



Course Specification

(Bachelor)

Course Title: **Compter programming (2)**

Course Code: **APCS2205**

Program: **Programming and Computer Science Program**

Department: **Diploma**

College: **Applied College**

Institution: **Umm Al-Qura University**

Version: **1**

Last Revision Date: **Jan -2025**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods.....	4
C. Course Content	5
D. Students Assessment Activities.....	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality.....	7
G. Specification Approval.....	7





A. General information about the course:

1. Course Identification

1. Credit hours: (4 hours)

2. Course type

- A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
- B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (2nd level –1st year)

4. Course General Description

This course will teach students advanced programming and solving problem skills using java-programming language.

5. Pre-requirements for this course (if any):

APCS1202- Computer programming (1)

6. Co-requisites for this course (if any):

N.A.

7. Course Main Objective(s):

- The main purpose of this course is to learn how to program software applications based on object-oriented concepts.
- Aid and enable students to acquire leadership skills, system analysis and problem-solving skills.
- Preparation of graduates capable for joining industry and higher education sectors.
- Exposure to real life projects.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100%
2	E-learning		
	Hybrid		
3	<ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	2 * 15 = 30
2.	Laboratory/Studio	2 * 15 = 30
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Memorize Object Oriented programming concepts , types of errors, and dealing with files.	K3	<ul style="list-style-type: none">▪ Lectures▪ Lab demonstrations.	<ul style="list-style-type: none">▪ Written exam▪ Homework assignments▪ Lab assignments▪ Class Activities▪ Quizzes.
1.2	Identify different object-oriented design notations (UML class diagrams and relationships).	K1, K3		
2.0	Skills			
2.1	Apply Object Oriented Programming (OOP) Concepts like library classes, generic lists, and iterators to develop software solutions.	S2	<ul style="list-style-type: none">▪ Lectures.▪ Lab projects.▪ Case studies▪ Individual presentations.▪ Brainstorming.	<ul style="list-style-type: none">▪ Written exam▪ Homework assignments▪ Lab assignments.▪ Class Activities▪ Quizzes▪ Practical Exam.
2.2	Model problem solutions by using object-oriented design notations (UML class diagrams and relationships).	S2, S3		
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate behaviors that incorporate client’s rights, legal and ethical responsibility, and adheres to the ethics of profession in the student performance	V1	<ul style="list-style-type: none">▪ Small group discussions.▪ Whole group discussions.▪ Brainstorming.▪ Presentations.	<ul style="list-style-type: none">▪ Practical Exam.▪ Lab assignments.▪ Class Activities.▪ Quizzes.



Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
3.2	Accept the responsibility of self-study learning to promote profession growth and lifelong learning.	V2	▪ Case study.	
	Function effectively on teamwork to accomplish complete software solutions.	V3		

C. Course Content

No	List of Topics	Contact Hours	
		Theoretical	Practical
1.	Course overview including lecturer, prerequisite, syllabus, textbooks, evaluations distributions, due dates, office hours.	1	0
2.	Introduction to programming paradigms: <ul style="list-style-type: none"> ▪ Object-oriented programming concepts ▪ Declaring classes and creating objects ▪ Class constructors 	2	2
3.	Classes and objects: the building blocks <ul style="list-style-type: none"> ▪ static and instance members of a class ▪ scope of data members in a class ▪ reference and primitive data types ▪ the use of this reference and the null value (garbage collection) 	4	4
4.	Classes and objects: a deeper look <ul style="list-style-type: none"> ▪ Encapsulation and data hiding, getter and setter methods ▪ Enumerations ▪ Nested and inner classes ▪ Passing object to and returning object from methods ▪ The method finalize 	4	4
5.	Inheritance and code reusability: <ul style="list-style-type: none"> ▪ protected members extends classes ▪ overriding vs. overloading ▪ access superclass constructors and methods ▪ preventing class extending & method overriding 	4	4
6.	Polymorphism and dynamic binding	2	2
7.	Abstract classes and interfaces	2	2
8.	Object-oriented modeling and UML	2	2





9.	Dealing with Errors in programming language: <ul style="list-style-type: none"> Types of errors in programming language (Syntax, logical, semantic) How to catch exceptions 	4	4
10.	Files: <ul style="list-style-type: none"> Reading from files Writing to files 	4	4
11.	Graphical User interface (GUI)	2	2
Total			

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes & Assignment	Throughout the term	10 %
2.	Midterm Exam	8	20 %
3.	Practical skills	Throughout the term	20 %
4.	Final Exam	16 - 17	50 % (40% Theoretical Exam , 10% Practical Exam)

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Introduction to Java Programming and Data Structures, Comprehensive Version 12th Edition
Supportive References	Course notes on the E-learning web-site
Electronic Materials	Core Java(TM), Volume I—Fundamentals by Cay S. Horstmann
Other Learning Materials	Instructor handouts and presentation in ppt.

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ul style="list-style-type: none"> Classroom well equipped with at least 40 adequate seats. Laboratory well equipped with at least 20 adequate seats. Internet connection
Technology equipment (projector, smart board, software)	<ul style="list-style-type: none"> Smart board Data show IDE software for Programming language
Other equipment (depending on the nature of the specialty)	<ul style="list-style-type: none"> Internet inside the classroom.





Items	Resources
	<ul style="list-style-type: none"> Library: Up to date scientific books, in the library.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	- Questionnaire of course quality
Effectiveness of Students assessment	Peer reviewers	-Random grading report -Test Completion report for test standards
Quality of learning resources	Students	- E-Survey of sufficiency of learning resource
The extent to which CLOs have been achieved	Instructor, program leaders and Course coordinator	- Questionnaire of course quality -Results of quizzes, mid-term and final exams.
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Umm Al-Qura University Council
REFERENCE NO.	851141114462/190365
DATE	1446/11/22

