



UNIVERSITI TEKNOLOGI MARA

CSC430: COMPUTER PROGRAMMING AND APPLICATIONS

Course Name (English)	COMPUTER PROGRAMMING AND APPLICATIONS APPROVED
Course Code	CSC430
MQF Credit	3
Course Description	This course is designed for students to study engineering programming. Fundamental concepts and principles of the chosen computer programming language are covered in this course. Considerable emphasis is placed on the understanding and application of computer programming.
Transferable Skills	Students should be able to design algorithm and draw suitable flowchart for a given problem. Students should be able to translate a designed algorithm to correct C++ /Java/Visual Basic source codes. Finally, students should be able to design and develop one application using C++ /Java/Visual Basic programming language.
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 Identify basic elements of programming languages (such as C++ /Java/Visual Basic) that are valid syntactically. CLO2 Construct an application using control structures and functions in the proposed solution. CLO3 Demonstrate a team for developing an application by applying problem-solving techniques.
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Computer 1.1) Computer System: Hardware, Software, Peripherals and People 1.2) Database models: Relational, Hierarchical, Network and Object-oriented 1.3) Program analysis, design and implementation (including sub-procedure, data and classes)	
2. Introduction to Computer Programming 2.1) History of Programming Languages 2.2) Programming styles including modular and object-oriented 2.3) Problem Solving Approach (Algorithm, Pseudocode and Flowchart)	
3. Computer Program Components I 3.1) Basic Elements of Programming 3.2) Introduction to Compiler, Coding Standard and Error Identification 3.3) Sequential Structure	
4. Computer Program Components II 4.1) Arithmetic and Logical Expression	
5. Control Structure – Selection I 5.1) Programming on using if and if..else	
6. Control Structure – Selection II 6.1) Programming on using nested if and switch	
7. Control Structure – Repetition I 7.1) Programming on using while and do..while	
8. Control Structure – Repetition II 8.1) Programming on using for and nested loop	
9. Function I 9.1) Predefined and user-defined functions 9.2) Function definition, prototype and calls	

10. Function II 10.1) User-defined functions with and without parameters
11. Array 1 11.1) Introduction to single and multidimensional array 11.2) Create, initialize and access array
12. Array II 12.1) Array as parameters

Assessment Breakdown		%	
Continuous Assessment		100.00%	

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Four Assignments	20%	CLO2
	Group Project	Group Project - reports in hard copy and soft copy	20%	CLO3
	Quiz	Quiz	20%	CLO1
	Test	Test2	20%	CLO1
	Test	Test1	20%	CLO1

Reading List	Recommended Text	D. S. Malik 2017, <i>C++ Programming: From Problem Analysis to Program Design</i> , Third Ed., 7, Cengage Learning [ISBN: 1337102083]
	Reference Book Resources	<ul style="list-style-type: none"> • Cay S. Horstmann, Timothy A. Budd 2013, <i>Big C++</i>, 4th Edition Ed., Wiley [ISBN: 9781118674291] • Beryl Hoffman 2013, <i>C++ Programming for Beginners</i>, John Wiley & Sons, Inc • Bjarne Stroustrup 2014, <i>Programming: Principles and Practice using C++</i>, 2nd Edition Ed., Amazon Ltd [ISBN: 13: 978-03219] • Deitel & Deitel 2016, <i>C++; How to Program</i>, Pearson Education [ISBN: 978013444823] • Farrel, J 2013, <i>Programming Logic and Design Comprehensive</i>, 6th Edition Ed., Cengage Learning • Liang, Y.D 2013, <i>Introduction to Programming with C++</i>, 3rd Edition Ed., Pearson Higher Education
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	