Murang'a University of Technology

School of Computing and Information Technology

COURSE OUTLINE

Unit Code: IT/OS/ICT/CR/10/6

Unit Name: Develop Computer Program Session 2

Pre-requisites: Develop Computer Program Session 1

Credit Hours: 6 hours

Department: Information Technology

Program: Diploma in ICT (TVET)

Lecturer's Name: Mr. Jackson Kamiri

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Academic Year: 2021/2022

Notice to Learners

i)   This is a core unit of competence in your programme

ii) This unit will be fully covered within three semesters. For each semester, the unit will have 6 credit hours.

iii) Testing for this unit will involve continues assessment by the internal assessor and a final assessment by an external assessor from TVET CDACC.

iv) Modes of testing for this unit will include; Written test, oral test, observation, practical tests, projects.

Summary of the Learning Outcomes

1. Identify Object-oriented programming concepts
2. Perform program design and Analysis
3. Develop a Computer program using Java programming Language
4. Perform Program testing and debugging
5. Perform User training and Program Maintenance

Teaching Methodology

i) Presentations and practical demonstrations by trainer;
ii) Guided learner activities and research to develop underpinning knowledge;
iii) Supervised activities and projects in a workshop;

Tools Needed

Software- NetBeans, JDK, JRE, MySQL database server, Design Software

Hardware- Laptops, Lab-computers, Projector

References

1. *Baesens, B., Backiel, A., & Vanden Broucke, S. (2015). Beginning Java programming: the object-oriented approach. John Wiley & Sons.*
2. *Eck, D. J. (2015). Introduction to programming using Java. David J. Eck.*
3. *Balaguruswamy, E. (2014). Programming with Java-A Primer. McGraw-Hill Professionals.*
4. *Urma, R. G., Fusco, M., & Mycroft, A. (2014). Java 8 in action. Manning publications.*

Week	Lesson	Topic	Sub-Topic
1	Lesson 1	Introduction	Introduce the unit Introduction to OOP
	Lesson 2	OOP Concepts	Classes, Objects, Inheritance, Polymorphism,

			Abstraction, Message passing, Encapsulation.
2	Lesson 1	Java Programming	Introduction, Java tools configuration.
	Lesson 2	Java Programming	Java Virtual Machine, JRE components, Java Libraries.
3	Lesson 1	**CAT 1**	
	Lesson 2	Java Syntax	Syntax rules, Java packages, writing a basic java program using Netbeans IDE. Keyword in Java.
4	Lesson1	Data Types and operators in Java in Java	Primitive datatypes, non-primitive datatypes, Arithmetic operators, logic operators, assignment operators, comparison operators,
	Lesson 2	Java identifiers	Types of Identifiers, variable declaration, input and output in Java.
5	Lesson 1	Java Methods	Creating and calling methods in Java.
	Lesson 2	Java classes and objects	Creating classes in Java, creating constructors, creating objects, instantiating classes.
6	Lesson 1	Java Inheritance	Implementing inheritance in Java.
	Lesson 2	**CAT 2**	
7	Lesson 1	Java modifiers	Access and non-Access Modifiers.
	Lesson 2	Java Control Structures	Sequence control Structures, Decision control Structures
8	Lesson 1	Java Control Structures	Loop control Structures

	Lesson 2	Java Arrays	Creating arrays, processing arrays, passing arrays to methods, the arrays class.
9	Lesson 1	Java Exception Handling	Exception Hierarchy, checked exceptions, catching exceptions
	Lesson 2	Group Presentations	
10	Lesson 1	Java Graphical User Interface	Swing and AWT package, Creating G.U.I in Netbeans
	Lesson 2	Java Graphical User Interface	Coding event-driven G.U.I in Java
11-12	**Practical Assessment**		