Course Specifications

Course Title:	Computer Programming
Course Code:	ICS 122
Program:	Computer Science and Information
Department:	Computer Science and Information
College:	College of Science at Az Zulfi
Institution:	Majmaah university

Table of Contents

A. Course Identification

1. Credit hours:3
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ☐ Elective ☐
3. Level/year at which this course is offered: **2nd level**
4. Pre-requisites for this course (if any)**:** **Fundamentals of Computing ICS100**
5. Co-requisites for this course (if any)**: Nil**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	48	80%
2	**Blended**	6	10%
3	**E-learning**	6	10%
4	**Correspondence**		
5	**Other**		

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	
4	**Others** (specify)	
	Total	60
Other Learning Hours*		
1	**Study**	
2	**Assignments**	
3	**Library**	
4	**Projects/Research Essays/Theses**	
5	**Others** (specify)	
	Total	

***** The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

This course teaches concepts skills in computer programming using an object-oriented programming language using JAVA. The topics include the concepts of application software, program, source code, program code; and Java programs compilation and running;

- **Identifiers, reserved words, primitive data types, input/output statements**
- **Simple statements, selection statements, and iterative statements.**
- **Arrays (one-dimensional and multidimensional) and methods.**
- **Design methods and use the concept of polymorphism and method overloading**

2. Course Main Objective

1. Be familiar with the fundamental principles of programming and main features of a program in JAVA language.
2. Have the ability to take a "real-life" problem and abstract out the pertinent aspects necessary to solve it in an algorithmic manner
3. Be familiar to formulate formal solutions to well-defined problems using the logic of a programming language in JAVA.
4. Implement formal solutions in Java using an integrated development environment
5. Have an understanding of the basics of data abstraction using the object-oriented framework

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
1.1	An ability to define the computing requirements of a problem and to design appropriate solutions based on established design principles and with an understanding of the tradeoffs involved in design choices	ICS-a2
1.2		
1.3		
1...		
2	**Skills :**	
2.1	An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer-based systems	.b1
2.2	An ability to use sound development principles to implement computer-based and software systems of varying complexity, and to evaluate such systems	.b2
2.3	An ability to use current techniques, skills, and tools necessary for computing practice.	.b2
2...	Apply the above to design, implement, appropriately document and test a Java application of medium complexity, consisting of multiple classes.	.b3
3	**Competence:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to computer programming concepts and problem solving aspects	3
2	The Fundamental Concepts of JAVA Programming	3
3	Working with Data: Basic data types, variables, assignment statements and expressions	6
4	Objects, classes and methods; scope rules, Java documentation	3
5	Boolean expressions, control structures	6
6	Loops statements	3
7	Arrays and multidimensional arrays	3
8	Character string and file I/O	6
9	Simple event-driven programming	3
10	Recursion	3
11	Abstract data type and wrap up	6
Total		45

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	An ability to define the computing requirements of a problem and to design appropriate solutions based on established design principles and with an understanding of the tradeoffs involved in design choices	Lectures. Lab Case studies. Individual presentations.	Written Exam Homework assignments Lab assignments Class Activities Quizzes
1.2			
…			
2.0	**Skills**		
2.1	An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer-based systems	Lectures. Lab Case studies. Individual presentations. Brainstorming.	Written Exam Homework assignments Lab assignments Class Activities Quizzes
2.2	An ability to use sound development principles to implement computer-based and software systems of varying complexity, and to evaluate such systems		
2.3	An ability to use current techniques, skills, and tools necessary for computing practice.		
3.0	**Competence**		
3.1	Apply the above to design, implement, appropriately document and test a Java application of medium complexity, consisting of multiple classes.	Lectures. Lab Case studies. Individual	Written Exam Homework assignments Lab assignments Class Activities

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		group discussions. Brainstorming. Presentations.	Quizzes
3.2			
…			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First written mid-term exam	6	15%
2	Second written mid-term exam	12	15%
3	Presentation, class activities, and group discussion	Every week	10%
4	Homework assignments	After Every chapter	10%
5	Implementation of presented programs	Every two weeks	10%
6	Final written exam	16	40%
7			
8			

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :
Office hours - Office call – Email - Mobile

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Cay S. Horstmann, Core Java Volume I-Fundamentals (11th Edition), Prentice Hall; 11 edition, (August 27, 2018).
Essential References Materials	Paul Laurence, Java Simple Beginner's Guide to Java Programming, Create Space Independent Publishing Platform, May 5, 2018.
Electronic Materials	• http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6- 096-introduction-to-c-january-iap-2011/ http://www.cplusplus.com/reference/
Other Learning Materials	Video and presentation

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom and Lab, as those that are available at college of science at AzZulfi.
Technology Resources (AV, data show, Smart Board, software, etc.)	Smart Board - data show
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	A/N

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
course evaluation	Student-faculty management meeting	Questionnaires
Evaluation of Teaching	Program/Department Instructor	Discussion within the staff members teaching the course Departmental internal review of the course.

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	