East West University
Department of Computer Science and Engineering
Course Outline of CSE110
Summer 2024 Semester

Course Information

Course: CSE110 Object Oriented Programming

Credit and Teaching Scheme:

	Theory	Laboratory	Total
Credits	3.0	1.5	4.5
Contact Hours	2.5 Hours/Week for 15 Weeks	2.5 Hours/Week for 15 Weeks	5 Hours/Week for 15 Weeks

Prerequisite: CSE106 Discrete Mathematics

Instructor Information

Instructor: Mahamudul Hasan
Senior Lecturer, Department of Computer Science and Engineering
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Course Repository: **Google Classroom**

Class Routine and Office Hour

Day	08:00-10:30	10:40-1:10	1:20-3:50	4:00-6:30
Sunday		CSE110(3) FUB-501		
Monday		CSE479(2) AB3-601		CSE110(3) LAB 638
Tuesday		CSE110(3) 430	CSE479(2) LAB 534	CSE200(1) LAB 372
Wednesday		CSE479(2) AB3-601		CSE110(3) LAB 638
Thursday			CSE479(2) LAB 534	CSE200(1) LAB 372

Course Objective

This course presents a conceptual and practical introduction to object-oriented programming (OOP). The course will cover general principles of programming in object-oriented frameworks to enhance transferable skills, such as programming, designing, and problem-solving skills. This course introduces object-oriented concepts and develops OOP programs that provide solutions to real-world object-oriented problems. Java is primarily chosen as the programming language in this course. Knowledge of this course will be needed as prerequisite knowledge for CSE207 Data Structures.

Course Outcomes (COs)

After completion of this course, students will be able to:

CO1	**Understand** and **apply** the basics of elementary programming in the target language and concepts related to the definition, creation, and usage of classes and objects for writing object-oriented programs.
CO2	**Use** the principles of inheritance and polymorphism and **design** abstract classes and interfaces for implementing object-oriented programs.
CO3	**Apply** object-oriented programming concepts, exception handling, file handling, graphical user interface (GUI), multi-threaded programming, and generics for solving object-oriented problems.
CO4	**Choose** appropriate tools, **perform** and **demonstrate** skills, and **write** reports to design, build, and test realistic object-oriented applications.

Course Topics, Teaching-Learning Methods, and Assessment Scheme

Course Topic	**Teaching-Learning Method**	**CO**	**Mark of Cognitive Learning Levels**		**Mark of COs**	**Exam (Mark)**
			C2	C3		
Principles of Object-Oriented Programming and Basics of Elementary Programming in Java (conditional branching, looping, methods and arrays)	Lecture, Class Discussion, Discussion Outside Class with Instructor/ Teaching Assistant	**CO1**	5	5	10	**Class Test/Quiz/Participation (10)**

Introduction to Classes and Objects (Classes, Objects, Instance variables and instance methods, Constructors)	Do	**CO2**	5		5	**Mid Semester Assessment (25)**
Inheritance and Polymorphism in OOP (super class, sub class, multiple-level inheritance, late binding)	Do		5	5	10	
Abstract Class and Interfaces (differences, applicability and implementation)	Do			10	10	
Exception Handling in OOP	Do	**CO3**		5	5	**Final Exam (30)**
File handling using Text and Binary I/O	Do			5	5	
Implementation of Generics	Do			5	5	
Inner Class, Lambda Expression	Do			5	5	
Socket Programming	Do			5	5	
Multi-threaded Programming	Do			5	5	

Lab Exercises

Experiment	**Teaching-Learning Method**	**CO**	**Marks of Cognitive Level**	**Mark of Psychomotor Level**		**Mark of Affective Level**	**Mark of COs**
			C3	P2	P3	A2	
Java Basics of Elementary Programming, Conditional Statements	Lab Experiment and Result Analysis and Discussion with Instructor, Post-Lab Report	CO4					
Looping, Nested Looping, Arrays	Do	CO4					
Java Methods and library functions	Do	CO4					
Designing and Implementing simple Classes and	Do	CO4					

Objects, Arrays of Objects etc.							
Implementing associations of Classes	Do	CO4					
Designing and Implementing Inheritance and Polymorphism	Do	CO4					
Designing and Implementing Abstract Class and Interfaces	Do	CO4					
Understanding and Implementing Exceptions and File management	Do	CO4					
GUI, JDBC and other advanced topics.	Do	CO4					
Lab Exercises		CO4	3	2.5	2.5	2	10
Lab Final (Exam)	Individual Exam	CO4	3	2.5	2.5	2	10
Total			**6**	**5**	**5**	**4**	**20**

Mini Project

Mini Project	**Teaching-Learning Method**	**CO**	**Mark of Cognitive Levels**		**Mark of Psychomotor Levels**		**Mark of Affective Levels**	**Mark of COs**
			C3	C4	P2	P3	A2	
Mini Project including Report and Presentation	Moderately complex Project with report writing, and oral/poster presentation	CO4	**2**	**2**	**2**	**2**	**2**	**10**

Overall Assessment Scheme

	COs				**Assessment Area Mark**
Assessment Area	**CO1**	**CO2**	**CO3**	**CO4**	

Class Participation/Test/Quizzes	10				10
Mid Semester Assessment		25			25
Final Exam			30		30
Lab Performance/ Experiments				10	10
Lab Final				10	10
Mini Project				10	10
Assignment				5	5
Total Mark	**10.0**	**25.0**	**30.0**	**35.0**	**100**

Teaching Materials/Equipment

Text Book:

- **Introduction to Java Programming by Daniel Liang**
- Herbert Schildt, *Java: The Complete Reference*, 11th edition, McGraw-Hill Education (2023)

Reference Book:

- Paul Deitel, Harvey Deitel, Java™ How to Program Early Objects, 11th edition
- Walter Savitch, *Absolute Java*, Pearson (5th edition)
- Bert Bates and Kathy Sierra, *Head First Java*, O'Reilly Media (2nd edition)

Software/Tools:

- Java Development Kit (JDK 1.8) https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html
- Any Integrated Development Environment (IDE) supporting Java preferably NetBeans or Eclipse https://netbeans.apache.org/download/index.html, https://www.eclipse.org/downloads/
- Android Studio

Exam Dates

Section	Mid Semester	Final
1	July 23, 2024	August 25, 2024

Grading System

Marks (%)	Letter Grade	Grade Point	Marks (%)	Letter Grade	Grade Point
80-100	A+	4.00	55-59	B-	2.75
75-79	A	3.75	50-54	C+	2.5

70-74	A-	3.5	45-49	C	2.25
65-69	B+	3.25	40-44	C-	2
60-64	B	3.00	Below 40	F	0.00

Academic Code of Conduct

Academic Integrity:
Any form of cheating, plagiarism, personification, or falsification of a document as well as any other form of dishonest behavior related to obtaining academic gain or the avoidance of evaluative exercises committed by a student is an academic offense under the Academic Code of Conduct and **may lead to severe penalties as decided by the Disciplinary Committee of the university.**

Special Instructions:

- Students are expected to attend all classes and examinations. A student MUST have at least 80% class attendance to sit for the final exam.
- Students will not be allowed to enter the classroom after 10 minutes of the starting time.
- For plagiarism, the grade will automatically become zero for that exam/assignment.
- Normally there will be **NO make-up exam**. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student misses any exam, the student MUST get approval for a makeup exam by written application to the Chairperson through the Course Instructor **within 48 hours** of the exam time. Proper supporting documents in favor of the reason for missing the exam have to be presented with the application.
- For the **final exam**, there will be NO makeup exam. However, in case of **severe illness, death of any family member, any family emergency, or any humanitarian ground**, if a student misses the final exam, the student MUST get the approval of **Incomplete Grade** by written application to the Chairperson through the Course Instructor **within 48 hours** of the final exam time. Proper supporting documents in favor of the reason for missing the final exam have to be presented with the application. **The student is responsible for arranging an Incomplete Exam within the deadline mentioned in the Academic Calendar in consultation with the Course Instructor**.
- All mobile phones MUST be silent during class and exam periods.
- There is **zero tolerance for cheating** in exams. Students caught with cheat sheets in their possession, whether used or not; writing on the palm, back of calculators, chairs, or nearby walls; copying from cheat sheets or other cheat sources; copying from other examinees, etc. would be treated as cheating in the exam hall. The only penalty for cheating is **expulsion for several semesters as decided by the university's Disciplinary Committee**.