MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Computer Programming 1			**Module Delivery**	
Module Type	Core			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CRCOMPRO1				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	2	
Administering Department	Mathematics and Computer Applications Science		**College**	College of Sciences	
Module Leader	Mohammed Q. Ali		**e-mail**	mohammed.q.ali@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**		

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 Aims أهداف المادة الدراسية	1. Understanding the computer languages and their features 2. Learn how to analysis a problem using algorithms 3. The ability using flowcharts and pseudocode for expressing the problem and converting it to program in C++ 4. Equip students with a solid understanding of the basic syntax and structure of C++ programs. 5. Enable students to declare, initialize, and work with various data types, and understand the importance of type conversion and type safety in C++. 6. Develop students' ability to implement conditional logic using if, else, and switch statements, allowing them to control the flow of their programs. 7. Foster an understanding of the importance of logical operations and conditions in solving real-world problems. 8. How to use for, while, and do-while loops to repeat operations efficiently, introducing control structures like break and continue for managing loop execution. 9. Provide a strong understanding of how to define, call, and pass arguments to functions, enabling students to write modular, reusable, and maintainable code. 10. the differences between passing by value and by reference and how to handle return values. 11. Introduce arrays and their role in handling collections of data, as well as how to manipulate strings operations like concatenation, comparison, and length manipulation. 12. Encourage students to develop problem-solving skills by applying their knowledge of C++ concepts to solve practical problems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Students should be able to: 1. Write an algorithm, flowchart and pseudocode in order to convert to program in C++ 2. Write and Execute Simple C++ Programs. 3. Understand and Use Variables and Data Types. 4. Implement Conditional Logic and Decision-Making. 5. Use Loops for Iteration. 6. Define and Call Functions and user defined functions 7. Work with Arrays and Strings
Indicative Contents المحتويات الإرشادية	• Algorithm, flowchart and pseudocode • Overview of C++ (Setting C++ Environment and Structure of a C++ Program) • Variables, Data Types, and Constants • Operators in C++ (Arithmetic, relational and logic Operators) • Control Flow: Conditional Statements and Loops • Functions and user defined function • Arrays and String in C++

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is by explaining lectures in an interactive way by letting the students to participate in the presenting through questions and answers while at the same time refining and expanding their critical thinking skills. This will be achieved through classes and labs.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.13
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**	4	10% (10)	3,6,10,13	All
	Assignments	4	10% (10)	4,7,11,14	All
	Project	1	10% (10)	Continuous	
	Lab	2	10% (10)	8,15	All
Summative assessment	**Midterm Exam**	2hr	10% (10)	8,15	All
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Computer Languages
Week 2	Planning of Computer Program (Algorithms and Flowcharts)
Week 3	Planning of Computer Program (Pseudocodes)
Week 4	Operators in C++
Week 5	Conditional Statements
Week 6	Conditional Loops
Week 7	Loop Control Statements
Week 8	Mid-term exam
Week 9	Functions: Basics and Parameters (definition, declaration, and calling)
Week 10	Recursive Functions
Week 11	Arrays: Basics and Manipulation (Declaring, initializing, and accessing array elements)
Week 12	Arrays: Multi-dimensional arrays
Week 13	Introduction to C-strings (null-terminated arrays of characters)
Week 14	Basic string operations: concatenation, comparison, length, etc.
Week 15	Mid-term Exam 2

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to C++ Programming (Writing, compiling, and running your first "Hello, World!" program)
Week 2	Lab 2: Introduction to Variables and Data Types (Identifiers, Introduction to variables and constants)
Week 3	Lab 3: Arithmetic and Relational operators
Week 4	Lab 4: Logical operators, Assignment operators, increment, and decrement operators
Week 5	Lab 5: if, else if, else statements, Nested if conditions and switch statement
Week 6	Lab 6: for loop, while loop and do-while loop
Week 7	Lab 7: break and continue statements
Week 8	Practical Exam 1
Week 9	Lab 8: Write a user defined function

Week 10	Lab 9: Recursive Functions examples
Week 11	Lab 10: one dimension array declaration with examples
Week 12	Lab 11: two-dimension array declaration with examples
Week 13	Lab 12: Using the `string` class (Standard Library)
Week 14	Lab 13: Other string functions in C++ with examples
Week 15	Practical Exam 2
Teaching Staff	

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts	• A Complete Guide to Programming in C++ by Ulla Kirch-Prinz, Peter Prinz 2001 • Schaum's Outline of Programming with C++ (2nd. Edition) by John Rast Hubbard 2000 • Introduction to Algorithms, Second Edition (2nd. Edition) by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein 2001	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.