



الملحق 4: وصف المادة الدراسية

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Programming		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	AIE 102		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	AI. Eng.	College	College of Artificial Intelligence Engineering Technology
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		e-mail	
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	AIE 101	Semester	1
Co-requisites module	None	Semester	



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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: <ol style="list-style-type: none"> 1. Define and use functions in C++ program. 2. Learn Enumeration type with Functions 3. Learn how to define String type with string Operations 4. Learn define and use arrays and strings 5. Accessing struct members, I/O structs 6. Define pointer data types , Address of Operator (&) ,Pointer Variables 7. Analyze and model classes and their relationship. 8. Apply recursion. 9. Perform simple file I/O streams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Recognize functions in C++ program and their types and how th use them in program 2. Define the Enumeration type with Functions 3. Identify String type with string Operations 4. Using arrays with their types in programs and strings with functions. 5. Using structures to define data and recognize how to use them. 6. Applying pointer data types and classes. 7. Apply recursion in functions 8. Perform simple file I/O streams
Indicative Contents المحتويات الإرشادية	Review of programming fundamentals (3 hours) User-Defined Functions (6 hours) User-defined simple data types and the string type (6 hours), Arrays and strings (9 hours) Records (Structs) (6 hours) Pointers, Classes (6 hours) Recursion (3 hours) File Input/Output (6 hours)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	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.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.7
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	20% (20)	6 and 12	LO #2 and #7
	Assignments	3	10% (10)	4, 7 and 10	LO #3 and #8
	Projects / Lab.		10% (10)		
	Report				
Summative assessment	Midterm Exam	2 hr	10% (10)	9	LO #1 - #5
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		



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Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Review of programming fundamentals
Week 2	User-Defined Functions Value-Returning Functions ,return Statements
Week 3	Void Functions ,Parameters
Week 4	Enumeration Type, Functions and Enumeration Types
Week 5	String Type, Additional string Operations
Week 6	Arrays and strings One-Dimensional Array ,Indexing
Week 7	Array Searching , c-Strings
Week 8	Parallel Arrays ,Multidimensional Arrays
Week 9	Records (Structs) Accessing struct Members , I/O structs
Week 10	Arrays vs Structs
Week 11	Pointers, Classes Pointer data types , Address of Operator (&) ,Pointer Variables
Week 12	Dynamic Arrays
Week 13	Recursion Direct Recursion , Indirect Recursion ,Recursion vs Iteration
Week 14	File Input
Week 15	File Output
Week 16	Preparatory week before the final Exam



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Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Review of programming fundamentals
Week 2	Example of function definition, declaration and call . Function header and body , Function declaration ,Function call and execution Function arguments ,Passing by value or reference
Week 3	Math library and system library built-in functions, Mathematical functions , How can I find out what library a function is in?
Week 4	Learn how to create and manipulate your own simple data type called the enumeration type
Week 5	Explore the string data type and learn how to use the various string functions to manipulate strings
Week 6	Arrays Declaration ,Array elements and indexing , Assigning values to array elements
Week 7	Passing arrays to functions , Character arrays
Week 8	Multi-dimensional arrays
Week 9	Learn about records (structs), Examine various operations on a struct
Week 10	Explore ways to manipulate data using a struct, Learn about the relationship between a struct and functions, Discover how arrays are used in a struct, Learn how to create an array of struct items
Week 11	Learn about the pointer data type and pointer variables , Explore how to declare and manipulate pointer variables , Learn about the address of operator and the dereferencing operator, Discover dynamic arrays,
Week 12	Discover the peculiarities of classes with pointer member variables Examine the relationship between the address of operator and classes
Week 13	Learn about recursive definitions, Explore the base case and the general case of a recursive definition Learn about recursive functions
Week 14	Reading files
Week 15	writing to files



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Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	C++ Programming: From Problem Analysis to Program Design, 6th Edition; D.S. Malik	Yes
Recommended Texts	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ▪ 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.