UNIVERSITI TEKNOLOGI MARA

CSC585: INTRODUCTION TO HYBRID PROGRAMMING

Course Name (English)	INTRODUCTION TO HYBRID PROGRAMMING APPROVED
Course Code	CSC585
MQF Credit	3
Course Description	This fundamentals programming subject teaches to computer science, applied science and engineering students. This subject covers the problem-solving methods, algorithm development and data structures using different programming approach or hybrid programming such as Structured and Object-oriented.
Transferable Skills	Student should be able to demonstrate workable application program using appropriate problem solving techniques, methodology, data structures and database.
Teaching Methodologies	Lectures, Lab Work
CLO	CLO1 Interpret the scientific skills in hybrid programming CLO2 Demonstrate the programming approach with information management in hybrid programming. CLO3 Perform the managerial skills in hybrid programming project
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction 1.1) Principles of computer programming 1.2) Brief explanation on Hybrid Programming 1.3) Programming Development Life Cycle (PDLC) for Structured Programming approach 1.4) Unified Markup Language (UML) for Object-oriented Programming approach
2. Data Types and Control Structures 2.1) Operators (arithmetic, logical and unary) 2.2) Data types, variables, expressions and input/output statements 2.3) Assignment statements 2.4) Strings and string manipulations 2.5) Control Structures: loops and decisions
3. Functions and Data Structures 3.1) Built in function 3.2) User-defined function - (1) Function with normal variable and array of variable as parameter and (2) Function with return value and without return value 3.3) Data structures - Array, File, List
4. Object-oriented Programming 4.1) Object-oriented Concepts (class, object, inheritance, polymorphism, abstraction and encapsulation) 4.2) Defining packages, class and function 4.3) Inheritance 4.4) Polymorphism 4.5) Exception handling
5. GUI and Connections to Database 5.1) Graphical User Interface(GUI) and its components 5.2) Introduction to database structures 5.3) DDL (Data Definition Language) and DML (Data Manipulation Language) concepts 5.4) SQL (Structured Query Language)
6. Special Topics 6.1) Data warehousing and data mining 6.2) Big data concepts 6.3) Any topics which related future trends of data science

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assignment 1 : Develop simple application program using Structured or Object Oriented Approach	10%	CLO2
Assignment	Assignment 2 : Incorporate the first assignment with the data structures or databases.	10%	CLO2
Assignment	Assignment 3 : Incorporate the first and two assignment in development application	10%	CLO1
Group Project	Group project is responsible to develop a workable application program by using the Structured or Object Oriented and Incorporated with Databases or Data Structures which are appropriate.	30%	CLO3
Quiz	Quiz 1: related to the understanding of Structured and Object Oriented Approach Quiz 2: related to student's understanding on the concepts of data structures and databases and how it can be incorporated with Object Oriented and Structured programming.	10%	CLO1
Test	Test 1: will be tested on the students understanding on the two main concepts of programming such as Structured and Object Oriented and incorporated with Information Management	15%	CLO1
Test	Test 2: will be tested on the students understanding on the two main concepts of programming such as Structured and Object Oriented and incorporated with Information Management	15%	CLO1

Reading List

Reference Book Resources

- **John V. Guttag 2016, *Introduction to Computation and Programming Using Python*, MIT Press [ISBN: 9780262529624]**
- **Bret Slatkin 2015, *effective Python*, Addison-Wesley Indiana [ISBN: 978-0-13-4034]**
- **Eric Matthes 2016, *Python Crash Course*, William Pollock USA [ISBN: 978-1-59327-6]**
- **Brian Overland 2017, *Python Without Fear*, Addison-Wesley [ISBN: 0134687477]**
- **William F. Punch and Richard Enbody 2017, *The Practice of Computing Using Python, Global*, 3rd Ed., Pearson [ISBN: 1292166622]**

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources