

University of Petra		 جامعة البترا - ثلاثون عاماً University of Petra
Faculty of Information Technology		
Department of Computer Science		
		كلية تكنولوجيا المعلومات قسم علم الحاسوب

Course Syllabus

Year: 2025-2026

Semester: (1)

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours	Equivalent hours in NQF	Course level according to NQF
601105	Information Technology Fundamentals	-	601106	2	65	6

#	Instructor Name	E-mail	Section #	Office ext.
1	Dr. Eman Alduweib	emanalduweib@uop.edu.jo		
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6	Mr. Alaa Shorbaji			

Course Coordinator's Name:	Dr. Eman Alduweib
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Short Course Description	This course gives the basic concepts of computer and information technology both hardware and software. Topics covered: introduction to computers hardware and software, numbering system, data coding and representation, process of software development, systems and application software, problem solving techniques (Flowchart, Pseudo-code), introduction to programming language "JAVA" including: procedural programming basic concepts, program structure, primitive data types, mathematical and logical operations, basic control structures, built-in and user defined methods, and compilation and testing, introduction to recursive methods
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Course Objectives

- The student will identify the hardware components of a computer and will describe how they act together to form a complete system including the scientific principles on which they are based.
- The student will use problem-solving techniques (Flowchart, Pseudo-code) to solve the problems. The student will edit, compile, execute and get hard copy of a simple program.
- The student will use good documentation, formatting and naming conventions to insure program readability.
- The student will obtain a basic understanding of procedural programming terminology
- The student will write a program using the JAVA arithmetic operators, input/output methods and appropriate manipulators for formatting.
- The student will write a program using appropriate selection statements such as if-else.
- The student will write a program using looping statement.
- The student will write built-in and user-defined methods
- The student will obtain a basic understanding of recursion.

Course Intended Learning Outcomes (ILOs) and their Alignment with Program ILOs, Teaching and Learning Methods, and Assessment Methods:

Upon successful completion of this course, students are expected to achieve the following learning outcomes:

Course ILOs	Program ILOs	Teaching and Learning Method	Assessment Method
Knowledge (K)			
K1. Identify information about computers hardware, software and programming languages.	7.3	Videos Interactive lectures	Quizzes
K2. Learn problem solving concepts such as flowcharts, pseudo codes.	7.2	Interactive lectures	Mid Exam + Quizzes
K3. Understand the impact of computer privacy on individuals.	4.3	Interactive lectures	Quizzes
Intellectual Skills (I)			
I1. Identify the I/O of a problem and design algorithms to solve problems.	1.1	Interactive lectures	Mid Exam+ Quizzes
Practical skills (P)			
P1. Implement the developed algorithms into high-level programming language codes.	2.2	Interactive lectures Live coding	Mid Exam + Final Exam
Transferable Skills (T)			
T1. Develop a logical thinking to solve a problem	1.3	Interactive lectures Live coding	Final Exam
Competencies (C)*			
C1. Problem-solving.	C1	Interactive Lecture	Mid Exam+Quizzes

C2. Solution development.	C2	Interactive Lecture	Exams
C3. Professionalism	C4	Interactive Lecture	Quizzes
C4. Knowledge integration.	C7	Interactive Lecture	Mid Exam+Quizzes

* Competencies: knowledge, skills, and behaviors that lead to successful professional performance

Course Schedule:

Week	Topic Details	Course ILO number	Reference
Self-study	An Overview of Computers: What is a computer, Basic Parts of a Computer, Buttons and Ports on a Computer, What is an operating system? Understanding Applications.	K1, K3	Self-Study PPT and Links
	Numbering Systems: History, Decimal, Binary, Octal and Hexadecimal numbers. Conversion between the previous types.		
	Ethics in IT and Cybercrime: What is privacy, Key Privacy and Anonymity Issues, Intellectual Property, Key Intellectual Property Issues, Cybercrime: Today's challenges, Malware, attack types and Prevention.		
Lecture Week 1 12-16/10/2025	Introduction to programming: Data hierarchy, programming methodologies (structured vs object-oriented). What is a Programming language? Why JAVA? Characteristics of JAVA, JAVA Editions, JAVA versions. Compilers and Interpreters. Anatomy of JAVA Programs, Programming Style and documentation and Programming Errors. JAVA development environment, install the IDE (VScode), write your first program in JAVA.	K1	T1: Ch1 R2: Ch1 R5: Ch1
Lecture Week 2 19-23/10/2025	Use print and println to print the result of Math operations using literals only with some formatting. Problem-Solving techniques, pseudo code, flowcharts: Processing a high-level language program, Programming with the problem analysis (flowchart, pseudocode), Programming methodologies. covers how to use the flowchart and pseudocode to solve different problems: Sequence and selection	K2, I1, T1	R3: Ch1
Lecture week 3 26-30/10/2025	Problem-Solving techniques, pseudo code, flowcharts: Processing a high-level language program, Programming with the problem analysis (flowchart, pseudocode), Programming methodologies. covers how to use the flowchart and pseudocode to solve different problems: Repitition	K2, I1, T1	R3: Ch1
Quiz #1 (Self-Study Material)			
Lecture week 4 2-6/11/2025	Java Elementary Programming: Identifiers, variables, assignment statements and assignment	P1, P2	T1: Ch2, Ch4

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	expression, constants, numeric data types, character data types, the String type, Boolean data types,		R5: Ch2, Ch4
Lecture week 5 9-13/11/2025	Java Elementary Programming: operator precedence and associativity, , implicit and explicit casting. Java Console and JOptionPane: Scanner, and JOptionPane classes and their built-in methods	P1, P2	T1: Ch2, Ch4 R5: Ch2, Ch4
Lecture week 6 16-20/11/2025	Control Structures I: Relational operators, Selection (if, if else).	P1, P2, T1	T1: Ch3 R5: Ch3
Quiz #2			
Lecture week 7 23-27/11/2025	Control Structures I: selection (if else if) and nested if and switch statement,	P1, P2, T1	T1: Ch3 R5: Ch3
Lecture week 8 30/11-4/12/2025	Control Structures I : switch statement. More practice	P1, P2, T1	T1: Ch3 R5: Ch3
Mid Exam			
Lecture week 9 7-11/12/2025	Control Structures II: While looping (repetition) structure, Do ... while looping	P1, P2, T1	T1: Ch5 R5: Ch5
Lecture week 10 14-18/12/2025	Control Structures II: For looping, break, continue statements	P1, P2, T1	T1: Ch5 R5: Ch5
Lecture week 11 21-25/12/2025	Control Structures II: nested loops.	P1, P2, T1	T1: Ch5 R5: Ch5
Lecture week 12 28/12/2025-1/1/2026	Methods & Recursion: Built-in methods. Math methods and its calling.	P1, P2, T1	T1: Ch6 R5: Ch6
Quiz #3			
Lecture week 13 4-8/1/2026	Methods & Recursion: user defined methods, method signature, value returning method, method syntax, method calling, passing parameters, void methods	P1, P2, T1	T1: Ch6 R5: Ch6
Lecture week 14 11-15/1/2026	Methods & Recursion: introduction to recursion methods	P1, P2, T1	T1: Ch6 R5: Ch6
15-16	Final Exam		

Assessment Methods and Grading System:

Assessment method	Grade	Comments
Mid Exam	35	Introduction to Programming, Problem Solving, Introduction to Java, Java Elementary Programming, Java Console and GUI and Control Structures I
Quizzes (3 in class, MCQ)	20	Quiz #1: Self-study material (week3) – 10 marks Quiz #2: Introduction to Java, Problem-Solving techniques, pseudo code, flowcharts, Java Elementary Programming, Java Console and JOptionPane (week 6) – 5 marks Quiz #3: Control Structure I and II (week12) – 5 marks
Final Exam	45	Introduction to Programming, Problem Solving, Introduction to Java, Java Elementary Programming, Java Console and GUI, Control Structures I, Control Structures II, Methods & Recursion.
Total	100	

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Learning References:

1- Textbook:
T1. Introduction to Java Programming and Data Structures, Comprehensive Version, 12th edition ,2020
2- References:
R1. Java How to Program: Deitel & Deitel, 8 th edition. R2. D. S. Malik. C++ Programming: From Problem Analysis to Program Design (8 th Ed.). Course Technology, 2018. R3. Paul J. Deitel and Harvey M. Deitel. C++ How to program (10th Ed.). Prentice–Hall, 2017. R4. Thomas L. Floyd. <i>Digital Fundamentals</i> (11 th Ed.). Pearson Education Limited. 2015. R5. Introduction to Java Programming 10th edition, Y. Danial Liang, Pearson-Prentice Hall, 2015
3- Videos:
V1. Computer Basics https://edu.gcfglobal.org/en/computerbasics/
4- Other Resources:
<ul style="list-style-type: none">• Lecturer’s Notes• http://www.oracle.com/technetwork/java/index.html

Course Policies¹

- Attendance Policy: University regulations apply to attendance.
- Academic Honesty: Academic dishonesty is an unacceptable mode of conduct, and will not be tolerated in any form at University of Petra. All persons involved in academic dishonesty and plagiarism in any form will be disciplined in accordance with University rules and regulations.

Approved by	Name	Date	Signature
Coordinator of Curriculum Committee			
Faculty Dean/ Head of Department			

¹ Additional information may be added in this section according to the nature of the course.