UNIVERSITI TEKNOLOGI MARA

CSC186: OBJECT ORIENTED PROGRAMMING

Course Name (English)	OBJECT ORIENTED PROGRAMMING APPROVED
Course Code	CSC186
MQF Credit	4
Course Description	This course will emphasis on solving simple to more complex problems using a programming language that supports Object-Oriented programming. The main concepts of Object-Oriented programming are discussed. Principles and techniques taught will include objects and classes, abstraction, encapsulation, inheritance and polymorphism. Students will also be taught on how to model the solution using UML design prior to development process.
Transferable Skills	1. Demonstrate practical skills on modeling solutions to problems. 2. Demonstrate teamwork skills in developing a solution to a problem. 3. Demonstrate ability to gain knowledge and information, and use scientific skills in solving problems.
Teaching Methodologies	Lectures, Blended Learning, Lab Work
CLO	CLO1 Identify OOP application model as proposed solutions based on the given tasks using UML CLO2 Develop the application of OOP features on the given topics which perform in a teamwork CLO3 Apply the main characteristics of OOP concept to professionally relate solutions to the real world problems CLO4 Demonstrate a simple program individually using OOP features based on the information gained
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to OOP 1.1) Programming basics 1.2) Introduction to objects & classes 1.3) Elements of an object - attribute, behavior, state 1.4) Characteristics of oop - abstraction (basic concept, process abstraction, data abstraction), encapsulation, inheritance, polymorphism
2. Basic OO Design using UML 2.1) Use Case diagram and Use Case scenarios 2.2) Class diagram 2.3) OOSE life cycle
3. Concepts of classes 1 3.1) Class concept 3.2) Data members 3.3) Basic types of methods 3.4) Object creation & application 3.5) Class vs object 3.6) Message passing
4. Concepts of classes 2 4.1) Data members of type array 4.2) Array of objects 4.3) Method overloading 4.4) Objects as parameters & method type 4.5) Composite objects

5. File Input output 5.1) Basic concepts of the file input/output 5.2) Opening and closing files 5.3) Storing and retrieving data using OOP 5.4) File and exceptions
6. Inheritance 6.1) Basic concept (single vs multiple inheritance) 6.2) Generalization & specialization 6.3) Class Object 6.4) Access levels 6.5) Array of subclasses
7. Polymorphism 7.1) Basic concept 7.2) Abstract classes and methods 7.3) Method overriding 7.4) Concrete subclasses and methods

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Case Study	Case Study	10%	CLO4
Group Project	Group Project	15%	CLO2
Practical	Practical	5%	CLO1
Quiz	Quiz	5%	CLO3
Test	Test	15%	CLO3

Reading List

Recommended Text

- **Tony Gaddis 2018, *Starting Out with Java*, 7 Ed., Pearson [ISBN: 0134802217]**

Reference Book Resources

- **Joyce Farrell 2018, *Java Programming*, 9 Ed., Cengage Learning [ISBN: 1337397075]**
- **Y. Daniel Liang 2017, *Introduction to Java Programming and Data Structures*, 11 Ed., Pearson [ISBN: 0134694511]**
- **Neha Kaul 2017, *Object Oriented Programming with Java*, Arcler Press [ISBN: 1773612085]**
- **Cay S. Horstmann 2015, *Big Java*, 5 Ed., Wiley [ISBN: 1119221978]**
- **Mark Lassoff 2017, *Java Programming for Beginners*, Packt Publishing [ISBN: 9781788296298]**
- **Paul Deitel,Harvey Deitel 2014, *Java How to Program (Early Objects)*, 10 Ed., Prentice Hall [ISBN: 9780133807806]**
- **Joyce Farrell 2015, *Java Programming*, 8 Ed., Cengage Learning [ISBN: 9781285856919]**

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

Other References: This Course does not have any other resources