جامعة الزيتونة الأردنية

Al-Zaytoonah University of Jordan

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Applied Programming

Course Number: 0130231

General Course Information:

Course Title	Applied Programming
Course Number	0130231
Credit Hours	3 credit hours
Education Type	Traditional learning
Prerequisites/Co-requisites	Computer Programming
Academic Program	Computer Science
Program Code	0130
Faculty	Faculty of Science and IT
Department	Computer Science
Level of Course	1
Academic Year /Semester	2024/2025 (2nd Semester)
Awarded Qualification	Bachelor's degree
Other Department(s) Involved in Teaching the Course	N/A
Language of Instruction	English
Date of Production/Revision	2024-2025

Course Coordinator:

Coordinator's Name	Dr. Assal Ali Alqudah
Office No.	9231
Office Phone Extension Number	N/A
Office Hours	9:30-10:30 Sunday & Tuesday 11:00-12:00 Monday & Wednesday
E-mail	a.alqudah@zuj.edu.jo

Other Instructors:

Instructor Name	Mrs. Fatima Mousa Quiam
Office No.	9231
Office Phone Extension Number	N/A
Office Hours	Sunday, Tuesday 12:30 -3:00 Monday, Wednesday 2:00-3:30
Email	f.quiam@zuj.edu.jo

Course Description *(English/Arabic)*:

English	**This course Focuses on the design and development of software applications for practical purposes. This course aims to teach students how to build fully integrated applications using various programming languages. Key topics include user interface design, database management, user interaction, and software testing. The course seeks to equip students with the skills needed to develop efficient software solutions that meet user needs and operate effectively in real-world environments.**

Arabic	**يركّز المساق على على تصميم وتطوير تطبيقات البرمجيات لأغراض عملية. يهدف هذا المساق إلى تعليم الطلاب كيفية بناء تطبيقات متكاملة بالكامل باستخدام لغات برمجة متنوعة. تشمل الموضوعات الرئيسية تصميم واجهات المستخدم، إدارة قواعد البيانات، التفاعل مع المستخدم، واختبار البرمجيات. يسعى المساق إلى تزويد الطلاب بالمهارات اللازمة لتطوير حلول برمجية فعّالة تلبي احتياجات المستخدم وتعمل بشكل فعال في بيئات العالم الحقيقي.**

Textbook: *Author(s), Title, Publisher, Edition, Year, Book website.*

- Herbert Schildt**, Java: The Complete Reference**, 13th Edition, McGraw-Hill Education, 2023, https://www.mhprofessional.com/java-the-complete-reference-thirteenth-edition-9781260463415.

References: *Author(s), Title, Publisher, Edition, Year, Book website.*

- Scott Brandt, ***Java From Zero: Learn Java Programming Fast for Beginners to Professionals: The Complete Guide With Code Examples and Exercises to Become a Professional***, Lulu.com, 2023, ISBN-13: 978-1447794158.
- Herbert Schildt, ***Java: A Beginner's Guide***, 8th Edition, McGraw-Hill Education, 2020, https://www.mhprofessional.com/java-a-beginners-guide-eighth-edition-9781260440218.
- Paul J. Deitel & Harvey M. Deitel, ***Java How to Program, Early Objects***, 11th Edition, Pearson, 2017, https://www.oreilly.com/library/view/java-how-to/9780134751962/

Course Educational Objectives (CEOs):

1.	Teach students the core concepts of Object-Oriented Programming (OOP) — Encapsulation, Abstraction, Inheritance, and Polymorphism — and how to apply them in designing and developing modular, reusable, and maintainable Java applications.
2.	Equip students with the skills to create scalable, well-structured software by designing classes, objects, and using design patterns, while also utilizing UML diagrams for effective communication and problem-solving in real-world applications.
3.	Enable students to apply OOP concepts in developing practical Java applications that solve real-world problems with clear structure and logical flow.

Intended Learning Outcomes (ILO's):

Intended learning outcomes (ILOs)		**Relationship to CEOs**	**Contribution to PLOs**	**Bloom Taxonomy Levels***	**JNQF Descriptors****
	K- Knowledge and Understanding				
ILO1- K	Describe core concepts of classes and objects and their relationships in Java.	CEO1	PLO2	Understanding	k
ILO2- K	Explain inheritance, polymorphism, and class hierarchies in object-oriented programming.	CEO2	PLO2	Understanding	K
	S- Intellectual skills				

ILO3 - S	Apply UML notation to represent object-oriented designs and class relationships.	CEO1	PLO4	Applying	S
ILO4 - S	Implement class relationships (association, aggregation, composition) using Java.	CEO2	PLO4	Creating	S
ILO5 - S	Design Java subclasses using inheritance and polymorphism to create reusable software components.	CEO2	PLO4	Creating	S
	C- Subject specific skills				
ILO6-C	Build and test Java applications that integrate object-oriented principles for solving structured problems.	CEO3	PLO5	Creating	C
	D-Transferable skills:				
ILO7- d	Collaborate effectively in team-based Java software projects and communicate design solutions clearly.	CEO3	PLO7	Applying	D

***Bloom Taxonomy Levels:**						
Level #	1	2	3	4	5	6
Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

**** Descriptor (National Qualification Framework Descriptors): K: Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

(PLOs)	JNQF Descriptors**		
	K	**S**	**C**

PLO1-K	Knowledge of professional ethics, social responsibility, and the regulations governing them.	√		
PLO2-K	Understanding various programming techniques, the stages of software development, and the fundamental principles of security.	√		
PLO3-S	Skill in applying mathematical concepts to analyze and design algorithms and verify their correctness		√	
PLO4-S	Skill in using different programming languages and applying them to develop software and computer applications.		√	
PLO5-C	The ability to analyze, design, and develop effective and reliable computer programs that meet user requirements and adhere to professional ethics.			√
PLO6-C	The ability to keep up with continuous advancements in computer science, innovate, and work independently or as part of a team.			√
PLO7-D	The ability to work collaboratively, communicate effectively, and demonstrate teamwork spirit.			√

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule *(please choose the type of teaching)*

☒ **Face to Face (F2F)**

☐ **Hybrid** *(One – To - One)*

☐ **Online**

Schedule of Simultaneous and their Topics:

Week	First Lecture (F2F)	Second Lecture (F2F)	ILOs	PLOs	JNQF Descriptors*
1	Course Introduction, Java Setup, Review of Basic Syntax	Overview of Object-Oriented Programming	ILO1-K	PLO2-K	**K**
2	Objects and Classes: Definitions, Creation	Constructors, Reference Variables, Java Library Usage	ILO1-K	PLO2-K	**K**
3	Static Members, Encapsulation, Variable Scope	Passing Objects, Object Arrays, `this` Keyword	ILO1-K	PLO2-K	**K**
4	Object-Oriented Thinking, Abstraction	Class Relationships: Association, Aggregation, Composition	ILO4-S	PLO4-S	**S**
5	Wrapper Classes, String	Continue with object relationships and practice	ILO3-S	PLO4-S	**S**
6	Inheritance: Superclasses, `super`, Method Overriding	Polymorphism: Overriding vs. Overloading	ILO5-S	PLO4-S	**S**
7	Object Class Methods, Dynamic Binding, Casting	Use of `instanceof`, Practical Examples	ILO6-C	PLO5-C	**C**
Mid-Term Exam					

9	`equals` Method, `ArrayList`	Useful List Methods, Custom Collections	ILO5-S	PLO4-S	**S**
10	Case Study: Custom Stack, Use of `protected`, Preventing Overriding	Final Keyword Usage, Object Reusability	ILO5-S	PLO4-S	**S**
11	Abstract Classes: Definitions and Use	Abstract Methods and Classes in Java	ILO6-C	PLO5-C	**C**
12	Interfaces: Introduction and Case Studies	Multiple Interfaces, Interface Implementation	ILO6-C	PLO5-C	**C**
13	Comparable, Cloneable, Interface vs Abstract Class	Rational Class Implementation	ILO4-S	PLO4-S	**S**
14	Course Revision	Revision	ILO7-D	PLO7-D	**D**
15	**Projects Discussion**				
16	**Final Exam**				

* **K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lecture.
- flipped learning.
- learning through projects.
- learning through problem solving.
- participatory learning

Course Policies:

A- Attendance policies:
The maximum allowed absences is 15% of the lectures.
B- Absences from exams and handing in assignments on time:
Midterm exam can be retaken based on approval of excuse by the instructor's discretion.
Not handing assignment on time will incur penalties.
C- Academic Health and safety procedures
D- Honesty policy regarding cheating, plagiarism, and misbehaviour:
Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.
E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Course Project 3**0%**
- Midterm 30**%**
- Final Exam **40 %**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required Equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the ZUJ E-Learning Platform at https://exams.zuj.edu.jo/
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools Implemented in the Course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs
- Discussion Forums
- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching.
- Others…

Responsible Persons and their Signatures:

Course Coordinator	Dr. Assal Ali Alqudah	**Completed Date**	**2025/5/4**
		Signature	

Received by (Department Head)	Dr. Mohammad Abdullah	**Received Date**	/ /
		Signature	