UNIVERSITI TEKNOLOGI MARA

CSC444: JAVA PROGRAMMING

Course Name (English)	JAVA PROGRAMMING APPROVED
Course Code	CSC444

MQF Credit	3

Course Description	The course is designed to introduce students to intermediate level Java programming language and produce students who are able to solve extensive computer-based and web-based problems. It emphasizes various aspects of problem solving and develops application using GUI, Applet and web component technology.

Transferable Skills	Demonstrate analytical skills using technology.

Teaching Methodologies	Lectures, Lab Work, Discussion

CLO		
	CLO1	Construct the generic, extensible solutions to problems using the object-oriented approach (P3)
	CLO2	Demonstrate the standard design principles and practice Java programming language (A3)
	CLO3	Discover problems using the intermediate level Java programming language.(C4)
	CLO4	Integrate web component using Java application.(A4)

Pre-Requisite Courses	No course recommendations

Topics
1. Introduction 1.1) Java – characteristics and distinct features 1.2) Fundamental types 1.3) Objects, classes, packages
2. Inheritance and Polymorphism 2.1) Inheritance & Polymorphism concept 2.2) Inheriting instances fields and methods 2.3) Method overriding 2.4) Access levels – public, protected, private 2.5) Abstract super classes and methods 2.6) Interface
3. Exception Handling and Streams 3.1) Types of exceptions – unchecked and checked exceptions 3.2) Throwing exceptions – throws clause 3.3) Catching exceptions – try catch and finally block 3.4) I/O exceptions: FileIOException, EOFException, --FileNotFoundException 3.5) Selected other exception classes : Exception, -NumberFormatException, ArithmeticException and User Defined -Exceptions 3.6) Text I/O and Binary I/O 3.7) Objects Serialization 3.8) Read and Write using ObjectOutputStream, ObjectInputStream and RandomAccessFile
4. Graphical User Interface (GUI) 4.1) Event-driven Programming 4.2) GUI Packages – AWT and Swing 4.3) Basic Components – JButton, JTextField, JLabel, JFrame, JPanel , JCheckBox, JRadioButton 4.4) Events Handlers - events listeners and events source 4.5) Layout manager – FlowLayout, BorderLayout, GridLayout, GridbagLayout and GroupLayout

5. Applets
5.1) Applets and HTML
5.2) Applet Methods
5.3) Graphical shapes and classes

6. Threads
6.1) Threads concepts
6.2) Creating tasks and threads
6.3) The Thread and Runnable classes
6.4) Thread Pools
6.5) Thread Synchronization

7. Introduction to Java Enterprise Edition (Java EE)
7.1) Overview of Java EE Platform
7.2) Role of Application Servers
7.3) Java EE Architecture
7.4) Java EE Patterns
7.5) Java EE Components

8. Servlets
8.1) Creating & Running Servlets
8.2) The Servlet API
8.3) HTML forms
8.4) Session tracking
8.5) Database programming in servlets

9. Java Server Page (JSP)
9.1) JSP processing
9.2) Predefined variables
9.3) JSP directives
9.4) Associating properties with input parameters
9.5) Forwarding requests from JSP

10. Database connectivity
10.1) Overview of java database programming
10.2) JDBC connection with JSP and Servlet
10.3) Scrollable and updateable result set
10.4) Storing and retrieving images in JDBC

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Assignment-1 (10%)	10%	CLO1
	Assignment	Assignment-2 (10%)	10%	CLO1
	Assignment	Assignment-3 (10%)	10%	CLO1
	Final Project	Final Project in the group (Proposal and Design) -1 (20%)	20%	CLO2
	Final Project	Final Project-2 in the group (Development and report)-2 (30%)	30%	CLO4
	Test	Test 2 -(10%)	10%	CLO3
	Test	Test 1- (10%)	10%	CLO3

Reading List	Recommended Text	• Cay S. Horstmann 2019, *Core Java, Volume II--Advanced Features*, Ninth Ed., 14, Prentice Hall Upper Saddle River, United States [ISBN: 0135166314]
	Reference Book Resources	• Joshua Bloch 2018, *Effective Java*, 3rd edition Ed., Addison-Wesley Professional New Jersey, United States [ISBN: 0134685997]
		• Herbert Schildt 2018, *Java: The Complete Reference, Eleventh Edition*, Sixth Ed., 17, McGraw-Hill Education OH, United States [ISBN: 1260440230]
		• Y. Daniel Liang 2015, *Introduction to Java Programming*, Fifth Ed., 14, Prentice Hall Georgia Southern United States [ISBN: 9780133761313]
		• Cay S. Horstmann 2017, *Core Java SE 9 for the Impatient*, Fifth Ed., Addison-Wesley Professional New Jersey, United States [ISBN: 0134694821]
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	