Zarqa University
Faculty: Information Technology
Department: Computer Science
Course title: Computer Programming 2 (1501112)

Instructor:
Lecture's time:
Semester:
Office Hours:

Course description:

This course aims to introduce students to advanced topics in programming using Java. It includes event driven programming, graphical user interface, exception handling, files manipulations, and recursion. Moreover, the course covers the concepts of inheritance and polymorphism. The topics covered in this course provide a foundation for more advanced courses in computer science and information systems.

Aims of the course:

Students are expected to

1. Describe basic Java concepts including objects and classes, applications and applets.
2. Understand the theory and principles behind Object Oriented Programming and its realization within Java.
3. Identify the basic language features used to construct appropriate graphical interfaces.
4. Describe the concept of recursion and give examples of its use.
5. Explore I/O manipulation including streams and files.

Intended Learning Outcomes: (ILOs):

Upon successful completion of this course, students will be able to:

A. Knowledge and Understanding

A1.ConceptsandTheories:

1. Lists the concepts of OOP
2. Lists the concepts of Inheritance
3. Lists the concepts of GUI
4. Lists the concepts of File management and Exception handling

A2.Professional Responsibility:

- Abide by laws and regulations when using computer networks.

B. Subject-specific skills

B1. Problem solving skills:

- Supply the student with the ability to solve different problems related to the topics

B2.ModelingandDesign:

- Learn how to design a complete java project

B3.ApplicationofMethodsandTools:

- Learn how to implement a complete java project

C. Critical-Thinking Skills

C1. Analytic skills:

- Learn how to analyze a problem

C2. Strategic Thinking:

- Understand the required strategy to solve problems

C3.Creative thinking and innovation:

- Design the student's GUI according to a given problem

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Communication:

- Express and communicate ideas in written and oral forms.

D2.Teamwork and Leadership:

- Be cooperative members of a team

D3. Organizational and Developmental Skills:

- Plan for automating of systems

D4.Ethical and Social Responsibility:

- Understand that they are accountable for their actions and there must be a balance between economic growth and the welfare of the society and environment**.**

Course Structure:

Week	Hours	ILOs	Topics	Teaching Procedure	Assessment methods
1	3	A1	Methods revision	Discussion	quiz
2-4	6	A1, B1, B2, C1, C3, D1	Objects Oriented Aspects: - Introduction, - Defining classes (with public instance variables and methods only), - Define objects (default constructor), - Primitive Types vs. Reference Types - Initializing Objects with, Constructors - Visibility modifiers - final and static variables - Overloading	On-board examples and Discussion	Quiz+ project
5-7	6	A1, B3, B1, B2, C1, C2, D1,D2,D3,D4	Objects Oriented Aspects: - Set and get methods - (this) reference to a constructor - (this) reference to a member - Overriding: toString() - Static data field - (final) data field - Association, aggregation, and composition	On-board examples and Discussion	Quiz+ project
8-9	6	A1, A2, B3, B1, B2, C1,C2,D1,D2,D3,D4	- Introduction - Superclasses and Subclasses - Protected Members - Using (super) keyword - (super) to reference constructors	On-board examples and Discussion	Quiz+ project

			- (super) to reference methods - Overriding methods - Overriding vs. Overloading		
10-11	6	A1, B3, B1, B2, C1, C2, D1, D2,D3,D4	Object-Oriented Programming: Polymorphism - Polymorphism Examples - Abstract Classes and Methods - interesting points about abstract classes - Interfaces - array of objects - (final) methods and Classes --------- Concepts of association, aggregation and composition	On-board examples and Discussion	Quiz+ project
12	6	A1, B3, B1, B2, C1, C3, C3, D1, D2,D3,D4	GUI Components - Introduction - swing vs. awt - Frame Components: Labels, Buttons, Text fields, Radio buttons, Check boxes, Combo boxes, - Layouts FlowLayout, BorderLayout, GridLayout, and Panels - Events Action listener ItemListener	On-board examples and Discussion	Quiz+ project
13	3	A1, B2, B3, D1,D2,D3,D4	Exception Handling Example: NullPointerExceptions - Exception-Handling Overview Try, catch, finally blocks	On-board examples and Discussion	Quiz+ project
14	4	A1, B2, B3, D1,D2,D3,D4	Files and Streams - Introduction to text files Read from files Write into files	On-board examples and Discussion	Quiz+ project
15	5	A1, B3, B1, B2, C1, C3, C3, D1, D2,D3,D4	Recursive methods Importance and examples	On-board examples and Discussion	Quiz+ project

References:

A. Main Textbook:

Introduction to Java programming / Y. Daniel Liang. 3rd ed.- Upper Saddle River (NJ) , 2001

B. Supplementary Textbook(s):

Java How to Program: Early Objects Version, 8th Edition- Paul Deitel, Deitel & Associates, Inc., 2010

Assessment Methods:

Methods	Grade	Date
1st Exam	20%	
2nd Exam	20%	
projects	10%	
Final exam	50%	