



University/Academy: Arab Academy for Science and Technology & Maritime Transport

Faculty/Institute: College of Computing & Information technology

Program: Computer Science

Course title	Int. to Problem Solving and Programming
Course code	CS143

Form no. (11A) Knowledge and skills matrix for a course

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Overview of Computers and Programming.	1	<ul style="list-style-type: none"> Explain the steps for problem solving. Know the different types of problems. Know the different problem solving techniques. 	<ul style="list-style-type: none"> Analyze a given problem and determine the requirements from the problem statement. 	<ul style="list-style-type: none"> Apply problem-solving steps. Use a programming language interface. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Pseudo-code and Flowcharts.	2	<ul style="list-style-type: none"> Understand what is pseudo-code. Identify different flowchart symbols and their uses. 	<ul style="list-style-type: none"> Examine a written pseudo-code and determine its function. 	<ul style="list-style-type: none"> Write pseudo code. Draw flowcharts for a given problem. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Overview of Data Types, Expressions, and Statements.	3	<ul style="list-style-type: none"> List the different data types and operators. 	<ul style="list-style-type: none"> Examine a flowchart and determine its function. 	<ul style="list-style-type: none"> Implement a simple program that illustrates the use of different data types. Implement programs that 	<ul style="list-style-type: none"> Show the use of general computing facilities.

				evaluate arithmetic and logical expressions.	
Top-Down Design with Functions.	4	<ul style="list-style-type: none"> Understand the importance of modular programming. Understand how functions work and know what are function parameters. Understand the difference between value and reference parameters. 	<ul style="list-style-type: none"> Design solutions to problems using functions. 	<ul style="list-style-type: none"> Implement solutions that use functions with both value parameters and reference parameters. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Selection Control Structures.	5	<ul style="list-style-type: none"> Define different selection control structures. 	<ul style="list-style-type: none"> Design solutions to problems using selection. 	<ul style="list-style-type: none"> Implement programs that use the selection control structures. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Looping Control Structures.	6	<ul style="list-style-type: none"> Define the different looping structures. 	<ul style="list-style-type: none"> Design solutions to problems using loops. 	<ul style="list-style-type: none"> Implement programs that use looping structures. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
7 th week Exam	7				<ul style="list-style-type: none"> Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
Problem Solving with Arrays.	8	<ul style="list-style-type: none"> Define arrays and their uses. 	<ul style="list-style-type: none"> Design solutions to problems using arrays. 	<ul style="list-style-type: none"> Implement programs that use arrays. 	<ul style="list-style-type: none"> Show the use of general computing facilities.

Searching Techniques.	9	<ul style="list-style-type: none"> Explain different searching techniques. 	<ul style="list-style-type: none"> Evaluate different searching techniques. 	<ul style="list-style-type: none"> Implement searching techniques. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Sorting Techniques.	10	<ul style="list-style-type: none"> Explain different sorting techniques. 	<ul style="list-style-type: none"> Evaluate different sorting techniques. 	<ul style="list-style-type: none"> Implement sorting techniques. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Recursive Problems.	11	<ul style="list-style-type: none"> Understand and define recursive problems. 	<ul style="list-style-type: none"> Design solutions to problems using recursion. 	<ul style="list-style-type: none"> Implement recursive functions. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
12 th week Exam	12				<ul style="list-style-type: none"> Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
Structures.	13	<ul style="list-style-type: none"> Define structures and their uses. 	<ul style="list-style-type: none"> Design solutions to problems using structures. 	<ul style="list-style-type: none"> Implement programs that use structures. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Strings.	14	<ul style="list-style-type: none"> Understand the representation of strings. 	<ul style="list-style-type: none"> Design solutions to problems using strings. 	<ul style="list-style-type: none"> Implement programs that use strings. 	<ul style="list-style-type: none"> Show the use of general computing facilities.
Revision.	15				

Course Instructor

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