BIRZEIT UNIVERSITY

Advanced Programming (COMP231)

Course Outline –2nd Semester 2020/2021

Course information:

a. Course Code: COMP231
b. Course Name: Advanced Programming
c. Prerequisite: Comp230/Comp132/Comp133/Comp142
d. Co-requisite: none

Course Description:

Object Oriented Analysis, Design, Programming, and Applications. The theory behind OOP will be examined, analyze, and design programs using one of the Object-Oriented languages. Structure of the language (classes & interface), language syntax and features, input/output, events handlers and applications, using GUI library (JavaFX), and threads.

Course Goals:

During this course, the student will develop better problem-solving techniques, programming and program design skills, Procedural Programming. You will learn the principles, knowledge and skills to utilize the object-oriented programming paradigm; using the Java programming language to design and write object-oriented programs to process text files and build graphical user interfaces (GUIs).

Course Objectives:

Demonstrate understanding of classes, constructors, objects, and instantiation.
Access variables and modifier keywords.
Develop methods using parameters and return values.
Build control structures in an object-oriented environment.
Convert data types using API methods and objects.
Design object-oriented programs using scope, inheritance, and other design techniques.
Create an object-oriented application using Java packages, APIs, and interfaces, in conjunction with classes and objects.

Course Outcomes:

A. Knowledge and understanding
1. To be familiar with the essential theories, concepts, and principles related to information technology and computer applications as appropriate to the program of study.
2. To gain the knowledge and skills needed to be able to provide computer science solutions to information technology problems.

B. Intellectual/Cognitive skills
1 .To be able to analyze problems related to computing and to provide solutions related to the design/construction of computing systems.

C. Subject specific and practical skills
1 .Apply appropriate processes and methodologies to specify, design, implement, verify, and maintain computer-based systems.

Teaching and learning methods:

A. Lectures
B. Labs
C. Assignments and project
D. Lab Works
E. Exams

Course Instructors:

Section # (Lecture)	Instructor Name	Office
1	*Dr. Yousef Hassouneh*	*Masri322*
2	*Mr.Murad Njoum* *	*Masri322*
3	*Mr.Farid Mohammad*	-----

*Course coordinator

References:

Introduction to JAVA Programming, **11th edition (10th edition is ok)** , Author Y.Daniel Liang, Publisher: Prentice Hall.

Laboratory Work Book (COMP231)

Grading Policy:

Mid Term Exam	**25%**
Final Exam	**35%**
Home works* and Lab Works (include Quizzes)	**25%**
Project	**15%**

* *Home works are take-home assignments that must be submitted within a maximum of 24 hours.*

Topics Covered in this Course:

Topics	Chapter	# of lectures
Introduction to Java	1-8	6
Objects and Classes	9	3
Strings	4.4, 10.10, 10.11	2
Thinking in Objects	10	2
Inheritance and Polymorphism	11	3
Abstract Classes and Interfaces	13	3
Exception Handling and Text I/O	12	3
JavaFX Basics	14	3
JavaFX UI Controls	16	2
Event-Driven Programming	15	3

Lab Outline:

1	Program structure in Java	
2	Structure Programming - Revision	
3	Methods	
4	Arrays and Object Use	
5	Object-Oriented Programming	
6	String I	
7	String II	
8	Inheritance and Polymorphism	
9	Abstract classes and Interfaces	
10	Exception handling and text I/O	
11	JavaFX basics and UI controls	
12	Event-Driven Programming	

Special Regulations:

- Late/wrong assignments including quizzes, homework or project, will **NOT** be accepted for any reason and will not be graded.
- There will be **NO** makeup exams, missing any exam without an **acceptable** excuse will result in a zero mark for that exam.
- Attendance is mandatory. University regulations will be strictly enforced.
- Academic **honesty**:
  - Individual HW assignments/project must be each student's own work.
  - Cheating will result in an official university disciplinary review.