الملحق 4: وصف المادة الدراسية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**C++ programming**	**Module Delivery**
Module Type	**Core**	☒Theory
Module Code	**EE 105**	☐Lecture
ECTS Credits	**4**	☒Lab
SWL (hr/sem)	**100**	☐Tutorial ☐Practical ☐Seminar

Module Level	1	**Semester of Delivery**		2
Administering Department	Bachelor of Electronic	**College**	College of Engineering	
Module Leader		**e-mail**		
Module Leader's Acad. Title		**Module Leader's Qualification**		
Module Tutor	Name (if available)	**e-mail**	E-mail	
Peer Reviewer Name	Name	**e-mail**	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	1. Providing an introduction to the C++ programming. 2. Introducing the students to the principles and fundamentals of programming. 3. Enriching the student's skills to be able to realize that the programming fundamentals are applicable to other programming languages. 4. Covering multiple topics including program design and development, basic data types, control structures, functions, arrays, pointers, and introduction to files.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Creating simple and basic program designs through analyzing given problem statements. 2. Understanding the principle of holding, declaring and updating values into different variable types. 3. Implement different functions for input and output, various data types, basic operators, files and functions. 4. Realizing the concept of loops, conditional statements as controlling tools to develop and solve complicated problems by C++ programming. 5. Applying functions as way of simplifying big issues into small parts. 6. Implementing programming techniques to solve problems in the C++ programming language. 7. Solving real world problems by applying programming language concepts through project-based learning and seminar-based learning.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following.** • Course introduction and working with various variables (8 hrs). • Working with operators and INPUT/OUTPUT statements (12 hrs). • Control structures (16 hrs). • Working with Functions and their declaration (8 hrs). • Arrays and their declaration (both one and multi-dimensional arrays) (8 hrs). • Introduction to pointers and files (8 hrs).
Description	This course presents students to the C++ programming language as a well-known programming language. Students will be enriched with the essential principles of programming which can be applicable to achieve programming in any other languages. Topics included in this course cover the fundamentals of creating and developing a good-designed program as well as making students familiar with basic data types, control commands, loops, functions, arrays, pointers, and introduction to classes for programmer-defined data types.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	**In this course, students are guided by:** • Using different examples. • Using different styles of discussion that aim to connect the theoretical and practical sides. • Asking questions and giving exercises that require analysis and conclusions related to lectures. • Encourage students to participate in discussions and do the practical work. • Encourage students to work in groups.

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	36	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction:** A brief history to the importance of C++/ Structure of a C++ program, writing first simple program in C++.
Week 2	**Data types:** Variable declaration statements and assignment statements.
Week 3	**Operators in C++ programming:** Assignment operators, compound assignment operators and relational operators.
Week 4	**Operators in C++ programming:** Logical operators, Bitwise operators, Increment and decrement operators and precedence of operators.
Week 5	**Input/output: Input & output statement:** (cin>> statement and cout<<statement).
Week 6	**Control structures** (part 1): **if** statement, and **if/else** statement.
Week 7	**Control structures** (part 2): selection **switch** statement.
Week 8	**Control structures** (part 3): **while**, and **do/while** statements **o**r loop statement.
Week 9	**Control structures** (part 4): **for** loop/ **Nested for loop** statements, and **break** and **continue** statement
Week 10	**Functions**: Introduction to math library functions.
Week 11	**Functions**: definition of subprograms (building functions).
Week 12	**Arrays:** Introduction to arrays, declaring of 1-dimensional arrays, and examples using arrays.
Week 13	**Arrays:** Multidimensional arrays initialization declaration and application.
Week 14	**Pointers :** Introduction to pointers
Week 15	**Files:** Introduction to files.
Week 16	**Preparatory week before the final exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	**Introduction:** A brief history to the importance of C++/ Structure of a C++ program, writing first simple program in C++.
Week 2	**Data types:** Variable declaration statements and assignment statements.
Week 3	**Operators in C++ programming:** Assignment operators, compound assignment operators and relational operators.
Week 4	**Operators in C++ programming:** Logical operators, Bitwise operators, Increment and decrement operators and precedence of operators.
Week 5	**Input/output: Input & output statement:** (cin>> statement and cout<<statement).
Week 6	**Control structures** (part 1): **if** statement, and **if/else** statement.
Week 7	**Control structures** (part 2): selection **switch** statement.
Week 8	**Control structures** (part 3): **while**, and **do/while** statements **o**r loop statement.
Week 9	**Control structures** (part 4): **for** loop/ **Nested for loop** statements, and **break** and **continue** statement
Week 10	**Functions**: Introduction to math library functions.
Week 11	**Functions**: definition of subprograms (building functions).
Week 12	**Arrays:** Introduction to arrays, declaring of 1-dimensional arrays, and examples using arrays.
Week 13	**Arrays:** Multidimensional arrays initialization declaration and application.
Week 14	**Pointers :** Introduction to pointers
Week 15	**Files:** Introduction to files.

	Ministry of Higher Education and Scientific Research - Iraq University of Diyala College of Engineering Department of Engineering	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	• Ortega, James M., and Andrew S. Grimshaw. *An introduction to C++ and numerical methods*. Oxford University Press, Inc., 1998. • Cohoon, James P., and Jack W. Davidson. *C++ Program Design: An introduction to programming.* McGraw Hill, 2002, 2002.	Yes
Recommended Texts	• D Oualline, Steve. Practical C++ programming. " O'Reilly Media, Inc.", 2003. • Kirch-Prinz, Ulla, and Peter Prinz. *A complete guide to programming in C++*. Jones & Bartlett Learning, 2002.	No
Websites	https://www.mygreatlearning.com/academy/learn-for-free/courses/c-tutorial?gl_blog_id=74312 https://www.programiz.com/cpp-programming/examples/print-sentence	

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.