribute of good software, software lifecycle, Quizzes.
Week 6	Software engineering- layered technology, software process model, the waterfall model, Assignments.
Week 7	Mid - exam
Week 8	The prototype model I, evolutionary software process model

Week 9	The incremental model, the spiral model, the win spiral model
Week 10	Component-based development, Quizzes.
Week 11	Introduction to software process and project metrics, measures, metrics and indicators
Week 12	Metrics in the process and project domains, process metrics
Week 13	Project metrics, software measurement, size oriented metrics, function oriented metrics, Assignments.
Week 14	Computing function point, software quality metrics, defect removal efficiency, integration metrics with software process, Statistical process control, Metrics for small organization, Establishing a software metrics program,
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to visual basic Drawing the program interface
Week 2	implement the tools
Week 3	Design a project, writing a code of a project
Week 4	implement the event
Week 5	implement the function
Week 6	implement the if condition
Week 7	Select case Repetition loops
Week 8	Convert the code to executable file
Week 9	Array, types of array: fixed array and dynamic array
Week 10	Single and Multi-dimensional array
Week 11	Apply design patterns to solve specific design problems
Week 12	Design a UML design diagrams to represent software
Week 13	Create different test cases for develop software
Week 14	Use Test tools and analyze results
Week 15	Develop a report for student's project

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Software Engineering by Roger Press Man 2001 2. Introduction to Software Engineering by Shari Lawrence and Joan M. Atlee, 2006	Yes
Recommended Texts	Software Engineering, by , Addison Wesley, 1999.	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.

MODULE DESCRIPTION FORM

Distributed databases

Module Information				
معلومات المادة الدراسية				
Module Title	Distributed databases		Module Delivery	
Module Type	core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar	
Module Code	cs-303			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGIII	Semester of Delivery		five
Administering Department	Computer science	College	CSIT	
Module Leader	Asst. prof. Hussein Khudhur Ibrahim		e-mail	hkhudher@uowasit.edu.iq
Module Leader's Acad. Title	Asst. Professor		Module Leader's Qualification	Ph.D.
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	22/9/2025	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	- Understanding the importance of distributed databases - Enabling the student to understand the fundamentals of distributed database science - Providing the student with specialized knowledge of distributed databases through implementation and its tools, qualifying them for work.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Program Outcomes, Teaching and Learning Methods, and Assessment A. Cognitive Objectives 1. Knowledge and understanding of distributed database terminology 2. Knowledge and understanding of specific distributed database skills through implementation 3. Connecting distributed database concepts to real-world applications through graduation research B. Program-Specific Skills Objectives 1. Summer internship 2. Graduation research 3. Global reports 4. Assignments and in-class discussions.
Indicative Contents المحتويات الإرشادية	- Theoretical instruction of the curriculum combined with practical applications through real-life examples. - Guiding students to relevant websites for their use. - Conducting research seminars to explain modern technologies and their applications. Assessment Methods - Evaluating activities and reports. - Participation in research projects.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Teaching and Learning Methods - Managing lectures in a way that makes students appreciate the importance of time. - Assigning group activities and assignments. - Allocating a percentage of the grade to group activities. - In-class exercises and activities. - Guiding students to relevant websites for their learning. - Conducting research seminars to explain and analyze distributed databases.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	What is a Database? Database Management System (DBMS). Evolution of Databases
Week 2	Distributed Databases. (Advantages, Applications, Key Concepts in Distributed Databases, Challenges)
Week 3	Why Distributed Databases? Key Features of Distributed Databases,
Week 4	Distributed data base management system DDBMS.
Week 5	Functionality Database system, Quizzes.
Week 6	Comparison of Distributed Databases and Centralized Databases, Assignments.
Week 7	Architecture of Distributed Databases
Week 8	Midterm exam.
Week 9	Types of distributed databases. Homogeneous Distributed Database, Heterogeneous Distributed Databases.
Week 10	Distributed Database Design. (Key Components of Distributed Database Design), Quizzes.
Week 11	1- Horizontal Fragmentation. 2- Vertical Fragmentation.
Week 12	Distributed Data Integration (Key Challenges in Distributed Data Integration), Assignments.
Week 13	Distributed Query Processing. (Key Concepts in Distributed Query Processing).
Week 14	Distributed Transaction Management Essential Elements of Managing Distributed Transactions
Week 15	the Security in Distributed Databases

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to the work environment (MySQL or SQLite) Creating a simple database.
Week 2	Creating tables (Students, Courses).
Week 3	Inputting and retrieving data.
Week 4	Explaining the concept of data distribution (theory + diagram) Simulation using two tables representing two different locations.
Week 5	Discussing real-world cases (banks, universities) Activity: Dividing students into groups and analyzing a distributed system.
Week 6	Network Latency Simulation Discussion of Concurrency Issues.
Week 7	Performance Comparison (Theory + SQL Example) Activity: When to Use a Distributed System
Week 8	Midterm exam.
Week 9	Introduction to Tools (such as MySQL Cluster or PostgreSQL) Implementing a Connection to Two Databases.
Week 10	Comparing a Query on a Centralized System vs. a Distributed System Writing a Simple Report.
Week 11	Drawing Architectures (Client-Server/Peer-to-Peer) Using Drawing Tools (Draw.io).
Week 12	Explanation of Homogeneous vs. Heterogeneous Rules
Week 13	Practical Example: Joining Two Different Bases (Simulation)
Week 14	Fragmentation Application: Horizontal Fragmentation ((Joining Multiple Tables))
Week 15	Transactions and security in practice: Transaction execution.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	• Ray, Chhanda. <i>Distributed Database Systems</i>. Pearson, 2024. • Manglik, Rohit. <i>Distributed Databases</i>. EduGorilla Publication, 2023. • Patil, Manisha M. <i>NoSQL Databases</i>. 2024. • Merced, Alex. <i>Architecting an Apache Iceberg Lakehouse</i>. Manning Publications, 2025. • Borucki, Arek. <i>MongoDB 8.0 in Action</i> (3rd ed.). Manning Publications, 2025	Yes

Recommended Texts	Principles of Distributed Database Systems (M. Tamer Özsu & Patrick Valduriez). Designing Data-Intensive Applications (Martin Kleppmann).	Yes
Websites	https://www.mongodb.com/docs/ https://cassandra.apache.org/doc/latest/	

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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Networking 1		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☐ Seminar
Module Code	cs-304		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Mustafa Rahim	e-mail	E-mail
Module Leader's Acad. Title	Ass. Professor	Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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- Understand the foundational principles of computer networks, including network architecture, protocols, and communication models. 2- Develop practical skills in configuring and managing basic network components, ensuring effective data transmission and network performance.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students will understand key networking concepts such as OSI and TCP/IP models, configure and troubleshoot basic network devices, analyze data communication processes, demonstrate knowledge of IP addressing and routing protocols, apply skills to design simple networks, and resolve basic network connectivity issues using diagnostic tools.
Indicative Contents المحتويات الإرشادية	The indicative contents for Computer Networking 1 include an introduction to network fundamentals, covering OSI and TCP/IP models, network topologies, and protocols. It also includes detailed discussions on IP addressing, subnetting, routing, and switching. Practical aspects such as configuring routers and switches, understanding LAN and WAN technologies, and basic troubleshooting techniques are also part of the course. Additionally, students will learn about data transmission processes, error detection methods, flow control, and the use of diagnostic tools for network management.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The main strategies for delivering the Computer Networking 1 module include fostering hands-on learning through lab exercises and practical configurations, supported by theoretical lectures to explain key concepts. Real-world problem-solving tasks will be integrated to help students apply the knowledge gained in practical scenarios. Collaborative projects and continuous feedback will further enhance student engagement and understanding, ensuring a balance between theory and practice.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
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Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to data communications, network types, and OSI model.
Week 2	TCP/IP protocol suite and addressing basics.
Week 3	Physical layer, data and signals, analog vs. digital.
Week 4	Digital signal transmission and performance.
Week 5	Connecting devices: hubs, switches, routers, Quizzes.
Week 6	Data link layer, error detection, CRC, and flow control, Assignments.
Week 7	Mid-term Exam
Week 8	Network layer, classful vs. classless addressing.

Week 9	IP routing, routing tables, and components.
Week 10	Routing algorithms: static vs. dynamic, hop-by-hop vs. source routing, Quizzes.
Week 11	Transport layer, UDP, TCP, and SCTP protocols.
Week 12	Congestion control and quality of service in transport layer.
Week 13	Application layer, OSI model services for end-users, Assignments.
Week 14	TCP/IP application layer protocols (HTTP, DNS, DHCP).
Week 15	Common applications like email (SMTP/POP) and Telnet.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Study different types of network cables and implement cross-wired and straight-through cables using a clamping tool.
Week 2	Explore network devices in detail.
Week 3	Study network addressing.
Week 4	Connect computers to a LAN for hands-on networking experience
Week 5	Introduction to the Packet Tracer program for network simulation.
Week 6	Basic switch configuration.
Week 7	Mid-term Exam
Week 8	Basic router configuration
Week 9	Router configuration in a small network.
Week 10	Apply network addressing in practical scenarios.
Week 11	Advanced router and switch configurations.
Week 12	Troubleshooting common networking issues.
Week 13	Setting up and managing a small-scale network.
Week 14	Review of network protocols and packet tracer usage
Week 15	Final revision and preparation for the exam.

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Computer Networks: A Systems Approach" by Larry L. Peterson and Bruce S. Davie (6th Edition, 2021)	Yes
Recommended Texts	Networked Life: 20 Questions and Answers" by Mung Chiang (1st Edition, 2021)	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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Digital Image Processing		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☒ Seminar
Module Code	cs-305		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Mohamed H Ghaleb	e-mail	mghaleb@uowasit.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	P.HD.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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
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أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Understand how digital images are represented as pixel data and how they are processed mathematically. Apply basic image enhancement, filtering, and restoration techniques in spatial and frequency domains. Analyze images using segmentation and feature extraction for real-world applications.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Explain the basic concepts of digital image representation and processing. Apply image enhancement and filtering techniques to improve image quality. Analyze images using segmentation and feature extraction methods for practical applications.
Indicative Contents المحتويات الإرشادية	Indicative Contents for an Image Processing module (3 concise lines): -Introduction to digital image fundamentals, sampling, quantization, and image representation. -Image enhancement, filtering, restoration, and frequency domain techniques. -Image segmentation, feature extraction, and practical applications of image processing.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Teaching and learning strategies typically describe how the module will be delivered and practiced. Here is a concise version in three lines: Lectures to explain fundamental concepts and theoretical principles. Laboratory sessions for implementing image processing techniques using software tools. Assignments and projects to apply methods to real-world image analysis problems.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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	10 minutes / 2	10% (10)	5 and 10	#1-#5 and #6-#10
	Assignments	1 week / 2	10% (10)	6 and 13	#1-#6 and #8-#12
	Projects / Lab.	3 month / 2	10% (10)	All	All
	Report	1 month / 1	10% (10)	13	#13
Summative assessment	Midterm Exam	2hr / 1	10% (10)	7	#1-#6
	Final Exam	3hr / 1	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Computer Vision and Image Processing (CVIP)
Week 2	The major topics within the field of image processing
Week 3	Computer Imaging Systems: definition of Digitization, The Human Visual System, Spatial Frequency Resolution
Week 4	Computer Graphics: Bitmap image (or raster image), Vector images
Week 5	Image Analysis Preprocessing, System Model :1. Preprocessing :2. Data Reduction:3. Features Analysis, Quizzes.
Week 6	Region of Interest Image Geometry, Assignments.
Week 7	Mid-term Exam
Week 8	Region of Interest Image Geometry:1. Zero-Order Hold,2. First Order Hold, Convolution:
Week 9	Noise Removal using Spatial Filters: Mean filters, Median filters (order filter), Enhancement filters

Week 10	Image quantization, Quizzes.
Week 11	Definition of edge/line detection, Methods of detection edge/line
Week 12	The types of masks include: Roberts operator, Sobol operator, Prewitt operator Kirsch compass masks, Robinson compass masks, Laplacian operator Frechén masks, Edge operator performance, Hough transform
Week 13	developed a performance metric for edge detection Assignments.
Week 14	Methods that use subtraction to detect the edge are the Homogeneity operator and the Difference operator
Week 15	Concept of Histogram, the Histogram Modifications
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Digital image processing: Types of images, binary image, RGB image, grayscale image, index image
Week 2	Create an image from type grayscale, create an image from type RGB:
Week 3	convert grayscale to RGB, convert RGB to grayscale
Week 4	Convert RGB to grayscale by using the weight, convert the index to RGB:
Week 5	convert RGB to index, convert binary to grayscale, convert grayscale to binary
Week 6	How do we obtain the threshold intensity of an image?
Week 7	Save and print an image with a new name and two extensions.
Week 8	How to get complete image information
Week 9	Convert image to number of objects
Week 10	Obtaining the properties of the indexed image
Week 11	Operations on the binary image
Week 12	Selecting the number of objects from a binary image
Week 13	object space in a binary image
Week 14	Delete objects from a binary image
Week 15	How to find the edges of objects from a two-dimensional image

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	R. C. Gonzalez and R. E. Woods, Digital Image Processing, 4th ed. New York, NY, USA: Pearson, 2018.	Yes
Recommended Texts	W. K. Pratt, Digital Image Processing: PIKS Scientific Inside, 4th ed. New York, NY, USA: John Wiley & Sons, 2007.	Yes
Websites	https://en.wikipedia.org/wiki/Digital_image_processing	

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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Modeling and Simulation		Module Delivery
Module Type	basic		☒ Theory ☒ Lecture ☐ Lab ☐ Tutorial ☒ Practical ☒ Seminar
Module Code	cs-306		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	UGIII	Semester of Delivery	
Administering Department	Computer science	College	CSIT
Module Leader	Mustafa Azeez al-Mayyahi	e-mail	mkhalaf@uowasit.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	MSc
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/9/2025	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	Understanding Dynamical Systems
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Module Learning Outcomes of Studying Simulation and Modeling By the end of this module, students will be able to: Understand Systems — Define the concept of a system and identify its state. Classify Systems — Distinguish between static/dynamic and continuous/discrete systems. Analyze DES — Study Discrete Event Systems where change is event-driven. Identify Simulation Types — Recognize Monte Carlo, continuous, and discrete event simulation. Apply Simulation Methodologies — Understand modeling issues, deterministic vs. stochastic simulation, and time advancement. Practical Simulation — Manually simulate a single-server queue using the Process Interaction approach.
Indicative Contents المحتويات الإرشادية	Indicative Contents of Studying Simulation and Modeling System Concepts — system definition, state, components System Classification — static vs. dynamic, continuous vs. discrete Discrete Event Systems (DES) — event-driven state changes Simulation Types — Monte Carlo, continuous, discrete-event Modeling Methodologies — model building, verification, validation Simulation Approaches — deterministic vs. stochastic Time Advancement — next-event vs. fixed-increment methods Practical Application — manual simulation of a single-server queue using process interaction approach

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Understanding Systems: Identifying the Concept of a System and System State Classifying Systems: Distinguishing Between Static and Dynamic Systems, and Continuous and Discrete Systems Focus on DES: Studying Discrete Event Systems Where Change is Driven by Events Types of Simulation: Recognizing Simulation Classifications — Monte Carlo, Continuous, and Discrete Event Simulation Methodologies: Understanding Simulation Issues Such as Modeling, the Difference Between Deterministic and Stochastic Simulation, and Time Advancement Practical Application: The Ability to Manually Simulate a Simple Single-Server Queue System Using the Process Interaction Approach

Student Workload (SWL)

الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	64	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	61	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1-2	INTRODUCTION TO DISCRETE EVENT SIMULATION
Week 3-4	BASIC EVENT SCHEDULING SIMULATION
Week 5-6	SIMULATION PROGRAMMING, Quizzes, Assignments.
Week 7	EXAM 1
Week 8-9	REVIEW OF BASIC PROBABILITY AND STATISTICS
Week 10-11	RANDOM NUMBER GENERATION, Quizzes.
Week 12-13	MATLAB, Assignments.
Week 14	MATLAB
Week 15	EXAM 2
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Introduction to MATLAB Environment & User Interface
Week 2	Variable Naming Rules and Special Variables (pi, eps, inf)
Week 3	Creating and Manipulating Matrices and Vectors
Week 4	Matrix Arithmetic Operations (Addition, Subtraction, Multiplication)
Week 5	Element-wise Operations (Dot Product, Division, and Power)
Week 6	Relational and Logical Operators in MATLAB Built-in Mathematical Functions & Trigonometry
Week 7	EXAM 1
Week 8	Data Visualization: 2D Plotting (plot, xlabel, ylabel, title)
Week 9	Customizing Plots: Line Styles, Colors, and Markers
Week 10	Multiple Plots and Controlling Axes (legend, axis command)
Week 11	Conditional Statements I: (if, else, end)
Week 12	Conditional Statements II: (if, elseif, else)
Week 13	The switch...case Structure for Branching
Week 14	Symbolic Math Toolbox: Solving Differential Equations (dsolve) Practical Applications: Simulation of Mathematical Models
Week 15	EXAM 1

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Banks, Carson, Nelson and Nicol Law & Kelton	Yes
Recommended Texts		
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
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