



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Computer Science

CSC308 – Object-oriented Programming in Java

COURSE PARTICULARS

Course Code: CSC308

Course Title: Object-oriented Programming in Java

No. of Units: 3

Course Duration: Two hour of theory and one hour of practical per week for 15 weeks.

Status: Compulsory

Course Email Address: eoibidunmoye@futa.edu.ng

Course Webpage: <http://www.csc.futa.edu.ng/courseschedule.php?coursecode=CSC308>

Prerequisite: CSC305

COURSE INSTRUCTORS

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COURSE DESCRIPTION

This course is an extension of courses exposing students to the many concepts of programming. The course is an expository of the object-oriented programming methodology with emphasis on software design and code reuse as its core objectives. As a practical course, the focus is to equip students with adequate high-level object-oriented programming techniques required for successful design, development, and deployment of today's complex software systems. Furthermore, the students are actually mentored to master how the Java technology can be used to develop modern software systems.

COURSE OBJECTIVES

The objectives of this course are to:

- equip students with the required object-oriented programming skills required to build highly reusable, robust and maintainable software systems.
- evaluate the acquired skills via means such as group coding, individual projects, and impromptu programming challenge in Java.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- explain the many concepts in Object-oriented programming paradigm;
- understand the history behind the Java technology, its features and strengths;
- understand and explain how Java achieves platform portability;
- understand the theory behind many programming structures, constructs, library codes exposed by the Java language;

(Skills)

- prepare and configure computer systems for Java development;
- work with basic DOS commands for compiling and execution of programs;
- produce well-documented and elegant programs written in Java;
- use the object-oriented technique to analyse software problems
- develop excellent debugging skills

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Practical	15%
Assignments	10%
Test(s)	15%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, etc.) during lectures. Food and drinks are not permitted in the laboratories.

READING LIST

¹Y. Daniel Liang (2011). *Introduction to Java™ Programming (Brief Edition)*. Eight Edition. Published by Pretence Hall.

Legend

1- Available as personal collection

COURSE OUTLINE

Week	Topic	Remarks
1	INTRODUCTION TO JAVA PROGRAMMING	» Java/JVM, » Java Applications, » Development Tools, » Sample Program, » Compilation
2	FUNDAMENTALS OF JAVA	» Program Structures, Variables, Constants » Data Types & Type Conversions » Comments, » Input/Output, » Arithmetic/Relational Operators, » Formatting Output etc

3	JAVA CONTROL STRUCTURES	<ul style="list-style-type: none"> » Conditional IF Block, » For, While Loops, » Switch Selection Block
4	JAVA METHODS	<ul style="list-style-type: none"> » Defining Methods, » Calling Methods, » Parameter Values » Scoping » Method Overloading
5	PROCESSING STRINGS	<ul style="list-style-type: none"> » Creating Strings » String Operations & Methods » String Class, StringBuilder/StringBuffer Class » Character Class
6	ARRAYS	<ul style="list-style-type: none"> » Array Basics » Array Parameters » Variable Length Array Parameters » Searching Arrays » Array Class » Multi-dimensional Arrays
7	PROGRAMMING OBJECTS : BASICS	<ul style="list-style-type: none"> » Classes & Objects, » Constructors, Properties & Access Specifiers, » Java Class Library, » Encapsulation, » Object Parameters » Collections & Generics
8.	PROGRAMMING OBJECTS: ADVANCED	<ul style="list-style-type: none"> » Inheritance, » Overriding Methods, » Polymorphism, » Abstract Classes & Interfaces
9.	FILE PROCESSING	<ul style="list-style-type: none"> » File Class » Reading & Writing Text Files
10.	EXCEPTION HANDLING	<ul style="list-style-type: none"> » Overview » Benefits » Exception Types » Try....Catch....Finally Block » Throwing Exceptions
11	INTRODUCTION to Java GUI	<ul style="list-style-type: none"> » Overview & Java IDEs » Swings vs AWT » Swing Controls » Event Handling