UNIVERSITI TEKNOLOGI MARA

CSC128: FUNDAMENTALS OF COMPUTER PROBLEM SOLVING

Course Name (English)	FUNDAMENTALS OF COMPUTER PROBLEM SOLVING APPROVED
Course Code	CSC128
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, structured and modular programming. The emphasis is on solving problems using computer rather than the syntactical aspects of the chosen programming language.
Transferable Skills	Demonstrate analytical skills using technology.
Teaching Methodologies	Lectures, Lab Work, Tutorial, Problem Based Learning (PBL)
CLO	CLO1 Identify the steps and requirements of given problems using systematic problem solving approach. CLO2 Write complete programs using structural and modular approach. CLO3 Demonstrate basic program to solve daily problem using designated programming control structures (selection, repetition and/or function).
Pre-Requisite Courses	No course recommendations

Topics
1. INTRODUCTION 1.1) Introduction to Programming 1.2) Program Development Life Cycle
2. BASIC ELEMENTS OF A COMPUTER PROGRAM 2.1) Identifier, variable, constant, reserved word 2.2) Basic data types 2.3) Arithmetic operators, precedence and expression 2.4) Assignment statement 2.5) Input/output statement 2.6) Debugging and error handling 2.7) Types of control structures
3. SELECTION CONTROL STRUCTURE 3.1) Boolean values and expression 3.2) Relational and logical operators 3.3) Types of selection control structures (one-way: if, two-way:if-else and multiple-way:switch-case) 3.4) Nested selection control structure (nested if)
4. REPETITION CONTROL STRUCTURE 4.1) Requirements and operation in repetition control structure 4.2) Types of repetition control structures (for, while and do...while) 4.3) Nested loop
5. FUNCTIONS 5.1) Introduction to functions 5.2) Function call 5.3) Library functions 5.4) User-defined functions 5.5) Parameter passing (pass-by-value and pass-by-reference)

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment 1 CLO2	6%	CLO2
Assignment	Assignment 2 CLO2	7%	CLO2
Group Project	Project CLO3	10%	CLO3
Quiz	Quiz 1 CLO1	6%	CLO1
Quiz	Quiz 2 CLO2	6%	CLO2
Test	Test CLO2	15%	CLO2

Reading List

Recommended Text

- **D. Malik 2013, *C++ Programming: From Problem Analysis to Program Design*, Cengage Learning [ISBN: 1133626386]**

Reference Book Resources

- **Y. Daniel Liang 2014, *Introduction to Programming with C++*, 3 Ed., Prentice Hall [ISBN: 0133252817]**
- **Jamal Othman 2010, *Fundamentals of Programming : With Examples in C, C++ and Java*, 1st edition Ed., UPENA**
- **Bjarne Stroustrup 2013, *The C++ Programming Language*, Pearson Education [ISBN: 0321563840]**
- **Sam Key 2015, *C++ Programming Professional Made Easy* [ISBN: 1508429081]**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources