

CS2360: JAVA PROGRAMMING

Effective Term

Semester A 2023/24

Part I Course Overview

Course Title

Java Programming

Subject Code

CS - Computer Science

Course Number

2360

Academic Unit

Computer Science (CS)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

CS1315 Introduction to Computer Programming
CS2310 Computer Programming
CS2311 Computer Programming
CS2313 Computer Programming
CS2315 Computer Programming

Part II Course Details

Abstract

This course is a introductory first course on the concepts and techniques of computer programming and problem solving using Java. No previous programming experience is required. The main objective is to equip students with basic concepts in procedural and object-oriented programming for problem solving. Students will learn good programming practices and the art of problem solving.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Create programs to solve simple problems.			x	
2	Design classes to sub-divide a problem to create a solution.			x	
3	Use selection, repetition and recursion for problem solving.			x	
4	Explore arrays, class libraries and dynamic structures to store and work with data.			x	
5	Follow, assess and critique good programming practices.		x	x	x

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Explain key concepts; highlight key concepts with relevant examples.	1, 2, 3, 4	3 hours/week
2	Tutorial / Lab	Tutorials are designed to enable students to apply concepts into practice and be proficient in Java. The tutorial exercises consist of programming problems that students should solve within the tutorial class period. Students will experience the process and art of problem solving.	1, 2, 3, 4, 5	8 hours/semester

3	Assignment	Assignments are intended to be more challenging problems compared with tutorial exercises. Students are to analyze the problems, break them down into manageable sub-problems, and apply (and possibly combine) various techniques learnt from lectures and tutorial exercises in order to design algorithms for solving them. Then they are required to implement the algorithms as computer programs, and to follow, assess and critique good programming practices through program documentation.	1, 2, 3, 4, 5	After class
4	Quiz	Quizzes give a chance for students to demonstrate their understanding on various programming concepts and apply concepts and techniques for problem solving.	1, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks
1	Tutorial exercises	1, 2, 3, 4, 5	5	
2	Assignments	1, 2, 3, 4, 5	30	Expected to have three programming assignments. The 1st assignment assesses CILOs 1, 3 & 5; the 2nd assignment assesses CILOs 4 & 5; the 3rd assignment assesses CILOs 2 & 5.
3	Quiz	1, 3, 4	15	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

2

Additional Information for ATs

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Assessment Rubrics (AR)

Assessment Task

Tutorial exercises

Criterion

ABILITY to apply the concepts for problem solving

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal level

Assessment Task

Assignments

Criterion

2.1 ABILITY to design and implement appropriate algorithms or approaches for problem solving

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal level

Assessment Task

Quiz

Criterion

3.1 ABILITY to apply basic procedural programming concepts and techniques for problem solving

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal level

Assessment Task

Examination

Criterion

4.1 ABILITY to apply procedural and object-oriented programming concepts and techniques for problem solving

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal level

Part III Other Information

Keyword Syllabus

Problem solving techniques; elements of coding styles; basic data types and declarations; basic object-orientation, such as classes, inheritance and polymorphism; expressions; assignment; basic I/O operations and control structures; functions and procedures; parameter passing; block structure; scope of variables; structured data types; arrays; lists; files and advanced I/O; levels of abstraction; concept of data hiding; abstract data types and structures; iteration and recursion; basic flow-charting and/or simple UML diagrams.

Reading List

Compulsory Readings

Title	
1	Y. D. Liang (2013). Introduction to Java Programming (Comprehensive Version). Pearson, 9th edition.

Additional Readings

Title	
1	D. Eck (2014). Introduction to Programming Using Java. David Eck, 7th edition, free online: http://math.hws.edu/javanotes/
2	Sun Microsystems (2007). The Java Tutorial, free online: http://docs.oracle.com/javase/tutorial/