UNIVERSITI TEKNOLOGI MARA

CSC402: PROGRAMMING I

Course Name (English)	PROGRAMMING I `APPROVED`
Course Code	CSC402

MQF Credit	3

Course Description	This course is an introduction to problem-solving using computers. It emphasizes various aspects of problem-solving, mainly consisting of the problem domain, phases of problem-solving and basic techniques in designing a solution. The approach to problem-solving is via top-down design and structured programming. The emphasis is on solving problems using a computer rather than the syntactical aspects of the chosen programming language.

Transferable Skills	Demonstrate an ability to identify and articulate self-skills, knowledge, and understanding confidently and in a variety of contexts Demonstrate practical and contemporary knowledge of relevant professional, ethical and legal frameworks Demonstrate analytical skills using technology. Demonstrate an ability to apply creative, imaginative and innovative thinking and ideas to problem-solving. Demonstrate an ability to investigate problems and provide effective solutions. Demonstrate an ability to analyze issues/problems from multiple angles and make suggestions Demonstrate professional skills, knowledge, and competencies. Demonstrate maturity of thoughts when responding to multiple inputs and contexts

Teaching Methodologies	Lectures, Lab Work

CLO	CLO1 Explain concept and algorithm in a programming. CLO2 Display practical skills in programming. CLO3 Demonstrate a good work ethic in programming.

Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to Computer and Programming 1.1) 1.1 A Brief History of Computer and Programming Languages 1.2) 1.2 Program Development Life Cycle 1.3) 1.3 Programming paradigm 1.4) 1.3.1. Overview of Imperative paradigm 1.5) 1.3.2. Overview of the functional paradigm 1.6) 1.3.3. Overview of logic paradigm 1.7) 1.3.4. Overview of the object-oriented paradigm
2. Algorithmic Problem Solving 2.1) 2.1. Introduction to Algorithm 2.2) 2.2. Algorithm Representation (Flowchart and Pseudo code) 2.3) 2.3. Designing Algorithm on: 2.4) 2.3.1 Sequence Structure 2.5) 2.3.2 Selection Structure 2.6) 2.3.3 Repetition Structure

3. Basic Elements of a Computer Program
3.1) 3.1 Identifier, Variable, Constant, Reserved Word
3.2) 3.2 Basic Data Types
3.3) 3.3 Assignment Statement
3.4) 3.4 Input/Output Statement
3.5) 3.5 Arithmetic Operators and Expression
3.6) 3.6 Boolean Values and Expression
3.7) 3.7 Relational and Logical Operators
3.8) 3.8 Pre-defined Functions – math, iomanip, string

4. Type of Control Structure
4.1) 4.1 Sequence
4.2) 4.2 Selection
4.3) 4.2.1 If-Else
4.4) 4.2.2 Nested If-Else
4.5) 4.2.3 Switch-Case
4.6) 4.3 Repetition
4.7) 4.3.1 While
4.8) 4.3.2 For
4.9) 4.3.3 Do-While
4.10) 4.3.4 Nested Loop

5. Arrays
5.1) 5.1 Introduction to One-Dimensional Array
5.2) 5.2 Array Declaration and Initialization
5.3) 5.3 Array Processing

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Lab Assignment	10%	CLO2
	Practical	Coding Performance	10%	CLO3
	Quiz	Quiz 1	5%	CLO1
	Quiz	Quiz 2	5%	CLO2
	Test	Written Test 1	10%	CLO1
	Test	Written Test 2	10%	CLO1

Reading List	Recommended Text	D. S. Malik 2017, *C++ Programming: From Problem Analysis to Program Design*, Cengage Learning [ISBN: 9781337102087]
	Reference Book Resources	• Liang, Y.D 2013, *Introduction to Programming with C++,*, 3rd Edition Ed., Pearson Higher Education
		• Joyce Farrell 2017, *Programming Logic & Design, Comprehensive*, 6th Edition Ed., Cengage Learning [ISBN: 9781337102070]
		• Bjarne Stroustrup 2014, *The C++ Programming Language*, 4th Edition Ed., Addison-Wesley Professional [ISBN: 9780321958327]
		• Zak, D. 2016, *An Introduction to Programming with C++*, 8th Edition Ed., Cengage Learning
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	