

MODULE DESCRIPTION FORM

نموذج وصف مادة أسس البرمجة

Module Information			
معلومات المادة الدراسية			
Module Title	Programming Essentials		Module Delivery
Module Type	Core		33. <input checked="" type="checkbox"/> Theory
Module Code	CSTE1104		34. <input checked="" type="checkbox"/> Lecture
ECTS Credits	6		35. <input checked="" type="checkbox"/> Lab
SWL (hr/sem)	150		36. <input type="checkbox"/> Tutorial
			37. <input type="checkbox"/> Practical
			38. <input type="checkbox"/> Seminar
Module Level	1	Semester of Delivery	1
Administering Department	CSTE	College	EETC
Module Leader	Hayder Kareem	e-mail	
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		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	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Aims</p> <p>أهداف المادة الدراسية</p>	<p>39. To develop problem solving skills and understanding of programming principles.</p> <p>40. To understand the logic behind programming.</p> <p>41. This course include using C++ as a programming language.</p> <p>42. This course include algorithm design.</p> <p>43. To understand how a programmer should prepare his work and think logically.</p> <p>44. To perform programming project using control statements, functions, and to deal with the data stored in an array or file.</p>
<p>Module Learning Outcomes</p> <p>مخرجات التعلم للمادة الدراسية</p>	<p>45. Use of algorithms (Flowchart specifically).</p> <p>46. Explain how the program is written using C++ Programming language.</p> <p>47. Define and use of variables (Data types, Declaration of variables).</p> <p>48. Use of operators and its precedence (Assignment, Arithmetic operators, Relational and Logical operators, Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator).</p> <p>49. Making Decisions (use of: if, if-else, and switch statements) and draw of Flowchart of if-else statement.</p> <p>50. Use of Loops (for, while, do-while), and use of break and continue statements with loops, and draw of Flowchart of loops.</p> <p>51. Use of Arrays (one and two dimensional).</p> <p>52. Use of Functions (Built-in function functions (Library functions), and User-Defined functions).</p> <p>53. Use of arguments passed by value and by reference, and use of Local and global variables.</p> <p>54. Use of Character sequences and string handling.</p> <p>55. Handling and processing text files in C++.</p>
<p>Indicative Contents</p> <p>المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>- Introduction to computers and programming. Types of programs (Applications and Systems). Programming languages (Machine, Assembly, and High-level language). Introduction to Compilers, Interpreters, object file, and executable file.</p> <p>Introduction to C++ with a simple program implementation. Types of programming errors, Program development life cycle, Algorithms - Flowchart - .</p> <p>Header files, Standard Input/output instructions, Comments in C++. [15 hrs]</p> <p>- Variables, Data Types, Declaration of variables, Constants, Statements.</p> <p>Operators (Assignment, Arithmetic operators, Relational and Logical operators,</p>

	<p>Bitwise Operators, Increment and decrement, Cast operator, and Conditional operator), Precedence of operators. [8 hrs]</p> <p>- Making Decisions (if, if-else statements), Flowchart of if-else statement. Making Decisions (switch statement), using break statement with switch statement, Flowchart of switch statement. Loops (for, while, do-while), using break and continue statements with loops, Flowchart of loops. [15 hrs]</p> <p>- Arrays (One dimensional and Two Dimensional) [10 hrs]</p> <p>- Functions (Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), Function call, Passing arguments to a function, return statement, Value-Returning vs. Void (Non Value Returning) functions, Function with no argument and no return value, Function with no argument but return value, Function with argument but no return value, Function with argument and return value. Arguments passed by value and by reference, Recursion, Local and global variables. [20 hrs]</p> <p>- Character sequences and string handling, ASCII table. [10 hrs]</p> <p>- Handling and processing text files in C++ [10 hrs]</p>
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in learning and developing their skills in programming and logic thinking, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of lab experiments involving assignments and project design activities that are interesting to the students.</p>

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
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)	6, 11	LO #3 to 6 and #7 to 9
	Assignments	2	10% (10)	5, 10	LO #3 to 6 and #7 to 9
	Projects / Lab.	10	15% (15)	Continuous	
	Report	1	5% (5)	13	LO #10, 11
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1 to 7
	Final Exam	4hr	50% (40 + 10)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Introduction. Types of programs (Applications and Systems). Computer Components. How computers store Data.
Week 2	Programming languages (Machine, Assembly, and High-level language). Introduction to Compilers, Interpreters, object file, and executable file. Types of programming errors, program development life cycle.
Week 3	Algorithms (Flowchart).
Week 4	Variables, Data Types, Declaration of variables, Constants, Statements, and Operators.
Week 5	Making Decisions (if, if-else statements), flowchart of if-else statement.
Week 6	Making Decisions (switch statement), using break statement with switch statement, flowchart of switch statement.

Week 7	Mid-term Exam + Loops (for loop)
Week 8	Loops (while, do-while), using break and continue statements with loops, flowchart of loops.
Week 9	Arrays (One dimensional)
Week 10	Arrays (Two Dimensional)
Week 11	Functions: Built-in function functions (Library functions), and User-Defined functions), Function prototype (Declaration), function call, Passing arguments to a function, return statement, Local and global variables.
Week 12	Functions (Value-Returning) vs. Void (Non Value Returning) functions, function with no argument and no return value, function with no argument but return value, function with argument but no return value, function with argument and return value. Arguments passed by value and by reference.
Week 13	Character sequences and string handling.
Week 14	Handling and processing text files in C++
Week 15	Preparing for the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الأسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to C++ with a simple program implementation. Header files, Standard Input/output instructions, Comments in C++.
Week 2	Lab 2: Variables, Arithmetic operators, Increment and decrement
Week 3	Lab 3: Relational and Logical operators, Bitwise Operators
Week 4	Lab 4: Cast operator, Conditional operator, Precedence of operators.
Week 5	Lab 5: Making Decisions (if, if-else).
Week 6	Lab 6: Making Decisions (switch statements).
Week 7	Lab 7: Loops (for)
Week 8	Lab 8: Loops (while, and do-while)
Week 9	Lab 9: Arrays (1D)
Week 10	Lab 10: Arrays (2D)
Week 11	Lab 11: Functions
Week 12	Lab 12: Function types according to whether it take arguments and/or return a value or not.

Week 13	Lab 13: Character sequences and string handling.
Week 14	Lab 14: Text files

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<p>56. Starting Out with Programming Logic and Design (What's New in Computer Science), By Tony Gaddis, 5th Edition 2018.</p> <p>57. Programming Essentials: Beginning C++, by Ivor Horton, 4th Edition, 2014.</p>	No
Recommended Texts	<p>C++ How to Program, 6th Edition 2007 By P. J. Deitel - Deitel & Associates, Inc., H. M. Deitel - Deitel & Associates, Inc.</p>	Yes
Websites	https://www.geeksforgeeks.org/c-plus-plus	

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.