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

Course Outline

Program: Computer Science and Engineering (CSE)

Course Title: Computer Programming-II

Course Code: CSE 204

Semester: Spring-2019

Level: 3rd Semester

Credit Hour: 1.5

Name & Designation of Teacher: Tanjina Helaly, Assistant Professor

Office/Room:

Class Hours:
Consultation Hours:

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Rationale: Laboratory work based on Object Oriented Programming: JAVA(CSE 203)

Pre-requisite (if any)**:**

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 and collections API packages

Course Objectives (CO):   The objectives of this course are to:
1. Learn professional Object Design and Programming with Java
2. Learn OOP principles and features and how to apply them in Java
3. Learn Inheritance, Encapsulation, Abstraction & Polymorphism in Java
4. Learn Java Classes, Objects & Interfaces
5. Learn how to properly utilize the Java Exception Handling mechanism and write multithreaded applications
6. Become familiar with Java Collections API

Learning Outcomes (LO):   Upon completion of the course, the students will be able to:
1. Know the main aspects of the Java programming language
2. Write, compile and execute Java programs
3. Develop an object-oriented model and build robust applications using Java's object-oriented features
4. Create Java objects and calling their methods
5. Create robust applications using Java class libraries
6. Structure data with the Java collections API

Teaching-learning and Assessment Strategy: Lectures, assignments, quizzes, exams

Linkage of LO with Assessment Methods & their Weights:

Assessment Method	(%)
Class attendance	10
Class Performance	25
Mid Exam	15
Project	20
Presentation	10
Final	20

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

Mapping of Course LO and Generic Skills:

Learning Outcome (LO) of the Course			Generic Skills* (Appendix-1)									
	1	2	3	4	5	6	7	8	9	10	11	12
Know the main aspects of the Java	√											

programming language													
Write, compile and execute Java programs	√	√	√	√	√								
Develop an object-oriented model and build robust applications using Java's object-oriented features	√	√	√	√	√								
Create Java objects and calling their methods	√	√											
Create robust applications using Java class libraries	√	√											
Structure data with the Java collections API	√	√											

Lecture Schedule

Weeks	Topics	Reading Materials
1	Introduction to Java Object Oriented Programming principles, Data types, Variables, Scoping and life time of variable	Herbert Shieldt: Ch 2,3
2	Arrays: Single and Multidimensional Operators: Arithmetic, The Bitwise Operators, Boolean Logical Operators, Relational Operators, Precedence, Control Statement	Herbert Shieldt: Ch 3,4
3	Repetition of Lab2 topics.	
4	Introduction to classes and objects, Constructors and methods.	Herbert Shieldt: Ch 6
5	Repetition of class and object. Constructor and Method overloading, Object using as parameter and returning object in a method, Final and static keyword	Herbert Shieldt: Ch 6,7
6	Inheritance, Constructor and Method overloading, overriding	Herbert Shieldt: Ch 7,8
7	Static keyword. Abstract Class and interface SubClass Polymorphism,	Herbert Shieldt: Ch 7, 8
8	Mid exam	
9	GUI	Herbert Shieldt: Ch 24-26, 31-33
10	IO, Exception Handling and Collection	Herbert Shieldt: Ch 11
11	Game Development	Herbert Shieldt: Ch 10
12	Threading	Herbert Shieldt: Ch 21
13	Socket	Herbert Shieldt:18, 20
14	Project presentation and Final Exam	Herbert Shieldt: Ch 21

Required References:	Java the Complete Reference, 8th edition,Herbert Shieldt
Recommended References:	www.tutorialspoint.com
Grading System:	As per the approved grading scale of University of Asia Pacific (Appendix-2).
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. No late or partial assignments will be acceptable. There will be no make-up quizzes.

<u>**Appendix-1:**</u> **Generic Skills**

No.	Generic Skills
1.	Engineering Knowledge
2.	Problem Analysis
3.	Design/Development of Solutions
4.	Investigation
5.	Modern Tool Usage
6.	The Engineer and Society
7.	Environment and Sustainability
8.	Ethics
9.	Communication
10.	Individual and Team Work
11.	Life Long Learning
12.	Project Management and Finance

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: 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

Prepared by: Checked by: Approved by:
                                                     (Head of the Detp.)

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