King Saud University
College of Computer and Information Sciences
Department of Computer Science

CSC 113 Syllabus

Spring 2024

Course title: Computer Programming II **Credit hours**: 4
Prerequisites: CSC 111

Course Description:

This course continues the coverage of the fundamental concepts of Object Oriented Programming started in Programming I (CSC 111). It covers more advanced concepts and topics such as relationships between classes, inheritance, polymorphism, abstract classes, error handling, interfaces, generics and data structures.

Course Objectives:

The main objectives of CSC113 are:

- Improving student skills in handling arrays of objects.
- Explaining relationships between classes such as inheritance, association, aggregation and composition.
- Introducing advanced concepts such as Polymorphism, Exception Handling and Generics.
- Presenting dynamic data structures, such us linked lists, stacks and queues.
- Showing how to access object and/or binary files with Java.

Course Outcomes:

Upon completing CSC113, students should have the following capabilities:

1. Understand classes and instances, and how programs can be designed as a collection of communicating objects.
2. Understand and be able to design and implement programs using object oriented programming concepts like: encapsulation, inheritance, polymorphism, abstract classes and methods, and Interfaces.
3. Use standard documentation, such as UML class diagrams and online Java documentation.
4. Learn how to compile programs on at least one platform using command lines and / or IDE.
5. Create and manipulate dynamic data structures, such us linked lists, stacks and queues.
6. Create and access files with Java.
7. Design and Implement event-driven interactive programs.

8. Understand recursion and be able to write recursive algorithms for problems.

Course Content:

Topics to be covered include:

- Objects And Methods
- Arrays of objects.
- Relationship between classes using UML
- Inheritance and polymorphism.
- Abstract classes and interfaces.
- Exception handling.
- Files (input/output)
- Graphical user interface
- Data structures (linked lists, queues, stacks).
- Introduction to Java generics.
- Recursion.

Textbook & References:

- An Introduction To Object-Oriented Programming With JAVA (Fifth Edition), C. Thomas WU, 2008, McGraw-Hill Higher Education.
- Java Programming: From Problem Analysis to Program Design,4th Edition by D.S. Malik.

Expected Performance Criteria:

The students are expected to complete theoretical homework assignments and programming assignment and pass written examinations on class material.

Weekly lectures:

	Lectures		
Week	Lecture 1	Lecture 2	Lecture 3
1	orientation	Orientation	Objects And Methods
2	Objects And Methods	Array of objects	Array of objects
3	Long weekend	Relationships using UML	Relationships using UML
4	Inheritance	Inheritance	Polymorhisim
5	Polymorhisim	Polymorhisim	Polymorhisim
6	Interface	Interface	Fundation day
7	Midterm break		
8	Exception 1	Exception 1 & 2	Exception 2
9	Exception 3	Exception 3	Exception 3
10	Files 1	Files 1	Files 2
11	Files 2	Files 2	GUI
12	Eid Alfiter Break		
13			
14		GUI	GUI
15	GUI	DS	DS
16	DS	DS	Long weekend
17	DS	Recursion	Recursion
18	Project Discussion		
19	General Exam Week		
20			
21	Final Exam – Sunday 2/6/2024		
22	10/06/2024 END OF ACADEMIC YEAR		

Course Assessment:

25 %	Midterm (Week 15)
5%	Quizzes (Week 5, Week 18)
10%	Homework
20%	Lab (evaluation – Project - lab exam)
40%	Final

Notes for email communication:

- Your email header must start with *CSC113*

- Please write your name and your ID at the end of the email

Collaboration and attendance policies:

- Cheating is strictly prohibited in any course assessment and will be penalized.
- Late submission is not accepted
- A student with an absence rate more than 25% will be denied from attending the final exam. An excuse for being absent is accepted only if it is legitimate and submitted within one week of the absence date.