MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**C++ Programming**	**Module Delivery**
Module Type	**Core**	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	**COM12109**	
ECTS Credits	**5**	
SWL (hr./sem)	**125**	

Module Level	UGI	Semester of Delivery		2
Administering Department	**BSc - COMM**	**College**	**Al-Mansour University College**	
Module Leader		**e-mail**		
Module Leader's Acad. Title		**Module Leader's Qualification**		
Module Tutor		**e-mail**		
Peer Reviewer Name		**e-mail**		
Scientific Committee Approval Date	13/06/2023	**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	Upon completion of this course, the student will be able to: 1. Understand computers and classify programming languages . 2. Write simple C++ program. 3. Learn data types, variables, arithmetic operators, assignment and input statements. 4. Learn relational operators and logical expressions. 5. Using selection in program like if/if…else ,block statements , switch structures. 6. Develop executable programs by using repetition control structures: While Looping, do…while Looping, For Looping, Break and continue Statements Define and use functions in C++ program. 7. Learn Enumeration type with Functions 8. Learn how to define String type with string Operations 9. Learn define and use arrays and strings 10. Define pointer data types , Address of Operator (&) ,Pointer Variables 11. Perform simple file I/O streams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize computer system and programming languages. 2. Build simple program by using different data types. 3. Define the relational operators and logical expressions. 4. Adding new abilities to program by using selection control structures. 5. Applying repetition control structures in programs. 6. Perform, Break and continue Statements. 7. Recognize functions in C++ program and their types and how to use them in program 8. Define the Enumeration type with Functions 9. Identify String type with string Operations 10. Using arrays with their types in programs and strings with functions. 11. Applying pointer data types and classes. 12. Apply recursion in functions 13. Perform simple file I/O streams

Indicative Contents المحتويات الإرشادية	Introduction to computers and Classification of programming languages (1 hours), Introduction to problem solving (3 hours), Computers and Programming Languages (3 hours), Processing a C++ Program (3 hours). Basics of a C++ Program, Data Types, Variables, Arithmetic Operators (3 hours) , Assignment and Input Statements (3 hours). Input / Output, I/O Streams (3 hours), Predefined Functions, Output Formatting (3 hours), Control Structures I (Selection): Relational Operators, Logical Expressions (3 hours), If/If…else, Block Statements (3 hours), Switch Structures (3 hours),Control Structures I (Repetition) : While Looping, Do…while Looping (3 hours), For Looping (3 hours), Break and continue Statements (3 hours), Preparatory week before the final Exam User-Defined Functions (6 hours), User-defined simple data types and the string type (6 hours), Arrays and strings (6 hours), Pointers, Classes (3 hours), File Input/Output (3 hours).

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, homework's and examples. Practical examples help students to understand the course material.

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	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	61	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	8 and 13	LO #1 to #4 and #6 to #8
	Assignments	3	10% (10)	4, 7 and 11	LO #2, #3, #4, #5 and #7,#8,#9
	Projects / Lab.	1	20% (20)	Continuous	All
	Report	0			
Summative assessment	Midterm Exam	2 hr.	10% (10)	9	LO #1 - #7
	Final Exam	3 hr.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	History of C++ Language - Typical C++ Development Environment
Week 2	The main structure of C++ programs- OOP Classes declaration
Week 3	Data types - Variable declaration - Constant declaration - Simple Input/Output, I/O Streams
Week 4	Arithmetic Operators - Relational Operators - Logical Operators - Assignment Operators
Week 5	Increment & Decrement Operators -Bitwise Operators - Misc. Operators.
Week 6	Conditional (Selection) Statement: if statement - if...else statements
Week 7	Nested if statements - Switch statement
Week 8	Iteration (Repetition) statements: while statement - do/while statement
Week 9	for statement - Nested for statement- Break and continue Statements
Week 10	**Mid-term Exam**

Week 11	Array: Array declaration - Single dimensional array - Multiple –subscripted Arrays
Week 12	String (1D array of characters) - Array of strings (2D array of characters).
Week 13	Functions: Function Prototypes (declaration) - Calling Function - Function Definition
Week 14	Passing Arguments functions.
Week 15	Pointers: Advantage of using pointers - pointers in array.
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Review of typical C++ Environment and program instillation package
Week 2	Understand structure of C++ programs- OOP Classes declaration
Week 3	executing examples of Data types - Variable declaration - Constant declaration - Simple Input/Output, I/O Streams
Week 4	Applying of Arithmetic Operators - Relational Operators - Logical Operators - Assignment Operators
Week 5	Applying of Increment & Decrement Operators -Bitwise Operators – Misc. Operators.
Week 6	Using Conditional (Selection) Statement: if statement - if...else statements
Week 7	Utilizing Nested if statements - Switch statement
Week 8	Appling Iteration (Repetition) statements: while statement - do/while statement
Week 9	Using for statement - Nested for statement- Break and continue Statements
Week 10	Applying Array: Array declaration - Single dimensional array
Week 11	Executing of Multiple –subscripted Arrays
Week 12	Test String - Array of strings.
Week 13	Understanding Functions: Function Prototypes (declaration) - Calling Function - Function Definition
Week 14	Applying Passing Arguments functions.
Week 15	Understanding Pointers: Advantage of using pointers - pointers in array.

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. C++ Programming: From Problem Analysis to Program Design, 6th Edition; D.S. Malik	Yes
Recommended Texts	• Programming and problem solving with C++: comprehensive sixth edition, Nell Dale and Chip Weems. • Computer Science Textbook class XI, First Edition, 2019. • C++ Primer Plus, Sixth Edition	No
Websites	▪ http://www.cplusplus.com/doc/tutorial/	

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.