University of Asia Pacific (UAP)
Department of Computer Science and Engineering (CSE)

Course Outline

Program:	Computer Science and Engineering (CSE)
Course Title:	Object Oriented Programming-I: Java
Course Code:	CSE 203
Semester:	Spring 21
Level:	3rd Semester
Credit Hour:	3.0
Name & Designation of Teacher:	Tanjina Helaly, Assistant Professor
Office/Room:	7th Floor
Class Hours:	Monday (9:30-11:00 AM) & Tuesday (11:00- 12:30 PM) (Sec A) Tuesday(2:00-3:30 PM) & Wednesday 3:30 - 5:00 PM (Sec B)
Consultation Hours:	Sunday 11:00 – 12:30 PM (Sec A) Wednesday 2:00 - 3:30 PM (Sec B)
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Rationale:	Required course and a prerequisite to CSE 103 in the CSE program
Prerequisite (if any)**:**	CSE 103
Course Synopsis:	This course will cover the main aspects of the Java programming language. Students will learn how to use Java according to proper Object-Oriented Programming principles. This course covers the Java language syntax, and then moves into the object-oriented features of the language. Students will then learn the OOP principles, Data types, Variables, Scoping and life time of variable, Operators, classes and objects, Inheritance, Interface, Exception Handling, Threading, File and StringTokenizer, Networking, I/O streams, Swing and collections API packages

Course Objectives : The objectives of this course are to:

1. Teach OOP principles and features and how to apply them in Java
2. Teach Inheritance, Encapsulation, Abstraction & Polymorphism in Java
3. Demonstrate how to properly utilize the Java Exception Handling mechanism and write multithreaded applications.
4. Show how to use the Swing API and Collection API.

Course Outcomes (CO) and their mapping with Program outcomes (PO) and Teaching-Learning Assessment methods:

CO No.	CO Statements: Upon successful completion of the course, students should be able to:	Corresponding POs (Appendix-1)	Bloom's taxonomy domain/level (Appendix-2)	Delivery methods and activities	Assessment Tools
CO1	**Explain** the basics of Java and Object-Oriented Programming Features.	1	1/Understand	Lecture, multimedia,	Viva, Presentation, Written exam
CO2	**Develop** applications using programming language basics.	3	1/Apply	Lecture, Problem Solving	Quiz, Written exam
CO3	**Develop** Object Oriented solutions for programming problems.	3	1/Apply	Lecture, Problem Solving	Quiz, Written exam
CO4	**Analyze**, **Debug** program.	4	1/Analyze	Lecture, Problem Solving	Programming Quiz, Viva
CO5	**Create** applications using Java library.	3	1/Analyze	Lecture Problem Solving	Problem Solving.

Weighting COs with Assessment methods:

Assessment Type			Marks Distribution (%)	CO1	CO2	CO3	CO4	CO5
				PO1	PO3	PO3	PO4	PO3
Final Exam (50%)	Written Exam (40%)	Open Book						
		Closed Book & Time Bound	40			15	10	15
	Oral Exam (10%)	Presentation						
		Viva	10	10				
		Project						

Mid Term (20%)	**Written Exam**	**Open Book**						
		Closed Book & Time Bound	**20**	1.67	5	6.67	6.67	
Assessment (30%)	**Written Exam**	**Assignment**						
		Quiz	**20**		6.67	10	3.33	
		MCQ						
	Report Writing	**Case study**						
		Literature Review						
	Oral Exam	**Presentation (in group)**	**10**	10				
Total			**100%**	21.67	11.67	31.67	20	15

Course Content Outline and mapping with COs

Weeks	Topics / Content	Course Outcome	Delivery methods and activities	Reading Materials
1	Introduction to Java Object Oriented Programming principles, Data types, Variables, Scoping and lifetime of variable	CO1, CO2	Lecture, multimedia	Herbert Schildt: Ch 2,3 Slides
2	Arrays: Single and Multidimensional Operators: Arithmetic, The Bitwise Operators, Boolean Logical Operators, Relational Operators, Precedence	CO1, CO2	Lecture, multimedia	Herbert Schildt: Ch 3,4 Slides
CT1				
3-4	Introduction to classes and objects, Constructors and methods. Reference type as parameter and return type. Final and static keyword, String and String Tokenizer.	CO1, CO3, CO4	Lecture, Problem Solving	Herbert Schildt: Ch 7,15,16,18 Slides
CT2				
5-6	OOP Features: Inheritance, Encapsulation, Method overloading, Polymorphism, method overriding,	CO1, CO3, CO4	Lecture, Problem Solving, Group discussion	Herbert Schildt: Ch 8
7	Abstraction: abstract class, Interface	CO1, CO3, CO3	Lecture, multimedia	Herbert Schildt: Ch 7, 9
CT3				
Mid				
8	Exception Handling	CO1, CO4, CO5	Lecture, multimedia	Herbert Schildt: Ch 10

9-10	Nested class, Threading	CO1, CO4, CO5	Lecture, multimedia	Herbert Schildt: Ch 11
CT4				
11	Input/Output and Serialization	CO1, CO4, CO5	Lecture, multimedia	Herbert Schildt: Ch 11,19
12-13	GUI Basic – Components, Container, Layout GUI Event Handling- source, listener, event object. Steps to handle events. Handle multiple events	CO1, CO4, CO5	Lecture, multimedia	Herbert Schildt: Ch 24-26, 31-33
13-14	Collections, review	CO1, CO4, CO5	Lecture, multimedia	Herbert Schildt: Ch 17
CT5				
Final Exam				

Minimum attendance: 70% class attendance is mandatory for a student in order to appear at the final examination.

Textbook: Java the Complete Reference, 8th edition,Herbert Schildt

Required References: Head First Java(O'Reilly – Kathy Sierra & Bert Bates)
Java: How to Program, 9th Edition (Deitel)

Recommended References: www.tutorialspoint.com

Grading System: As per the approved grading scale of University of Asia Pacific (Appendix-3).

Special Instructions: **Late attendance:** Students who will enter the class after the attendance call will be marked as absent.

Assignment: Assignment (Written and/or presentation.) will be given throughout the semester. **Copied** assignments will be graded as zero. Late submission will result in a 50% deduction in score.

Class Test: There will be no make-up quizzes. 3 out of 5 class tests will be considered. **CT1, best of CT2 & CT3, and best of CT4 & CT5 will be considered**.

Student's responsibilities: Students must come to the class prepared for the course material covered in the previous class (es).
They must submit their assignments on time.

Online Etiquettes: Prepare yourself for the class. Remember that it is a classroom setting, consisting of all learners' classmates and teachers. Students need to follow all the etiquettes they would in a regular classroom.

Make sure your device is ready at least 10 minutes before the class starts.

Make sure all required study materials such as pen, paper, books, etc. are in your reach during the class.

Try to be alone and pay full attention to your teachers. Nobody should be around you while the class is in progress (if not possible, take extra care to keep your microphone in mute state to avoid extra noise during the class).

Follow the timetable of the class very strictly.

Keep your microphone in mute state and video in on state. If you need to communicate with your teacher, raise your hands and seek permission.

Do not do anything which may disturb the class (such as passing irrelevant and negative comments etc.); you will be monitored and **disciplinary actions will be taken.**

Prepared by (Course Teacher)	**Checked by** (Chairman, PSAC committee)	**Approved by** (Head of the Department)
Tanjina Helaly		

Appendix-1:

Washington Accord Program Outcomes (PO) for engineering programs:

No.	PO	Differentiating Characteristic
1	Engineering Knowledge	Breadth and depth of education and type of knowledge, both theoretical and practical
2	Problem Analysis	Complexity of analysis
3	Design/ development of solutions	Breadth and uniqueness of engineering problems i.e. the extent to which problems are original and to which solutions have previously been identified or codified
4	Investigation	Breadth and depth of investigation and experimentation
5	Modern Tool Usage	Level of understanding of the appropriateness of the tool
6	The Engineer and Society	Level of knowledge and responsibility
7	Environment and Sustainability	Type of solutions.
8	Ethics	Understanding and level of practice
9	Individual and Team work	Role in and diversity of team
10	Communication	Level of communication according to type of activities performed
11	Project Management and Finance	Level of management required for differing types of activity
12	Lifelong learning	Preparation for and depth of Continuing learning.

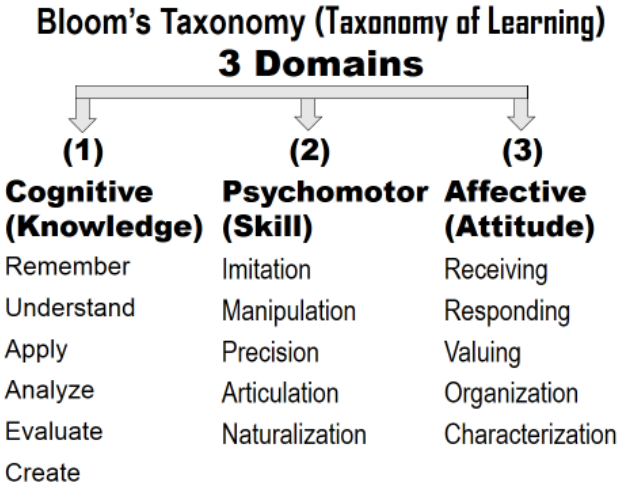
Generic Skills (Detailed):

1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;
3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
5. **Modern Tool Usage (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations;
6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development;
8. **Ethics (ESSE)** –Apply professional ethics with Islamic values and commit to responsibilities and norms of professional engineering code of practices.
9. **Communication (S)** -Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write

effective reports and design documentation, make effective presentations, and give and receive clear instructions;

10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
11. **Life Long Learning (S)** -Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one's own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.

Appendix-2



Appendix-3
UAP Grading Policy:

Numeric Grade	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00