Computer Science Department

First Grade – First Semester

INTRODUCTION TO COMPUTER SCIENCE MODULE DESCRIPTOR

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Introduction to Computer Science**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC1003				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CSC		**College**	Science	
Module Leader	Amer A. Al-Rahman.		**e-mail**	amer. abdulrahman@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title	Assit.Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Huda M. Radha		**e-mail**	huda.rada @sc.uobaghdad.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**	1.0	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None
Module Aims, Learning Outcomes and Indicative Contents **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية**			
Module Aims أهداف المادة الدراسية	An introduction to computer science will be achieved through overviewing the computer system and identifying its components together with introducing the interaction needed between these components for performing solutions for given tasks regardless of the programming languages used. The student will recognize the different		

	generations to programming languages. This course aims to prepare a program designer. The fundamental stages of the development of the program life cycle must be studied. The focus on this course will be on ways to design the solution to a given problem either by writing an algorithm or by drawing a flowchart. Also, program control flow must be recognized. Moreover, the stages for compiling and processing a given program must be identified. Furthermore, the common methodologies for programming will be studied.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of this course, the students should be able to: - Use scientific reasoning and logical thinking for describing problems, identifying inputs, processes and desired outputs preparing for the design process. - Describe the purposes of program development life cycle (PDLC). - Design solutions to problems through flowcharts and algorithms. - Process given or online materials and solutions, understand and analyze them. - Use sequence, selection and repetition structures for problem solving process.
Indicative Contents المحتويات الإرشادية	Indicative contents include the following: - Overview of the computer system, Computer system components, Hardware components, Software components, Interaction between computer components for executing Computer programs. - Different generations to programming languages. - The fundamental stages of the program development life cycle. Analyze problems, design solution, Code the design, Debug, Test, Document, Maintain, Redesign and extend the program. - Ways to design the solution of a given problem, Writing the solution steps through an algorithm, By drawing through a flowchart. - Program control flow. Sequential program flow, Selective PF, Repetitive PF, - Stages for compiling and processing a given program. - Methodologies of programming languages. - C++ Programming language, Program structure, Processing C++ program, Control structures for Sequential, Branched, and Looping
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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/ Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (5)	5 and 10	LO #1, LO #2, LO #3, and LO #4
	Assignments	2	10% (10)	3 and 14	LO #1, LO #3, and LO #5
	Projects	1	15% (10)	Continuous	All
	Report	1	5% (5)	13	All
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO #1, LO #3, and LO #4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Part 1: Introduction to Computer System Part 2: Safety and security measures when dealing with a computer
Week 2	Computer System Components
Week 3	Part 1: Generations of Programming Languages

	Part 2: Fields of study in computer science Part 3: Essential concepts in computer science
Week 4	Program Development Life Cycle: Part I
Week 5	Program Development Life Cycle: Part II
Week 6	Program Design: Flowcharts
Week 7	Program Design: Algorithms Program Control Flow
Week 8	**Midterm Exam**
Week 9	Programming with Problem Analysis-Coding-Execution Cycle
Week 10	Programming Methodologies
Week 11	Structure of C++ Program
Week 12	Steps For Processing C++ Program
Week 13	Constructs in C++ for Selection: Part I
Week 14	Constructs in C++ for Selection: Part II Constructs in C++ for Repetition
Week 15	**Preparatory week before the final exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	C++ Programming: From Problem Analysis to Program Design, Fifth Edition D.S. Malik	Available online
Recommended Texts	C++ Programming: From Problem Analysis to Program Design (MindTap Course List) 8th Edition D.S. Malik	No
Websites	Free	

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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:				

NB 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.

CALCULUS MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Calculus			Module Delivery	
Module Type	Basic			☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☒ Practical ☒ Seminar	
Module Code	CSC1004				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		Semester of Delivery	1	
Administering Department	CSC		College	Science	
Module Leader	Basad Al-Sarray		e-mail	basad.husain@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	Ph.D.	
Module Tutor			e-mail		
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date	01/06/2024		Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To show the basic concepts of calculus are related with topics in computer science. 2. To understand the fundamental theory of calculus and its applications in CS. 3. To understand general types of numbers sets, function. 4. To learn computing: limits, derivative, integral, sequences, and types of problems that can be solved. 5. To perform the analysis of functions in one variable.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. After completing this course, students should have developed a clear understanding of the fundamental concepts of single variable calculus and a range of skills allowing them to work effectively with the concepts. 2. The basic concepts are Number sets, inequality, function, derivatives,

	integral, power series. 3. After completing this course, students should demonstrate competency in the following skills: 4. Find (domain –range) of function, analysis the symmetric property of function, 5. Find derivative by using both the limit definition and rules of derivative. 6. Sketch the graph of a function using asymptotes, critical points, the derivative test for increasing/decreasing functions, and concavity. 7. Apply derivative to solve max/min problems. 8. Use in formation in calculus to represent the functions by Taylor series
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Part A – Functions** Number and sets, intervals, line equation. Functions, types, properties, graph Limit, continuous of the functions. General techniques of finding derivatives. Derivatives of trigonometric function, exponential function, logarithm. Applications for derivatives. Revision problem classes **Part B – Integrals and sequence derivatives.** Techniques of integrals. Sequences, and series.

Learning and teaching strategy	
Strategies	Students are expected to use their mathematical knowledge and practices to solve problems. This course strengthens students' understanding of functions in preparation for the process of differentiation and integration. Calculus concepts explored include limits and continuity, derivatives, definite integrals, exponential and logarithmic functions, trigonometric functions, and techniques of integration. Emphasis is placed on the exploration of real-world calculus applications. Students are expected to learn to choose and use appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions

Module Evaluation تقييم المادة الدراسية					
Formative assessment		Time/number	Weight (Mark)	Weekly Due	Relevant learning outcome
	Quizzes	2	10% (10)	5,10	1,2,10,11
	Assignment	2	10% (10)	2,12	3,4,6 and7
	Project	2	10% (10)	Continuous	
	Report	1	10% (10)	13	5,8 and 10
Summative assessment	Midterm Exam	2h	10% (10)	7	1-7
	Final Exam	3h	50% (50)	16	All
Total assessment			100%		

Student Workload(SWL)			
Structured SWL(h/Sem	48	Structured SWL(h/w)	3
Unstructured(h/Sem)	102	Unstructured SWL(h/w)	7
Total SWL(h/Sem)	150		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
Week No.	**Week Title**	**Martial Covered**
Week 1	Numbers set	Types of sets of numbers, natural, integer, rationale, and real, intervals
Week 2	Inequality solutions	Solve inequalities
Week 3	Absolute values	Solving inequalities defined by absolute
Week 4	Line equations	Types of lie equations
Week 5	Functions	Define function and its types, domain, range, graph of the functions, Rational function, Trigonometric functions, Exponential function.
Week 6	Limit	Computing limit of the functions with different types of Rational function, Trigonometric functions, Exponential function. Continuous of the functions
Week 7	Derivative of the functions	Basics of computing derivative of the functions
Week 8	**Midterm Exam**	
Week 9	Graph of a function	using asymptotes, critical points, the derivative test for increasing/decreasing functions, and concavity.
Week 10	Application of derivative	solve applied max/min problems and solve related rates problems.
Week 11	Integration	General definition: Definite integral, Indefinite integrals.
Week 12	Techniques of integration	Substitution rule of integral, integral by parts, integral by fraction
Week 13	Sequences	General definition, types of sequences, Convergence test of sequences
Week 14	Series	General definition, types of Series, Convergence test of series Taylor series, Fourier Series
Week 15	**Preparatory week before the final exam**	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the library?

Required text	Book, Thomas' Calculus, Thomas, G.B., Weir, M.D.,Hass, J.R.,9780134429809 2015, Pearson Education	Yes
Recommended text	Larson, Ron, and Bruce H. Edwards. *Calculus*. Cengage Learning, 2022.	No
Websites	https://books.google.iq/books?id=DdtQCwAAQBAJ 5https://pdfkeys.com/download/2588723-Calculus-10th-Edition-Larson.pdf	Yes

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
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	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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB 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.

PROGRAMMING FUNDAMENTALS I MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Programming Fundamentals I			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC11001				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Computer Science Department		**College**	College of Science	
Module Leader	Bara'a Ali Attea		**e-mail**	bara.a@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Isra Haitham Abdulateef		**e-mail**	Isra.h@sc.uobaghdad.edu.iq	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2024		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To examine a C++ program. 2. To explore how a C++ program is processed. 3. To review the steps required to execute programs written in C++. 4. To learn what an algorithm is and explore problem-solving techniques. 5. To become aware of structured design programming. 6. To become familiar with the basic components of a C++ program, including data types, input/output, control structures, loops and

	loop types, and arrays.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Learn the basics of C++ as a collection of one or more standard functions, syntax rules, semantic rules, symbols, special words, and comments. 2. Learn what a stream is and examine input and output streams. 3. Learn unary and binary mathematical operators. 4. Learn precedence and associativity rules. 5. Learn pre and post increment and decrement. 6. Learn relational and logical operators. 7. Learn how to form and evaluate logical (Boolean) expressions. 8. Learn how to use the selection control structures: if, if... else, nested if, and nested if…else. 9. Learn how to construct and use counter-controlled, sentinel-controlled, flag-controlled, and endless looping structures. 10. Learn to program any loop with loop control variable (LVC). 11. Learn how to get correct control on LCV. 12. Learn how to use “while” and “for” keywords. 13. Learn how to form and use single, multiple disjoint, and nested loop structures. 14. Learn the possibility to convert from multiple loops to single loops. 15. Learn the possibility to convert from nested loops to single loop. 16. Become familiar with 1D arrays. 17. Apply concept of looping and selection control on 1D arrays.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Primary problem-solving technique: Sequential path In this part, the student will learn how to define a program as a sequence of statements whose objective is to accomplish some tasks. The examined programs are simple and straightforward. To process a program, the computer begins at the first executable statement and executes the statements in order until it comes to an end. [10 hrs] Part B – Moderate problem-solving technique: Selective path In this part, the student will learn how to tell a computer that it does not have to follow a simple sequential order of statements; it can also make decisions, where the program executes statements depending on some conditions. Here, in this part, the student must understand the nature of conditional statements, and how to use them. Also, in this part the student must be able to express conditions by simple and compound logical (Boolean) expressions, make comparisons using relational operator, and how to evaluate them to logical (Boolean) values. [15 hrs] Part C – Major problem-solving techniques and applications: Looping and Arrays In this part, the student will learn how a computer repeats certain statements over and over until certain conditions are met. The student

	must learn at least two types of looping structures. These are “while” and “for” looping structure. However, the student must learn the structure of “while” before the structure of “for”. The student must learn where the decision maker, the body of the loop, and the statement is that eventually sets the expression to false. The student must also learn a counter controlled while loop that uses a counter to control the loop and a sentinel-controlled while loop that uses a sentinel to control the while loop. Applications on arrays are essential to complete the understanding of control structure. Further, in this part, the student will learn how to define structured data types. The first structured data type that we will discuss is an array. One-dimensional. [50 hrs]

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 exercises and daily quizzes, 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	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	121	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 11	LO #1, #2 and #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7

	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	12	LO #5, #8 and #9
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO #1 - #7
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Three main rules for problem solving techniques.
Week 2	Output statements.
Week 3	Input statements.
Week 4	Assignment operator, declaration and assignment statements.
Week 5	Mathematical operators and expressions.
Week 6	Pre- and post- increment and decrement. If function, if statements, and body of if statement.
Week 7	If…else function and if…else statements.
Week 8	Midterm Exam
Week 9	Loop Control Variable (LCV), LCV initialization, LCV conditional expression, and LCV update, While function, while statements, and body of while statement.
Week 10	Nested while loops.
Week 11	for function, for statements, and body of for statement, Nested for loops.
Week 12	One-Dimensional arrays
Week 13	One-Dimensional arrays
Week 14	**Preparatory week before the final Exam**
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Be familiar with the Editor and run window of C++.
Week 2	Lab 2: Output operator and output statements.
Week 3	Lab 3: Input operator and input statements.
Week 4	Lab 4: Assignment operator, assignment operands and assignment statement
Week 5	Lab 5: Playing with mathematical operators and expressions.
Week 6	Lab 6: if statement and nested if statements.
Week 7	Lab 7: if…else statement and nested if…else statements, while statement.
Week 8	Midterm Exam

Week 9	Lab 8: loops, nested while statement, endless loop.
Week 10	Lab. 9: for statement and endless for loop.
Week 11	Lab 10: nested for statement, playing with multiple loops, converting nested loops to single loop.
Week 12	Lab. 11: 1D arrays: Reading, printing, searching an array, Manipulating array indices and elements.
Week 13	Lab 12: 1D arrays: Sorting arrays., Finding the K^{th} smallest/largest element in the array without sorting it.
Week 14	**Preparatory week before the final Exam**
Week 15	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	c++ programming: from problem analysis to program design, 5th edition, d.s. malik, 2011.	No
Recommended Texts		
Websites	https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxjcDJuZGlqfGd4OjQxN2NjMWU0ZGZlYzI4NDU	

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.

COMPUTER ORGANIZATION DESCRIPTION FORM

نموذج وصف مادة تركيب الحاسوب

Module Information معلومات المادة الدراسية					
Module Title	**Computer Organization**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CSC11002**				
ECTS Credits	**7**				
SWL (hr/sem)	**175**				
Module Level		UGx11 1	**Semester of Delivery**		1
Administering Department		Computer Science	**College**	Collage of Science	
Module Leader	Dr. Husam Ali Abdulmohsin		**e-mail**	husam.a@sc.uobaghdad.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			**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	• Graduating specialized computer science professionals: To graduate specialized computer science professionals who can meet the needs of the labor market and possess the theoretical and practical knowledge and basic skills to use computers to meet the needs of society in Iraqi universities and support applied studies related to the development of systems and software solutions. • Establishing training programs: To establish training programs that aim to raise the level of computer use in various fields, allowing citizens to benefit from these courses, and providing advice and technical support to various sectors of society.

	• Providing distinguished academic programs: To provide distinguished academic programs in the field of computer science according to quality assurance standards, and to provide computer science graduates with the basic knowledge to conduct research and pursue postgraduate studies. • Equipping graduates with the necessary skills: To equip graduates with the necessary skills to be able to communicate with others individually or work as part of a team.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students who complete the course will have demonstrated the ability to do the following: • Knowing about the history of computers. • The input/output devices and their examples. • CPU and its components (ALU, CU, Register sets). The 8086 MP as an example • How CPU works and communicates with other HW parts. • Internal memory and its types. • How data are organized and accessed in main memory via read/write operations. • How to calculate main memory size (word size, data bus, and address bus). • 8086 Physical and logical address. • The 8086 MP addressing mode. • Encoding of 8086 instructions. • External memory storage and its types. • How data are stored in external storage devices (magnetic, SSD, and optical). • How to calculate Hard disk capacity. • Memory hierocracy.
Indicative Contents المحتويات الإرشادية	**1. Introduction to Computer Organization:** Knowing about the history of computers **2. Computer Architecture** • CPU and its components (ALU, CU, Register sets). The 8086 MP as an example. • How CPU works and communicates with other HW parts. • Internal memory and its types. **3. Machine Language** • Encoding of 8086 instructions. **4. Addressing Algorithms** • How data are organized and accessed in main memory via read/write operations. • How to calculate main memory size (word size, data bus, and address bus). • 8086 Physical and logical address. **5. Memory Management techniques** • External memory storage and its types. • How data are stored in external storage devices (magnetic, SSD, and

	optical). • How to calculate Hard disk capacity. • Memory hierocracy.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. PowerPoint presentation: with pictures, tables, and diagrams to explain the lesson interactively and clearly. 2. Using Visual Aids: such as diagrams and flowcharts to explain complex concepts. Visual representations can make abstract concepts more understandable and help students to understand the relationships between different components of a computer system. 3. Group Projects and Discussion: by assigning group projects or case studies that involve designing, analyzing, or implementing computer systems. Encourage students to work collaboratively, discuss their ideas, and share their findings. This fosters critical thinking, teamwork, and a deeper understanding of computer organization principles. 4. Formative Assessments: Incorporate formative assessments throughout the module to gauge student comprehension and identify areas where additional support may be needed. This can include quizzes, short assignments, or in-class discussions. Provide timely feedback to students to help them track their progress and address any misconceptions. 5. Active Learning Strategies: Encourage active learning through activities such as group discussions, peer teaching, problem-solving sessions, or debates. This promotes student engagement, critical thinking, and a deeper understanding of computer organization concepts.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	45	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**120**		

Module Evaluation تقييم المادة الدراسية				
	Time/Number	**Weight**	**Week Due**	**Relevant**

As			(Marks)		Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2, #3, #4 and #6, #8, #9
	Assignments	2	10% (10)	6 and 12	LO #1, #2, #3 and #8, #9, #10
	Projects / Lab.	1	15% (15)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8, #10 and #12
Summative assessment	Midterm Exam	2hr	20% (10)	7	LO #1 - #6
	Final Exam	3hr	40% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introduction to computer history.
Week 2	Hardware and Software parts of the computer system.
Week 3	Input and output devices and their types.
Week 4	Numbering System (Binary, Decimal, Hexadecimal)
Week 5	Internal memory and its types (RAM, ROM, BIOS).
Week 6	Main memory organization and capacity calculation with practical examples.
Week 7	**Midterm Exam**
Week 8	CPU components (CPU, CU, register sets), How CPU works (READ/ WRITE operations).
Week 9	Introduction to 8086/8088 MP and its internal architecture.
Week 10	8086 Physical and logical address
Week 11	8086/8088 addressing mode with examples.
Week 12	Hard disk drive and its organization
Week 13	Hard disk capacity calculations with practical examples.
Week 14	Solid-state external storage devices, and optical storage devices
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Lab 1: Introduction to Lab Tools and Environment: Overview of simulator tools (e.g., Logisim, MARS), safety, lab rules
Week 2	Lab 2: Number Systems and Data Representation: Convert between binary, decimal, hexadecimal; understand signed and unsigned numbers

Week 3	Lab 3: Logic Gates and Boolean Algebra: Implement basic gates (AND, OR, NOT, NAND, NOR, XOR), verify truth tables
Week 4	Lab 4: Combinational Logic Design: Design and test multiplexers, demultiplexers, encoders, and decoders
Week 5	Lab 5: Arithmetic Circuits: Build half adders, full adders, and basic ALUs using logic gates
Week 6	Lab 6: Sequential Logic: Latches and Flip-Flops: Implement SR, D, JK flip-flops; understand timing diagrams
Week 7	**Midterm Exam**
Week 8	Lab 8: Counters and Registers: Build binary counters and shift registers
Week 9	Lab 9: Memory Elements: Understand RAM, ROM; simulate simple memory access
Week 10	Lab 10: Introduction to Assembly Language: Write simple programs in MIPS or x86 assembly
Week 11	Lab 11: Assembly Programming: Data Movement & Arithmetic: Implement loops, conditionals, arithmetic operations
Week 12	Lab 12: CPU Basics: Fetch-Decode-Execute Cycle: Simulate basic instruction cycles using diagrams or educational tools
Week 13	Lab 13: Simple CPU Design: Simulate or construct a simple 1-bit or 4-bit CPU
Week 14	Lab 14: I/O Interfacing Concepts: Simulate keyboard/mouse or display interaction (e.g., using switches and LEDs)
Week 15	**Final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	• Computer Organization, First Edition – 2015, by Prof. K.Vikram • Fundamentals of Computer Organization and Architecture, by Mostafa Abd-El-Barr and Hesham El-Rewini, Wiley 2005 • COMPUTER ORGANIZATION AND DESIGN FUNDAMENTALS, First Edition-2007, by David Tarnoff.	Yes
Recommended Texts	• THE 80x86 IBM PC AND COMPATIBLE COMPUTERS VOLUMES I & II (Assembly Language, Design, and Interfacing) Fourth edition, by: Muhammad Ali Mazidi & Janice Gillispie Mazidi • Computer Fundamentals and Applications, by Ashok Arora, Vikas Publishing House 2015	Yes
Websites	https://mrcet.com/downloads/digital_notes/CSE/II%20Year/CS/COMPUTER%20ORGANISATION%20COURSE%20FILE.pdf	

	https://engineering.futureuniversity.com/BOOKS%20FOR%20IT/%5BMostafa_Abd-El-Barr__Hesham_El-Rewini%5D_Fundamenta(BookZZ.org).pdf https://www.rose-hulman.edu/class/csse/csse132/1819c/CODF_v02b.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

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.

ARABIC LANGUAGE MODULE DESCRIPTION FORM

نموذج وصف مادة اللغة العربيَّة

Module Information معلومات المادة الدراسية					
Module Title	Arabic Language I			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOB101				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	UGx11 1		**Semester of Delivery**	1	
Administering Department	CSC		**College**	Type College Code	
Module Leader	**Dr. Leqaa faleh owdaa**		**e-mail**	leqaa.falih@ircoedu.uobaghdad.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	**Assistant lecturer. A'laa Sabah Hammood** Afrah theyab saleh		**e-mail**	alaa.sabah@sc.uobaghdad.edu.iq afrah.t@uobaghdad.edu.iq	
Scientific Committee Approval Date	11/06/2024		**Version Number**	1	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	2
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- تهدف إلى تنمية روح الاعتزاز باللغة العربيَّة للمحافظة على الهوية العربيَّة. 2- تهدف إلى تأهيل الطلبة بالمعارف والمخرجات الخاصة علم النحو، والصرف، والإملاء؛ لتمكنه من الكتابة الصحيحة والتعبير السليم وتقويم لسانه. 3- تهدف إلى تنمية ذوق الطالب الأدبي وإثراء تحصيله وإغناء زاده من الفكر العربي والإسلامي. 4- تهدف إلى تطوير مهارات الطلاب اللغويَّة التي تؤهلهم للإبداع المتميز. 5- تهدف إلى تنمية مهارات التحدث بـ (اللغة العربيَّة).

6- تهدف إلى الارتقاء بمستوى الطلبة من الجانب المهني والبحثي.	
1-التعرف على أهم خصائص اللغة العربيَّة وأهميتها في مجال العلم كونها أداة نقل العلم والمعرفة. 2- التعرف على أقسام الكلمة وعلامات كل منها كونها المحور الرئيس الذي يتألف منها الكلام. 3- التمييز بين المبني والمعرب وعلامات كل منها وتوضيحها بالأمثلة. 4- التعرف على المبتدأ والخبر من حيث تعريفهما وحكمهما وبيان ذلك بالأمثلة التوضيحية. 5- التمييز بين الفاعِل ونائب الفاعِل من حيث تعريفهما وأحكامهما وبيان ذلك بالأمثلة التوضيحية. 6- التعرف على الأعداد وبيان العلاقة بين العدد والمعدود من حيث المطابقة والمخالفة أو الاستعمال بلفظ واحد، ومعرفة التقديم والتأخير بين العدد والمعدود، فضلاً عن معرفة أحكام العدد والمعدود في كل منها. 7- التعرف على المشتقات التي تعد من أبرز خصائص اللغة العربية التي تميزت بها عن اللغات الأخرى، وبيان حيويتها وقدرتها على استيعاب العلوم والتعبير عنها، وذلك بدراسة أنواع المشتقات واشتقاقاتها واستعمالاتها كـ (اسم الفَاعِل، اسم المَفْعُول، صيغة المبالغة ...). 8- التعرف على جمع التكسير، وأنواعها (جمع القلة وجمع الكثرة) وأوزانها. 9- التعرف على قواعد كتابة التاء المربوطة والمفتوحة في آخر الألفاظ، وذلك بذكر مواضع كل منها، والتمييز بين الهاء والتاء المربوطة، مع ضبط كتابة التاء المربوطة وفق القاعدة. 10- التمييز بين الضاد والظاء كون مشكلة الفرق بين الضاد والظاء تكمن في النطق والكتابة وذلك بدراسة محاور الفرق بين الضاد والظاء من حيث الاسم والرسم والنطق والمعنى وغير ذلك. 11- التعرف على الهمزة كونها أحد حروف اللغة العربيَّة والتمييز بين همزة الوصل والقطع، وذلك بذكر مواضع كل منها، فضلاً عن قواعد كتابة همزة القطع وصورها المختلفة. 12- تمكن الطالب من استعمال علامات الترقيم في كتابة البحوث والتقارير أو أي نص آخر واستعمالها استعمالاً صحيحاً، لما لها من أثر في توضيح النص بين المتكلم والمتلقي. 13- التعرف على أهم الأغلاط اللغويّة الشائعة: النَّحويَّة والصرفيَّة، والإملائيَّة. 14- التعرف على الشاعر العراقي محمد مهدي الجواهري كونه رمزًا من رموز الشعر العمودي في العراق، والشاعر بدر شاكر السياب كونه أحد رواد الشعر الحر في العراق.	**Module Learning Outcomes** مخرجات التعلم للمادة الدراسية
• اللغة العربيَّة: خصائصها، مميزاتها، أهميتها. • أقسام الكلمة: الاسم والفعل والحرف. • المبني والمعرب: علامات البناء وعلامات الإعراب. • المبتدأ، الخبر. • الفاعِل، نائب الفاعِل: أحكام الفاعِل، أحكام نائب الفاعِل. • العدد: أحكام العدد. • المشتقات: اسم الفَاعِل، اسم المَفعُول، صيغة المبالغة... • جمع التكسير: جمع القلة، جمع الكثرة. • التاء المربوطة والتاء المفتوحة في أخر الألفاظ: التاء المربوطة (القصيرة) في آخر الألفاظ، التاء المفتوحة (الطويلة، المبسوطة) في آخر الألفاظ. • الفرق بين الضاد والظاء: صوت الضاد – حرف الضاد، صوت الظاء – حرف الظاء. • الهمزة وقواعد كتابتها: همزة الوصل وهمزة القطع. • علامات الترقيم: مواضع علامات الترقيم، علامات التنقيط. • الأغلاط اللغويَّة الشائعة: الأغلاط اللغوية، النحوية، الصرفية، الإملائية. • الشاعر محمد مهدي الجواهري: حياته، مؤلفاته. • - الشاعر بدر شاكر السياب: حياته، مؤلفاته.	**Indicative Contents** المحتويات الإرشادية تتضمن الكلمات المفتاحية المهمة للمحاضرات

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
الاستراتيجية الرئيسة التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة في التمارين والتطبيقات النحوية والإملائية، مع تحسين مهارات التفكير والتحليل في الوقت نفسه. ويتم تحقيق ذلك عن طريق الفصول والبرامج التعليمية التفاعلية والنظر في أنواع	Strategies

التطبيقات التي تتضمن بعض الأنشطة التي تهم الطلبة.	

Student Workload (SWL) **الحمل الدراسي للطالب محسوب لـ 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**	**1.13**
Total SWL (h/sem) **الحمل الدراسي الكلي للطالب خلال الفصل**	**50**		

Module Evaluation
تقييم المادة الدراسية

As		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	3, 9	LO #1 , 2 and 8
	Assignments	2	10% (10)	5, 8	LO # 4 and 6
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # ,1,2 ,3,4,5,6,8,9,10,11,12, 13 and14
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 1-6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

Week	Material Covered
Week 1	اللغة العربيَّة: خصائصها وأهميتها.
Week 2	أقسام الكلمة والمبني والمعرب منها.
Week 3	العدد وأحكامه.
Week 4	المشتقات: ومنها (اسم الفَاعِل، اسم المفْعُول، صيغ المبالغة ...).
Week 5	قواعد كتابة التاء المربوطة والمفتوحة في آخر الألفاظ.
Week 6	الهمزة وقواعد كتابتها.
Week 7	امتحان نصف الفصل.
Week 8	المبتدأ والخبر.
Week 9	الفاعِل ونائب الفاعِل.
Week 10	جمع التكسير وأنواعه.
Week 11	علامات الترقيم: تعريفها وأنواعها ومواضع كل منها.
Week 12	الفرق بين الضاد والظاء.

Week 13	الأغلاط اللغويَّة الشائعة.
Week 14	الأدب: الشعراء العراقيون: - الشاعر العراقي محمد مهدي الجواهري. - الشاعر العراقي بدر شاكر السياب.
Week 15	امتحان ختامي.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library**
Required Texts	القرآن الكريم. اللغة: التطبيق الصرفي: د. عبده الراجحي. جامع الدروس العربيَّة: الشيخ مصطفى الغلاييني. السلامة اللغويَّة: د. علاء حسن مشكور. شرح ابن عقيل: ابن عقيل، تحقيق: محمد محي الدين عبد الحميد. فقه اللغة العربيَّة وخصائصها: د. إميل بديع يعقوب. كيف تكتب بحثاً أو رسالة: د. أحمد شلبي. الوجيز في اللغة العربيَّة: أ.د. محيي هلال السرحان. الأدب العربي: - ديوان بدر شاكر السياب: بدر شاكر السياب. - ديوان الجواهري: محمد مهدي الجواهري. - الشعر العراقي الحديث مرحلة وتطور: د. جلال الخياط.	Yes

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.

ENGLISH LANGUAGE I MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**English Language I**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**UOB102**				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Muthana Hameed Khalaf		**e-mail**	muthana.khalaf@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title	Assistant Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Dr. Ahmad Hashim Hussein		**e-mail**	ahmedhashem@pgiafs.uobaghdad.edu.iq	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/10/2024		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	New Headway Beginner Plus is a Beginner course in English intended to provide students with the fundamentals of the language and a foundation at First Year students / college of science, moving towards a higher level of proficiency at this stage. 1. Listening Objectives: • Understand and respond to basic greetings, introductions, and simple instructions. • Comprehend and extract information from short, simple spoken passages related to everyday topics. • Identify and understand common vocabulary and expressions in

	spoken English. 2. Speaking Objectives: • Engage in basic conversations using simple greetings, introductions, and expressions related to personal information. • Ask and answer simple questions about personal details, daily routines, and familiar topics. • Participate in short dialogues and role-plays to practice communication skills. 3. Reading Objectives: • Read and comprehend simple texts, such as signs, labels, short passages, and dialogues. • Recognize and understand basic vocabulary words and phrases in context. • Extract information from texts related to everyday situations and topics. 4. Writing Objectives: • Write short sentences and paragraphs about personal information, experiences, and familiar topics. • Fill out basic forms with personal details, such as name, age, and nationality. • Write simple messages, notes, and emails related to everyday situations. 5. Vocabulary and Grammar Objectives: • Acquire a basic vocabulary related to common topics, such as greetings, numbers, time, family, food, and everyday objects. • Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms. • Recognize and use common prepositions, articles, and basic sentence structures. 6. Cultural Awareness Objectives: • Develop an understanding of cultural customs and practices related to greetings, social norms, and everyday interactions in English-speaking countries. • Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the course, the students will be able to: 1. Listening and Speaking Skills: • Understand and respond appropriately to basic questions and statements. • Engage in simple conversations related to personal information, daily routines, and immediate surroundings. • Follow simple instructions and directions. • Develop basic pronunciation and intonation skills. 2. Reading Skills: • Recognize and understand basic vocabulary words and phrases in

	simple texts. • Comprehend and extract information from short, simple texts such as signs, notices, and labels. • Understand basic sentence structures and common grammatical patterns. 3. Writing Skills: • Write simple sentences and short paragraphs about personal information, experiences, and familiar topics. • Fill out simple forms and write basic personal information. • Write simple messages, notes, and emails related to everyday situations. 4. Vocabulary and Grammar: • Acquire and use a basic range of vocabulary related to everyday topics, such as greetings, numbers, time, family, food, and common objects. • Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms. • Recognize and use common prepositions, articles, and basic sentence structures. 5. Cultural Awareness: • Develop an understanding of cultural customs and practices related to greetings, social norms, and everyday interactions in English-speaking countries. • Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.
Indicative Contents المحتويات الإرشادية	1- Use simple forms of polite expressions to establish basic social contact and to perform everyday functions including making requests and offers, conducting simple phone conversations, asking and telling time, giving simple directions, asking about price, ordering a meal, etc. 2- Use a narrow range of positive and negative adjectives to describe objects, people and places. 3- Exchange information by forming and responding to simple questions. 4- Produce simple sentences using the correct word order and punctuation marks. 5- Use capital and lower-case letters accurately in writing. 6- Construct a short, guided paragraph on a familiar topic concerning home, family, friends and holidays. 7- Use the basic tenses including the present and past simple, and present continuous correctly. 8- Use the basic auxiliary verbs (am/is/are/was/were/can) and a range of regular and irregular verbs. 9- Demonstrate awareness of the essential grammatical features and functions including questions and negatives, plural nouns, frequency

	adverbs, possessives, pronouns and determiners.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- Communicative Approach: Emphasize communicative activities that promote interaction among students. Encourage pair and group work, role-plays, and discussions to practice language skills in meaningful contexts. 2- Integrated Skills: Integrate the four language skills (speaking, listening, reading, and writing) in lessons to create a balanced approach to language learning. Provide opportunities for students to use and develop these skills simultaneously. 3- Vocabulary Expansion: Incorporate vocabulary-building exercises and activities throughout the course. Use real-life contexts, visuals, and practical examples to help students learn and remember new words. 4- Grammar Focus: Teach and reinforce grammar structures in a systematic and progressive manner. Provide clear explanations, examples, and practice exercises to ensure students understand and can apply the grammar rules correctly. 5.Authentic Materials: Include authentic texts, such as articles, newspaper clippings, songs, and videos, to expose students to real-world language usage. This helps develop their reading and listening comprehension skills and exposes them to cultural aspects of English-speaking countries. 6.Cultural Awareness: Integrate cultural topics and discussions into the lessons to foster cultural awareness and sensitivity. Encourage students to share their own cultural backgrounds and experiences to promote understanding and appreciation of diverse perspectives. 7.Error Correction: Provide constructive feedback and error correction during speaking and writing activities. Help students identify and correct their mistakes, focusing on accuracy while encouraging fluency and self-expression. 8.Technology Integration: Utilize technology tools, such as interactive whiteboards, online resources, and language learning apps, to engage students and enhance their language learning experience. Incorporate multimedia materials for listening and speaking practice. 9.Regular Assessment: Assess students' progress regularly through quizzes, tests, and assignments. Provide timely feedback to guide their learning and address areas that need improvement. 10.Individualization: Cater to the individual needs and learning styles of students. Offer differentiated tasks and activities to ensure all learners are appropriately challenged and supported. 11.Cooperative Learning: Promote collaboration and teamwork among students through pair work, group projects, and peer feedback. This encourages active participation and a supportive learning environment.

	12.Review and Revision: Schedule regular review sessions to consolidate previously learned material. Encourage students to revise and practice independently, providing resources for self-study and additional practice.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.13
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**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Hello! p6 **am/are/is, my/your** I'm Pablo. My name's Judy. What's your name? p6 **This is ...** This is Ben. Nice to meet you. p7
Week 2	Your world

	p12**he/she/they, his/her** He's from the United States. Her name's Karima. p13 They're on holiday. p16 Questions What's his name? Where's she from? p13
Week 3	All about you p18 **am/are/is** We're all singers. p20 Negatives She isn't a nurse. p18 I'm not from Scotland. p20 They aren't builders. p20 Questions What's her address? How old is she? Is she married? p19 Short answers Yes, she is. / No, she isn't. p20
Week 4	Family and friends p24 **Possessive adjectives** my, your, our, their p24 **Possessive 's** Annie's husband Jim's office p24 **has/have** I have a small hotel. She has a job. We have three sons. p27 **Adjective + noun** a small hotel a big house a good job p27apples, beer, bread, cake p36 **Shopping** newsagent's, chemist's, off-licence p36 **Can you come for dinner?** Would you like some more rice? Could you pass the salt, please? How would you like your coffee? This is delicious! p37
Week 5	The way I live p32 **Present Simple I/you/we/they** I like ice-cream. I don't like tennis. Do you like football? p33 Where do you work? Do you live in Dundee? p34 In Brazil they speak Portuguese. p36

	a and an a waiter, an actor, an Italian restaurant p34 **Adjective + noun** an American car Spanish oranges p37
Week 6	Every day p40 **Present Simple he/she** He gets up at 6.00. He has lunch in his office. p42 She lives in a small house. p44 Questions and negatives What time does he have breakfast? He doesn't live in London. p43 **Adverbs of frequency** He always works late. He never goes out. p42
Week 7	My favourites p48 **Question words** who, where, why, how p48 **Pronouns** Subject/Object/Possessive I/me/my we/us/our they/them/ their p49 **this and that** I like this wine. Who's that? p50
Week 8	Mid Term Exam
Week 9	Where I live p56 **There is/are ...** There's an old sofa. Are there any armchairs? There are some books. p57 **Prepositions** in, on, under, next to p58
Week 10	Times past p64 **was/were born** When were you born? I was born in 1996. p65 **Past Simple – irregular verbs** went, came, saw She went shopping. p68
Week 11	We had a great time! p72 **Past Simple – regular and irregular** played, got, watched, did p72 Questions What did you do? Did you go out? p73 Negatives They didn't go to work. p73

	ago I went to Rome ten years ago. p78
Week 12	I can do that! p80 **can/can't** He can speak French. I can't draw. Can she run fast? p80 **Adverbs** I can cook a little bit. I can't cook at all. really well, fluently p82 **Requests and offers** Can you tell me the time? Can I help you? p83
Week 13	Please and thank you p88 **I'd like ...** I'd like some ham. How much would you like? p88 **some and any** I'd like some cheese. Do you have any Emmental? I don't have any apple juice. p89 **like and would like** I like Coke. I like going to the cinema. I'd like to go out. p91
Week 14	Here and now p96 **Present Continuous** She's wearing a T-shirt. What's he doing? p97 **Present Simple and Present Continuous** He lives in London. They're staying in a hotel. p98 It's time to go! p104 **Future plans** They're going on holiday. Which countries are you going to visit? I'm leaving on Tuesday. What are you doing this evening? p104 **Revision** Question words – when, where, who, how p106 Tenses – present, past, and future tenses p110
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required	Soars, John and Liz, (2011), New Headway Plus,	Yes

Texts	Special Edition, Beginner Level, Oxford University Press.	
Recommended Texts	New Headway Plus provides an integrated skills course with each unit divided into grammar, vocabulary, skills work and everyday English segments	yes
Websites	Oxford University Press: The New Headway series is published by Oxford University Press. Visit their website at www.oup.com and search for "New Headway Plus, Special Edition, Beginner Level " or browse their English language teaching section for information on the course.	

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.

HUMAN RIGHT & DEMOCRACY MODULE DESCRIPTION FORM

نموذج وصف مادة حقوق الانسان

Module Information معلومات المادة الدراسية					
Module Title	**Democracy and Human Rights**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	UOB104				
ECTS Credits	**2**				
SWL (hr/sem)	**50**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	CSC		**College**	Science	
Module Leader	Lara Hasan Abdullah		**e-mail**	lara.h@wsc.uobaghdad.edu.iq	
Module Leader's Acad. Title	Assistant Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	2
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. تطوير الرغبة بالتعليم 2. فهم المعنى الحقيقي لحقوق الانسان 3. تعزيز التعاون والمثابرة	4. القدرة على فهم المعلومات الصحيحة 5. القدرة على استرجاع المعلومات 6. الثقة بالنفس والتاكد من مصادر المعلومات
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	بيان نتائج التعلم 1. معرفة أهمية حقوق الانسان. 2. تحليل المشكلات الانسانية المعاصرة. 3. ان يتعرف الطالب على حقوق الانسان وتطورها التاريخي.	8. تحديد القوانين والتحليلات النفسية والاجتماعية 9. وصول الى ملخص يكون قاعدة معلومات 10. بيان نتائج التعلم 11. امتحانات تحريرية.

	4. يدرك أهمية دراسة خصائص ومبادئ حقوق الانسان. 5. يتعرف على أنواع حقوق الانسان وما هي اجيال حقوق الانسان. 6. بيان نتائج التعلم 7. اعطاء فرص واسعة من المعلومات	12. امتحانات يومية. 13. تقييم مفاجئ يومي. قياس أنشطة الطلبة الصفية من خلال مساهمتهم في اضافة ملاحظات على المادة
Indicative Contents المحتويات الإرشادية		

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- السبورة. 2- العرض الرقمي في القاعة الدراسة **(Data Show)**. 3- استعمال الصف الالكتروني في تنزيل المحاضرات الرقمية وبعض الامتحانات الرقمية.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	اختبارات	2	10% 40	5 and 10	LO #1, #2 and #10, #11
	تقارير	2	10%40	2 and 12	LO #3, #4 and #6, #7
	واجبات بيتية	1	10		
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #11
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**

Week 1	• الإطار المفاهيمي لحقوق الانسان
Week 2	• حقوق الانسان
Week 3	• انتهاك الحقوق
Week 4	• المواثيق الدولية
Week 5	• المواثيق
Week 6	• اختبار
Week 7	• مبدأ الفصل بين السلطات
Week 8	امتحان نصف السنوي
Week 9	• الانترنيت وأجيال وحقوق الانسان
Week 10	• حقوق الطفل
Week 11	• وسائل حماية حقوق الانسان
Week 12	• اللاجئين
Week 13	• الحقوق الاساسية
Week 14	• الفساد & الانتخابات
Week 15	الامتحان النهائي

Learning and Teaching Resources **مصادر التعلم والتدريس**		
	Text	**Available in the Library?**
Required Texts	حميد حنون حقوق الانسان وحرياته	نعم
Recommended Texts	رياض عزيز هادي / حقوق الانسان	كلا
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.

First Grade – Second Semester

DISCRETE STRUCTURES MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information **معلومات المادة الدراسية**					
Module Title	Discrete Structures			Module Delivery	
Module Type	Core			☒ Theory ☒Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CSC12008				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level		1	Semester of Delivery		2
Administering Department		CSC	College	Science	
Module Leader	Uhood Saadi Abdulkareem		e-mail	uhood.s@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title		Prof.	Module Leader's Qualification		MSc.
Module Tutor	Ghusoon Ghazi Mohammed		e-mail	Ghusoon.g@sc.uobaghdad.edu.iq	
Peer Reviewer Name			e-mail		
Scientific Committee Approval Date		01/06/2024	Version Number		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Discrete Structures are the abstract mathematical structures used to represent discrete objects and relationships between these objects. These discrete structures include logic, sets, permutations, relations, graphs, trees, and finite-state machines. 2. Discrete mathematics is about the mathematics of integers and of collections of objects. 3. It underlies the operation of digital computers and is used widely in all fields of computer science for reasoning about data structures, algorithms and complexity. 4. Topics covered in the module include logic, proof techniques and sets, functions, relations, summations and recurrences, counting techniques and recursion.
Module Learning	1. The main goal of this course is to build the mathematical and logic

Outcomes مخرجات التعلم للمادة الدراسية	foundation from the perspective of a computer science scientist. The course focuses on gaining skills that will enable you to define, design, and solve computer science problems in a formal and rigorous way. 2. Explain with examples the basic terminology of functions, relations, and sets. 3. Perform the operations associated with sets, functions, and relations. 4. Relate practical examples to the appropriate set, function, or relation model, and interpret the associated operations and terminology in context. 5. Convert logical statements from informal language to propositional and predicate logic expressions. 6. Apply formal methods of symbolic propositional and predicate logic, such as calculating validity of formulae and computing normal forms. 7. Use the rules of inference to construct proofs in propositional and predicate logic. 8. Describe how symbolic logic can be used to model real-life situations or applications, including those arising in computing contexts such as software analysis (e.g., program correctness), database queries, and algorithms. 9. Apply formal logic proofs and/or informal, but rigorous, logical reasoning to real problems, such as predicting the behaviour of software or solving problems such as puzzles 10. Describe the strengths and limitations of propositional and predicate logic. 11. Illustrate by example the basic terminology of graph theory, as well as some of the properties and special cases of each type of graph/tree 12. Demonstrate different traversal methods for trees and graphs, including pre-, post-, and in order traversal of trees. 13. Model a variety of real-world problems in computer science using appropriate forms of graphs and trees, such as representing a network topology or the organization of a hierarchical file system. 14. Show how concepts from graphs and trees appear in data structures, algorithms, proof techniques (structural induction), and counting.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Data collection and Sampling</u> **Mathematical Logic** Simple Logic Statements, Variable Use In Proposition Statements, Compound Logic Statements, Logical Propositions &Truth tables, Normal forms (conjunctive and disjunctive), Logical Equivalence, Tautology Statement & Contradiction statement, Logical Implication & Validity of well-formed formula, Algebra of Propositions, Conditional statements & Variations [6 hrs] **Sets Theory** Principal Concepts of Sets, Venn Diagrams, Sets of Numbers

	, Algebra of Sets, Family of Sets & index Family of Sets, Ordered Pairs & Product Sets, Boolean Algebra [5 hrs] **Relations** Binary Relation, Graph of the Relation, Photographer representation of the relations, The Domain & the Range of a Relation, Identity Relation & Inverse Relation, Composition Relation, Type of Relation, Equivalence Relations [7 hrs] **Functions** Principal Concepts & Definition, Models of Functions, Composition Function, Algebra of Function [6 hrs] **Vectors and Matrices** Vectors, Matrices, Models of Square Matrices, Algebra in the Matrices, Determinants, Minors & Cofactors, Find Inverse Square Not Singular Matrix, Solving System of liner equations using the Nonhomogeneous Matrix, inverse and examples, Grammar Rule and examples [15 hrs] **Graph Theory** Principle Concepts, Type of Graphs, Examples of Graphs , Graphs & Relation, Trees, Undirected graphs, directed graphs, weighted graphs (in algorithms), Spanning trees/forests [6 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering statistics term is to improve student's skills and extending via participation in the exercises. Subsequently, this leads to achieved through classes and some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ **15** اسبوعا			
Structured SWL (h/Sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/Sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	105	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/Sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	
	Assignments	2	20% (20)	2 and 12	
	Projects / Lab.	0	0% (0)	Continuous	All

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introduction and basic concepts of Discrete Structures and definitions.
Week 2	**Chapter 1: (**Mathematical **Logic**) 1- Introduction 2- Simple Logic Statements 3- Variable Use in Proposition Statements 4- Compound Logic Statements 5- Logical Propositions &Truth tables 6-Normal forms (conjunctive and disjunctive)
Week 3	7- Logical Equivalence 8- Tautology Statement & Contradiction Statement 9-Logical Implication & Validity of well-formed formula 10-Algebra Of Propositions 11- Conditional Statements & Variations
Week 4	**Chapter 2: (Sets Theory)** 1- Introduction 2- Methods of Expressing Sets 3- Principal Concepts of Sets 4- Venn Diagrams 5- Sets of Numbers 6- Algebra of Sets 7- Family of Sets & index Family of Sets 8- Ordered Pairs & Product Sets 9- Boolean Algebra
Week 5	**Chapter 3: (Relations)** **1**- Introduction 2- Binary Relation 3- Graph of the Relation 4- Photographer representation of the relations 5-The Domain & the Range of a Relation 6- Identity Relation & Inverse Relation
Week 6	7- Composition Relation 8- Type of Relation 9- Equivalence Relations
Week 7	**Chapter 4: (Functions)** 1- Introduction

	2- Principal Concepts & Definition 3- Models of Functions 4- Composition Function 5- Algebra of Function
Week 8	**Mid Term Exam**
Week 9	**Chapter 5: (Vectors and Matrices)** 1- Introduction 2- Vectors 3- Matrices 4- Models of Square Matrices 5- Algebra in the Matrices 6- Determinants
Week 11	7- Minors & Cofactors 8- Find Inverse Square Not Singular Matrix
Week 12	9- Solving System of liner equations using the Nonhomogeneous Matrix inverse and examples
Week 13	10- Grammar Rule and examples
Week 14	**Chapter 6: (Graph Theory)** 1- Introduction 2- Principal Concepts 3- Type of Graphs 5- Examples of Graphs 6- Graphs & Relation 5. Trees • Properties • Traversal strategies 6. Undirected graphs 7. Directed graphs 8. Weighted graphs (in algorithms) Spanning trees/forests
Week 15	**Preparatory week before the final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1.Discrete Mathematics an open introductions ,Oscar levin	Yes
Recommended Texts	2.Discrete Mathematics and its applications, 7th Edition Kenneth H.Rosen 3.Discrete Mathematics with Applications 4th Edition, Susanna S. Epp. 4.Discrete Mathematical Structures,3rd Edition, Kolman	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
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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.

DIGITAL LOGIC MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Digital Logic**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC12009				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level		1	**Semester of Delivery**		2
Administering Department		CSC	**College**	Science	
Module Leader	Bushra A. Sultan		**e-mail**	Bushra.sultan@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title		Assistant Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Nahlah Abdulrahman Alkhalidi		**e-mail**	nahlah.a@sc.uobaghdad.edu.iq	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**	1	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The course will teach the students about different systems in digital computers including binary, octal, hexadecimal number systems, gray code and ASCII code. The course will help the students to simplify and analyze basic combinational logic circuits and write the Boolean output expression for any combinational logic circuit. In addition, the students will learn to design logic circuits to do specific functions like addition in binary as well as studying the fundamentals of sequential logic devices such as Flip-Flop.
Module Learning Outcomes	1. Understand the different number systems (binary, Octal, Hexadecimal and Decimal) 2. Convert any number from one specific number system to another.

مخرجات التعلم للمادة الدراسية	3. Do mathematical operations in binary and 4. Use Hexadecimal numbers system. 5. Use Octal numbers system. 6. Use logic expression to represent logic circuits. 7. Simplify logic circuits using Rules of Boolean Algebra and Karnaugh map. 8. Compare between logic circuits before and after simplification 9. Learn to design logic circuits to do additional operation by designing Half -Adder and Full-Adder. 10. Design decoder and use it to implement any Boolean function 11. Design Multiplexer and use it to design any Boolean function\ 12. Design ROM and use it to design any Boolean function 13. Design logic circuits for memory storage using flip flops.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategies that will be adopted in delivering this module are: 1. Power point presentation (Data show). 2. Explanation on the white board using different color markers. 3. Discussions with the student during teaching. 4. Interaction with students through daily problems practice through lecture. 5. Solve different problems with more exercises. 6. Use tool kits in LABs to design logic circuits in addition to simulator software. 7. Prepare reports that develop critical thinking for students. 8. Submit assignment that develops student learning.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	75	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية				
As	**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**

Formative assessment	**Quizzes**	2	10% (5)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	5% (5)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	15% (10)	Continuous	All
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #11
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	• Introduction to Digital computers, • Number systems (Binary, Decimal, Octal, and Hexadecimal)
Week 2	• Conversions from decimal to other bases and vice versa • The relation between Octal, Hexadecimal and Binary numbers
Week 3	• Arithmetic Operation • Complements
Week 4	• The subtraction using complements (1's and 2's complements) • Quiz1
Week 5	• Binary logic and gates • Boolean functions (logical expression, T.T and logic circuit)
Week 6	• Simplification of Boolean functions using Boolean algebra • Canonical forms (Sum of Min-terms)
Week 7	• Canonical forms (product of maxterms), Standard forms (Sum of Products and product of sums) • Conversions between canonical and standard forms and vice versa
Week 8	**Midterm Exam**
Week 9	• Product of sum simplification and don't care about conditions • Other Logical Operations (NAND and NOR gates)
Week 10	• The Design procedure of Combinational Circuits • Adder
Week 11	• Subtractor • Code Convertor
Week 12	• Comparator • Decoder • Quiz2
Week 13	• Multiplexer
Week 14	• Read Only Memory (ROM) & Sequential Circuits
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Lab1: introduction to logic circuit designer (Logisim)
Week 2	Lab2: introduction to the basic gates and binary logic
Week 3	Lab3: Connect the basic gates (AND, OR, NOT)
Week 4	Lab4: Connect simple Boolean functions
Week 5	Lab5: Obtain the T.T of any Boolean function, connect then verify the T.T
Week 6	Lab6: Implement Boolean functions in Standard and canonical form and connect it
Week 7	Lab7: Other Logical gates (NAND, NOR, XOR, and XNOR
Week 8	Lab8: Simplify Boolean function using Map method and connect using NAND, NOR gates
Week 9	Lab9: Implement the adder and connect it using gates
Week 10	Lab10: Implement the subtractor and connect it using gates
Week 11	Lab11: implement comparator and connect it using gates
Week 12	Lab12: Implement any code conversion system and connect it using gates
Week 13	Lab13: Exam
Week 14	Lab14: Implement the Decoder and connect it using gates
Week 15	Lab15: Implement any combinational logic circuit using decoder

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Logic and Computer Design Fundamentals " 2'nd and 3ed editions", By "M. MORRIS MANO and CHARLES R. KIME, Prentice-Hall, Inc, 2001, 2002.	Yes
Recommended Texts	" Digital fundamentals "; Thomas L. Floyd; Pearson Prentice Hall,2009	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

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ACADEMIC WRITING SKILLS MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Academic Writing Skills**			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC12010				
ECTS Credits	**5**				
SWL (hr/sem)	**125**				
Module Level		UGx11 1	**Semester of Delivery**		2
Administering Department		CSC	**College**	Type College Code	
Module Leader	Name :Dr. Zainab Raed Ahmed		**e-mail**	E-mail: zainab.raid@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		4/1/2025	**Version Number**		1.0

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	The objectives of academic writing skills can be understood through different aspects, but here are some key perspectives: 1. Knowledge dissemination and analysis; including sharing and explaining complex ideas, critically evaluating evidence, and contributing to ongoing academic discourse. 2. Personal and professional development; including developing critical thinking and analytical skills, refining research and information literacy, and enhancing communication skills. 3. Impact and application; including Influence and persuading, solving problems and proposing, and promoting understanding

	and collaboration. Overall, the objectives of academic writing skills encompass the development of critical thinking, communication, and research skills, ultimately aiming to contribute to the creation, analysis, and dissemination of knowledge within and beyond academia.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Define the main concepts in academic writing. - Identifies and locates the thesis statement and the topic sentence in an essay and a paragraph, respectively. - Identifies and locates supporting ideas in essays and paragraphs. - Identifies and locates connectors and transitional signals in essays and paragraphs. - Identifies and names the different kinds of introduction and conclusion techniques that would interest the reader in essays and paragraphs. 2- Analyze and evaluate academic texts of various rhetorical modes based on their organization, unity, and content. - Analyzes narrative, descriptive, and expository paragraph types using critical reading skills and evaluates them based on English academic writing criteria. - Analyzes expository, process-analysis, comparison and contrast, and classification types of essays using critical reading skills and evaluates them based on English academic writing criteria. - Analyzes, evaluates and corrects paragraphs and essays written by classmates using peer-feedback forms. 3- Write paragraphs and essays in various academic rhetorical modes based on given topics. - Writes narrative, descriptive, and expository paragraphs based on given topics. - Composes opinion essays based on given topics. - Analyzes and evaluates feedback from peers on paragraphs and essays and rewrites the texts to improve them.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. - Improve typewriting skills and speed in the Lab using special software. (master typing, Mavis becon, …) - Learn an effective writing environment (Word processor, MS Word, ..) in Lab and learn how to deal with long documents in Word.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Here are some effective teaching strategies for academic writing skills: 1- Modeling: Demonstrate effective academic writing by providing well-written examples or sharing excerpts from scholarly articles. To understand the conventions, structure, and language used in academic writing. 2- Explicit Instruction: Provide clear explanations of academic writing conventions, including proper formatting, citation styles, and

	language use. To help students understand the expectations and requirements of academic writing. 3- Step-by-Step Approach: Break down the academic writing process into manageable steps (e.g., brainstorming, outlining, drafting, revising). To help students navigate the complex task of academic writing, making it more manageable and less overwhelming. 4- Genre Analysis: Analyze different genres of academic writing (e.g., research papers, essays, literature reviews) to highlight their unique characteristics. To help students recognize and adapt to the specific requirements of different types of academic writing. 5- Peer Review: Incorporate peer review sessions where students provide feedback on each other's writing. To enhance collaboration, it exposes students to diverse writing styles and provides multiple perspectives for improvement. 6- Revision Exercises: Emphasize the importance of revision by assigning exercises that require students to critically review and revise their own work. To promote self-reflection and improvement, fostering a mindset of continuous learning. 7- In-Class Writing Exercises: Incorporate in-class writing exercises that focus on specific aspects of academic writing, such as constructing effective introductions or using proper transitions. To provide immediate feedback and allow for real-time clarification of concepts. 8- Scaffolded Assignments: Design assignments that gradually increase in complexity, allowing students to build and apply writing skills progressively. To provide a structured learning path, fostering skill development over time.

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	4.2
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					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	15% (15)	5 and 10	All
	Assignment	3	10% (10)	3, 6, 9	All

	Report / Lab	Once a week	5% (5)	Continuous	All
	Presentation/ lab	1	10% (10)	11	All
Summative assessment	**Midterm exam**	2hr	10% (10)	7	1-6
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introduction to academic writing (integrity, elements, type of academic writing, writing process)
Week 2	Structure and organization of academic writing (introduction, body section, conclusion)
Week 3	Academic language (editing, grammar, punctuation, ….)
Week 4	Sentence variety and paragraph formatting (topic sentence, supporting idea, …)
Week 5	Definition the paragraph
Week 6	Fact and opinion paragraph
Week 7	Cause and effect paragraph
Week 8	**Midterm exam**
Week 9	Comparison and contrast paragraph
Week 10	Effective writing
Week 11	Paraphrasing and summarizing
Week 12	Quoting and referencing
Week 13	Proofreading
Week 14	The preparatory week before the Final Exam
Week 15	**Final exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Lab 1: Improve writing speed using (Master typing) software and write a weekly report to record the progress throughout the week; including the progress in speed, accuracy, ….
Week 2	Lab2: Introduction to Microsoft Word environment
Week 3	Lab 3: Microsoft Word key/tab (home, insert, design, layout, ….)
Week 4	Lab 4: Work on Word documents (insert picture, shape, table, page no., ……)
Week 5	Lab 5: Continue working on Word insert header, footer, watermark, equation, ….)
Week 6	Lab 6: page layout, margins, orientation, …..
Week 7	**Midterm exam**
Week 8	Lab 8: Introduction to working with long documents using headings, page breaks

Week 9	Lab 9: Inserting figures' caption and table title, then add a list of figures/tables automatically
Week 10	Lab 10: Exploring reference tab (insert table of contents, list of figures….)
Week 11	Lab 11: Adding reference using Mendeley Reference Management System software
Week 12	Lab 12: Using Grammarly or other helping software for proofreading
Week 13	Revisions
Week 14	Preparation week for the final exam
Week 15	**Final exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- "Academic Writing", by Jeffrey R. Wilson, 2022 - "Academic Writing Course", study skills in English, *third edition* by R.R. Jordan, 2003	E-copy
Recommended Texts	• Basic Academic Writing", by Moh Hafidz, M.Pd. 2018	E-copy
Websites	Best Academic Writing Courses & Certificates Online [2024] | Coursera	

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 is 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.

STATISTICS & PROBABILITY MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Probability & Statistics			**Module Delivery**	
Module Type	Basic			☒ **Theory** ☒**Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC12011				
ECTS Credits	**2**				
SWL (hr/sem)	**75**				
Module Level		1	**Semester of Delivery**		2
Administering Department		CSC	**College**	Science	
Module Leader	Basad Al-Sarray		**e-mail**	basad.husain@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title		Asst. Professor.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Zeina Mueen Mohammed		**e-mail**	zeina.m@uobaghdad.edu.iq	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2024	**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Calculus	**Semester**	1
Co-requisites module	None	**Semester**	2

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Statistical knowledge helps the student to reach the proper methods how to collect data. 2. This course deals with the basic concepts of statistics and probability. 3. This is the basic subject for collecting data, sample size and analysis. Subsequently, understand how to classify these samples according to the data base. 4. Statistics is a crucial process behind how we make discoveries in science, make decisions based on data, and make predictions.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks. 1. Recognize how will use appropriate statistical terms to describe data 2. Apply key concepts of probability, including discrete and continuous random variables, sampling. 3. Students will compute fluently and make reasonable estimations. 4. Summarize what is meant by a basic electric circuit. 5. Students will apply basic concepts of probability. 6. Students will apply concepts of various probability distributions to find probabilities. 7. Define Ohm's law. 8. Students will make estimations for a mean, variance, standard deviation and proportions. 9. Students will make estimations for a probability and relations with mathematical operations.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – Data collection and Sampling

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering statistics term is to improve student's skills and extending via participation in the exercises. Subsequently, this leads to achieved through classes and 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	75	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	25	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	
	Assignments	2	20% (20)	2 and 12	
	Projects / Lab.	0	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10

Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	Introduction and basic concepts of statistics and definitions.
Week 2	Types of data sets, types of sampling and collecting data.
Week 3	Construction of frequency distributions (grouped data and ungrouped data) Relative frequency distributions and cumulative frequency distributions (less than & more than)
Week 4	Frequency Distribution Charts: Histogram, Polygon, curve and Pie charts.
Week 5	Measures of Central Tendency (grouped data and ungrouped data): (Arithmetic Mean, Harmonic mean, Geometric Mean, Mode)
Week 6	Median and Comparison between (Mean, Mean and Mode) and the relationship.
Week 7	Mid-term Exam
Week 8	Measures of Variation (grouped data and ungrouped data)
Week 9	Measures of Variation (grouped data and ungrouped data)
Week 10	(grouped data and ungrouped data) Range, Mean or average Deviation
Week 11	(grouped data and ungrouped data) : Standard Deviation, Variance and Coefficient Variation
Week 12	Counting Techniques: Terminology in probability theory and some
Week 13	Venn diagram laws of set relation,
Week 14	relations from set theory (addition, multiplication, division and subtraction)
Week 15	Rules and Combinations and Permutation
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Miller, I., Miller, M., & Freund, J. E. (2014). *John E. Freund's mathematical statistics with applications*. Boston: Pearson,	Yes
Recommended Texts	**مبادئ الاحصاء – امير حنا هرمز**	No
Websites	https://www.um.edu.mt/__data/assets/pdf_file/0004/289201/Statistics.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

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PROGRAMMING FUNDAMENTALS II MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Programming Fundamentals II**			**Module Delivery**	
Module Type	**Core**			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CSC12107				
ECTS Credits	**8**				
SWL (hr/sem)	**200**				
Module Level		1	**Semester of Delivery**		2
Administering Department			**College**	Science	
Module Leader	Bara'a Ali Attea		**e-mail**	bara.a@sc.uobaghdad.edu.iq	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Isra Haitham Abdulateef		**e-mail**	Isra.h@sc.uobaghdad.edu.iq	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2024	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. To explore how to declare and manipulate data into 1D and 2D arrays in a C++ program. 2. To become familiar with the restrictions on array processing. 3. To explore how to construct and use a value-returning, user-defined function in a program. 4. To learn how to construct and use void functions in a program. 5. To discover the difference between value and reference parameters. 6. To explore reference parameters and value-returning functions. 7. To learn about the scope of an identifier. 8. To examine the differences between local and global identifiers.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Explore how to declare and manipulate data into arrays in a C++ program. 2. Become familiar with the restrictions on array processing. 3. Become familiar with 2D arrays. 4. Search, manipulate, and sort an array. 5. Search for the K^{th} smallest/largest element in a sorted/unsorted array. 6. Examine value-returning functions, including actual and formal parameters. 7. Explore how to construct and use a value-returning, user-defined function in a program. 8. Learn how to construct and use void functions in a program. 9. Discover the difference between value and reference parameters. 10. Explore reference parameters and value-returning functions. 11. Learn about the scope of an identifier. 12. Examine the differences between local and global identifiers.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A – 2D Arrays In this part, the student will continue learning how to define structured data types as two-dimensional arrays and square 2D arrays. [25 hrs] Part B – User-defined functions In this part, the student will learn how to tell a computer that it does not have to follow a simple structure of one function (main), it can also make user-defined functions. The student learned in the previous module (module CSC1101) that a C++ program is a collection of functions. One such function is main. The programs in the previous module (module CSC1101) use only the function main; the programming instructions are packed into one function. This technique, however, is good only for short programs. For large programs, it is not practical (although it is possible) to put the entire programming instructions into one function, as you will discover in this part. The student must learn to break the problem into manageable pieces. This part first discusses the user-defined functions. [50 hrs]

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 exercises and daily quizzes, 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	109	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation تقييم المادة الدراسية					
As		**Time/Number**	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 9	LO #1, #2 and #9
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	10	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	10	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	**Material Covered**
Week 1	2D arrays.
Week 2	Reading, printing, searching a 2D array.
Week 3	Manipulating 2D array indices and elements.
Week 4	Sorting 2D arrays.
Week 5	Finding the K^{th} smallest/largest element in the 2D array without sorting it.
Week 6	Playing with 2D arrays.
Week 7	Square matrices, main diagonal, and secondary diagonal. Playing with the triangle components of a square matrix.
Week 8	Mid-term Exam
Week 9	User-defined functions: declaration, header, body, formal parameters, and actual parameters.
Week 10	Passing parameters by value to a user-defined function.
Week 11	Passing parameters by address to a user-defined function.

Week 12	Void user-defined functions.
Week 13	User-defined function with return.
Week 14	Passing arrays and matrices to a user-defined function.
Week 15	**Preparatory week before the final Exam**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Week	**Material Covered**
Week 1	Lab 1: Reading and printing 2D array, Processing elements in 2D array (Search, replace, etc.).
Week 2	Lab 2: Sorting 2D array.
Week 3	Lab 3: Searching for an ordered element in unsorted array.
Week 4	Lab 4: Playing with 2D square matrices.
Week 5	Lab 5: Playing with triangles of 2D square matrices.
Week 6	Lab 6: Playing with triangles of 2D and 1D arrays.
Week 7	Lab 7: Further problems on 1D and 2D arrays.
Week 8	Mid-term Exam
Week 9	Lab 9: Void user-defined functions with no parameters, Void user-defined functions with passing parameters (by value).
Week 10	Lab. 10: Void user-defined functions with passing parameters (by address).
Week 11	Lab 11: User-defined functions with passing parameters (by value) and return.
Week 12	Lab 12: User-defined functions with passing parameters (by address) and return.
Week 13	Lab. 13: User-defined functions with passing 1D arrays, User-defined functions with passing 2D arrays.
Week 14	Preparatory week before the final Exam
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	C++ PROGRAMMING :FROM PROBLEM ANALYSIS TO PROGRAM DESIGN, 5th EDITION, D.S. MALIK, 2011.	No
Recommended Texts		
Websites	https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxjcDJuZGlqfGd4OjQxN2NjMWU0ZGZlYzI4NDU	

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 failures" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.