



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Structured Programming II		Module Delivery
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	CYS111		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	Dept. of Cybersecurity	College	College of Information Technology
Module Leader	Dr. Senan Ali Abd	e-mail	senan.a.abd@uofallujah.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Dr. Senan Ali Abd	e-mail	senan.a.abd@uofallujah.edu.iq
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Scientific Committee Approval Date	25-5-2026	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		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	• Introduce students to advanced C++ programming concepts. • Develop problem-solving skills using arrays, functions, pointers, and files. • Prepare students to write structured and efficient programs for cybersecurity applications. • Learn the principles of Structure programming
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Use arrays and multi-dimensional arrays to store and manipulate collections of data using loops and indexing techniques. 2. Design and implement user-defined functions with parameters, default arguments, return values, and multiple parameters to solve programming problems. 3. Differentiate between passing parameters by value and by reference and apply them appropriately in C++ programs. 4. Use structures (struct) to organize and manage related data and pass structures and arrays to functions. 5. Apply concepts of variable scope, references, and memory addresses in program design. 6. Implement recursion and lambda functions to solve computational problems using advanced function techniques. 7. Use enumerations (enum) to define meaningful symbolic constants in programs. 8. Understand and apply pointer concepts, including dereferencing, pointer manipulation, and dynamic memory allocation using new and delete. 9. Use pointers with functions to modify data and manage memory effectively. 10. Perform file operations in C++, including creating, reading, and writing files using different file types. 11. Develop structured C++ programs that integrate arrays, functions, pointers, and file handling to solve practical problems.
Indicative Contents المحتويات الإرشادية	Introductions to C++ Programming; introduction to arrays of one- and two-dimensions, Introductions to functions and modifiers, Pointer basics With Pointers and arrays. Also, Additionally, students will learn about creating and accessing files.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Lectures with practical examples • Live coding demonstrations • Lab programming sessions • Problem-solving exercises • Daily and weekly quizzes. • Class room activities.

	- Guiding the student to some websites. - Assignments and Homework: Reinforce learning through practice. - Quizzes and Exams: Evaluate students' understanding and progress.
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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	72	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	150		

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 #9, #10
	Homework	2	5% (5)	4 and 9	LO #3, #4 and #6, #7
	Projects / Lab.	1	15% (15)	Continuous	LO #1 - #11
	Exam / Lab.	1	10% (10)	13	LO #1 - #11
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	
	جامعة الفلوجة
Week 1	Arrays: Access the Elements of an Array, Arrays and Loops
Week 2	Multi-Dimensional Arrays
Week 3	Structures (struct)
Week 4	Functions, Function Parameters, Default Parameters, Multiple Parameters the Return Keyword
Week 5	Function: passing by value, Functions - Pass by Reference
Week 6	Pass Array to a Function, Pass Structures to a Function, Variable Scope
Week 7	Mid-term Exam
Week 8	Recursion, Lambda Functions
Week 9	Enumeration (enum)
Week 10	References, Memory Address
Week 11	Pointers, Dereference, Modify Pointers
Week 12	Pointers in function, new and delete
Week 13	Files, define a File, create a file, File Types
Week 14	Read a file, Write a file
Week 15	<i>Preparatory week before the final Exam</i>

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Arrays
Week 2	Multi-Dimensional Arrays
Week 3	Structures (struct)
Week 4	Functions
Week 5	Function: passing by value, Functions - Pass by Reference
Week 6	Pass Array to a Function, Pass Structures to a Function, Variable Scope
Week 7	Mid-term Exam

Week 8	Recursion, Lambda Functions
Week 9	References, Memory Address
Week 10	Enumeration (enum)
Week 11	References, Memory Address
Week 12	Pointers in function, new and delete
Week 13	Pointers
Week 14	Files
Week 15	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. The C++ Programming Language (4th Edition) by Bjarne Stroustrup 2. C++ How to Program 10 th Edition by Paul Deitel and Harvey Deitel	Yes
Recommended Texts		
Websites	https://www.learncpp.com/	

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.