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| **University of Petra** | شعار جامعة البترا5 - |  |
| Faculty of Information Technology | كلية تكنولوجيا المعلومات |
| Department of Computer Science | قسم علم الحاسوب |

**Course Syllabus**

**Year: 2017-2018 Semester: (2)**

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| Course No. | Course Title | Prerequisite | Co-requisite | **Credit Hours**  **Lectures /Lab.** |
| 601212 | Programming Language (2) | 601111 |  | 3:3:2 Lab |

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| --- | --- | --- | --- | --- |
| Instructor Name | E-mail | Office No. | Office ext. | Office Hours |
| Huda Saadeh | hsaadeh@uop.edu.jo | 7309 | 7309 |  |

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| Coordinator's Name: | Huda Saadeh |

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| Short Course Description | This course introduces the basic concepts of Object-Oriented Programming (OOP) using JAVA programming language. Topics covered: OOP features including: abstraction, encapsulation, inheritance and polymorphism. Classes, objects, constructors, overloading and overriding, interfaces, packages, exception handling, applets and introduction to GUI programming are explained. |

Course Objectives

* To develop an understanding of problem solving using OOP.
* To gain the knowledge needed to build classes in Java.
* To learn the different types of primitive data types and user defined data(objects) in Java.
* To understand the basic structures of the OOP.
* To introduce the notion of data encapsulation and data abstractions.
* To learn and use classes inheritance and polymorphism.

**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:**

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| **Course ILOs** | **Program ILOs** | **Teaching and Learning Method** | **Assessment Method** |
| **Knowledge (K)** | | | |
| **K1.** Realize the notations of defining classes and creating objects. | A.2 | Interactive Lecture +LAB | First Exam |
| **K2.** Identify OO concepts (encapsulation, data abstractions, inheritance, and polymorphism) | A.2 | Interactive Lecture +LAB | Final Exam |
| **K3.** Learn the scope, reference and visibility concepts of objects. | A.2 | Interactive Lecture +LAB | Second Exam |
| **Intellectual Skills (I)** | | | |
| **I1.** Analyze a problem to construct OO model (class diagram). | B.2 | Interactive Lecture +LAB | Second Exam |
| **Practical skills (P)** | | | |
| **P1.** Implement the designed classes and objects into OO code. | C.2 | Interactive Lecture +LAB | Final Exam |
| **P2.** Use a software development environment to write code and error detection and correction. | I.3 | Interactive Lecture +LAB | LAB Mark |

**Course Schedule:**

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| Week | **Topic Details** | **ILO Number** | **Reference** |
| **1** | Review: Java Features, some java syntax, using methods | K1,K2 | [1]Chp.6 |
| **2**  **3** | Introduction to java OO programming concepts. defining classes for objects, constructors, accessing objects, using classes from the Java library, visibility modifiers, accessors, and mutators | K1,K2,K3 | [1]Chp.9 |
| **4**  **5** | Concepts of data field encapsulation immutable objects and classes, garbage collections,passing objects to methods, static variables, constants and methods, the scope of variables, the this key word, array of objects, and class aggrigation. | K1,K2,K3 | [1]Chp.9 |
|  | **First Exam** |  |  |
| **6**  **7** | Thinking in Objects, Objects relationships, inheritance and aggrigation. |  | [1] Chp. 10 |
| **8 9 10** | Introduction, superclass and subclass, using the key word super, overriding methods, the Object class, polymorphism, dynamic binding, and generic programming, casting objects and the instanceof operator, the protected data type, the final classes, methods and variables. | K1,K2,K3,I1 | [1]Chp. 10 & Chp. 11 |
|  | **Second Exam** |  |  |
| **11 12** | Introduction, abstract class, interfaces,inner classes | K1,K2,K3,P1,P2 | [5]Chp.13 |
| **13**  **14** | Introduction, the String class, the Character class, the Stringbuffer class, the StringTokenizer class, the Scanner class. | K1,K2,K3,P1,P2 | [1]Chp.4, 10 |
| **15** | **Final Exam** |  |  |

**Assessment Methods and Grading System:**

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| **Assessment method** | **Grade** | **Comments** |
| First Exam | 15 | Practical exam |
| Second Exam | 15 | Short essay and coding questions |
| Activities | 5 | Presentation |
| Lab | 15 | Practical questions and quizzes |
| Project | 10 | Java system with GUI |
| Final Exam | 40 | Multiple choice questions and practical questions |
| **Total** | **100** |  |

**Learning References:**

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| **1- Textbook (s):** |
| [R1] Introduction to Java Programming and Data Structures, Comprehensive Version, [Y. Daniel Liang](http://www.cs.armstrong.edu/liang/index.html),11E, 2017 |
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| **2- References:** |
| [R1] Java How to Programm : Deitel & Deitel , 8th edition.  [R3]http:// java.sun.com.  [R4] <https://media.pearsoncmg.com/ph/esm/ecs_liang_introjavaprog_1_ap/cw/sol-source-code-examples.php>  [R5] http://www.cs.armstrong.edu/liang/intro10e/ |
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| **3- Other Resources:** |
| << 3 hours/week lectures are given in Lab room, as well as 2 hours/week lab exercises in Lab room  Students Implements their programs using Textpad 8 |
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**Course Policies[[1]](#endnote-1)**

* 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.

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| **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. [↑](#endnote-ref-1)