



Course Specifications

Course Title:	Programming Fundamentals
Course Code:	CS115
Program:	Computer Science (Cybersecurity- Programming- Networks)
Department:	Applied Sciences
College:	Applied College
Institution:	Imam Muhammad Bin Saud Islamic University

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A. Course Identification

1. Credit hours: 4(3 theory , 2 lab)
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input type="checkbox"/> Program <input checked="" type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Second Semester
4. Pre-requisites for this course (if any): None
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom		
2	Blended	55	100%
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	22
2	Laboratory/Studio	33
3	Tutorial	
4	Others (specify)	
	Total	55

B. Course Objectives and Learning Outcomes

1. Course Description

This course includes a set of topics that represent an introduction to the study of programming science, including talking about the nature of programming of all kinds and its role in the field of informatics and methods of thinking in solving problems by studying algorithms and the basics of sequential programming that constitute the core of the component units of any program. Throughout the semester, the course includes an integrated case study in which all previous tools are used to build an integrated project.

2. Course Main Objective

The course aims to give the student the basics of programming science to be able to propose solutions to problems so that they are valid for formulation in the form of a computer program and the ability to write programs in the Java language to solve problems and solve some simple problems.

2	<ul style="list-style-type: none"> ▪ Algorithms <ul style="list-style-type: none"> ○ Definition Of Algorithms ○ Example Of Algorithms ○ Methods Of Representing Algorithms <ul style="list-style-type: none"> ▪ Pseudo-Code <ul style="list-style-type: none"> • Example of Algorithm and Pseudo Code ▪ Flow Chart <ul style="list-style-type: none"> • Flowchart Symbols • Flowchart Examples ○ Control Structures <ul style="list-style-type: none"> ▪ Sequential Logic Structure ▪ Selection/ Decision Logic Structure ▪ Repetition/Loop Logic Structure <ul style="list-style-type: none"> • Simple Loop • Multiple/Nested Loop ○ Counter ○ Grosses ○ Automatic Counter Loop 	20
3	<ul style="list-style-type: none"> ▪ Introduction To Java Language <ul style="list-style-type: none"> ○ Objective Of Developing Java ○ Java Language Editions ○ Java Language Features ○ Java Programming Tools ○ What We Need To Start With Java? <ul style="list-style-type: none"> ▪ Operating System ▪ Developing Environment ○ Basic Structure Of Java Code ○ Java Language Components ○ Rules ○ Java Keywords ○ Variables And Constants ○ Data Types ○ Statements <ul style="list-style-type: none"> ▪ Declaration Statements ▪ Comments Statements ▪ Input/Output Statements ○ Escape Characters ○ Operations <ul style="list-style-type: none"> ▪ Assignment Operations ▪ Arithmetic Operations ▪ Logical Operations ▪ Relational Operations 	20
4	<ul style="list-style-type: none"> ▪ From Algorithms To Java Program Code <ul style="list-style-type: none"> ○ Examples 	5
Total		55

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 and Understanding		
1.1	Knowledge of programming languages concepts.	Class lectures Class Discussion Questions/Answers Sessions in class Home work Assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports.
1.2	Classification of programming languages according to their uses and levels.		
1.3	Comparison between types of programming languages.		
1.4	Demonstrate the software development life cycle.		
1.5	Familiarity with the concept of algorithm, its types, methods of representation, and the types of problems that are solved by it.		
1.6	Knowledge of the Java development environment.		
1.7	Knowledge of the components of Java language and the rules for writing them.		
2.0	Skills		
2.1	Tracking the stages of the software development life cycle for its production.	Class lectures Class Discussion Questions/Answers Sessions in class Home work Assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports
2.2	Solving problems using algorithms.		
2.3	Mastering the basic components and stages of programming.		
2.4	Converting sequential algorithms into a Java program.		
2.5	Write a simple sequential program in Java.		
2.6	Using information and communication technology in communication, exchange of ideas, scientific research, and performance of tasks.		
2.7	Practicing critical thinking and solving problems facing the learner in the course in creative ways.		
3.0	Values		
3.1	Collaboration, teamwork, and professional ethics.	Class lectures Class Discussion Questions/Answers Sessions in class Home work Assignments Quizzes Case studies and Analysis.	Quizzes Homework and Assignments. Written exams (Midterm and final). Writing reports
3.2	Take responsibility for continuous learning and continuing personal development.		
3.3	Effective and efficient time management when applying the acquired knowledge and skills.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quizzes (3-4 Quizzes)	All Semester	15%
2	Midterm	Week 7	20%
3	Participation	All Semester	5%
4	Lab Evaluations	All Semester	20%
5	Final	Week 12-13	40%

*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 per week.

5 hours of weekly meetings

Contact through the LMS

Communication/interact via e-mails with students

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Java™ Programming: From Problem Analysis to Program Design (Introduction to Programming) by D. S. Malik, 5th Edition.
Essential References Materials	<ul style="list-style-type: none"> - Deitel P.J., Deitel H.M. - Java. How to Program, 10th Edition - Problem Solving and Programming Concepts by Maureen Sprankle and Jim Hubbard, 9th Edition.
Electronic Materials	Online resources will be provided during class lectures.
Other Learning Materials	N/A

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, Computer lab
Technology Resources (AV, data show, Smart Board, software, etc.)	Data Show, Smart Board, NetBeans software, Edraw Max software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	-

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Student	Indirect using course evaluation survey
Quality of learning resources	Student and Faculty	Indirect using course evaluation and faculty survey

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	