Ministry of Higher Education and Scientific Research
UNIVERSITY OF ANBAR
COLLEGE of COMPUTER SCIENCES AND INFORMATION TECHNOLOGY
DEPT. COMPUTER NETWORKS SYSTEMS

وزارة التعلــيم العالــي والبحــث العلمي
جامـــعـــة الأنبار
كلــــية علوم الحاسوب وتكنولوجيا المعلومات
قســـم أنظمة شبكات الحاسوب

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	**C++ II**	**Module Delivery**	
Module Type	Core	☒ Theory	
Module Code	NSCC108	☐ Lecture	
ECTS Credits	**6**	☒ Lab	
SWL (hr/sem)	**150**	☒ Tutorial	
		☐ Practical	
		☐ Seminar	
Module Level	1	**Semester of Delivery**	
Administering Department	NSD	**College**	CSIT
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		**Version Number**	

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

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Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The course aims to provide students with a comprehensive understanding of the C++II programming language. Students learn the syntax, semantics, and features of C++II and gain proficiency in writing efficient and effective code.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Develop proficiency in the C++II programming language, including a strong understanding of its syntax, semantics, data types, control structures, functions, and object-oriented programming concepts. Develop the ability to analyze problems, design algorithms, and implement solutions using C++II programming techniques. Apply critical thinking and logical reasoning to solve programming challenges.
Indicative Contents المحتويات الإرشادية	Introduction to C++ Programming Object-Oriented Programming (OOP) in C++ C++ Standard Library Memory Management in C++ Data Structures and Algorithms in C++ C++ Application Development

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	Conceptual Understanding: Hands-on Practice Code Review and Feedback Problem-Solving Exercises

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem)	63	**Structured SWL (h/w)**	4.2

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الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5,10	LO #1,2, 3 and 5
	Assignments	2	10% (10)	2,12	LO # 3, 4 and 5
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5,8 and l0
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-6
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Function
Week 2	Passing Parameters. Passing by Value. Passing by Reference.
Week 3	Recursive function
Week 4	Pointers
Week 5	Array of One Dimension: Declaration of Arrays.
Week 6	Initializing Array Elements
Week 7	Accessing Array Elements.
Week 8	Read / Write / Process Array Elements.
Week 9	Array of Two Dimension: Declaration of 2D-Arrays.
Week 10	Read / Write / Process
Week 11	Array Elements.
Week 12	String manipulation

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Week 13	Member Function of String stdlib Library.
Week 14	Structures
Week 15	Array of Structures.
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Review of C++ basics: data types, variables, operators, and control structures
Week 2	Introduction to object-oriented programming (OOP) concepts: classes and objects
Week 3	Implementation of simple classes and objects in C++
Week 4	Inheritance and polymorphism: extending classes and overriding methods
Week 5	Introduction to dynamic memory allocation: new and delete operators
Week 6	Implementation of inheritance and polymorphism in C++
Week 7	File handling: reading from and writing to files

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		
Recommended Texts	K. Venugopal and Raj Buyya, *Mastering C++,* McGraw Hill Education, 1997.	
Websites	https://www.learncpp.com/ https://www.w3schools.com/CPP/default.asp	

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<table>
<tr><td colspan="5" align="center">Grading Scheme
مخطط الدرجات</td></tr>
<tr><td>Group</td><td>Grade</td><td>التقدير</td><td>Marks (%)</td><td>Definition</td></tr>
<tr><td rowspan="5">Success Group (50 - 100)</td><td>A - Excellent</td><td>امتياز</td><td>90 - 100</td><td>Outstanding Performance</td></tr>
<tr><td>B - Very Good</td><td>جيد جدا</td><td>80 - 89</td><td>Above average with some errors</td></tr>
<tr><td>C - Good</td><td>جيد</td><td>70 - 79</td><td>Sound work with notable errors</td></tr>
<tr><td>D - Satisfactory</td><td>متوسط</td><td>60 - 69</td><td>Fair but with major shortcomings</td></tr>
<tr><td>E - Sufficient</td><td>مقبول</td><td>50 - 59</td><td>Work meets minimum criteria</td></tr>
<tr><td rowspan="2">Fail Group (0 – 49)</td><td>FX – Fail</td><td>راسب (قيد المعالجة)</td><td>(45-49)</td><td>More work required but credit awarded</td></tr>
<tr><td>F – Fail</td><td>راسب</td><td>(0-44)</td><td>Considerable amount of work required</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

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.