**University of Management and Technology**

**Course Outline**

**Course code: CS150L Course title: OBJECT ORIENTED PROGRAMMING Lab**

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| Program | BS Electrical Engineering |
| Credit Hours | 1 |
| Duration | 15 weeks |
| Prerequisites | CS-141 Programming Fundamentals |
| Resource Person | **Asma Umar** |
| Counseling Timing | As on website. |
| Contact | asma.umar@umt.edu.pk |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date…March 2015…………….**

**Learning Objective:**

Upon completion of this course, students will:

* Will have a sound understanding of object oriented programming concepts
* Develop strong programming skills in Java using APIs.
* Understand elements of classes, objects, inheritance, polymorphism and their application to various problems in computing and engineering.
* Become familiar with Java’s error and exception handling mechanism.
* Be able to design and code Graphical User Interfaces.
* Become familiar with the latest developments in the world wide web

**Learning Methodology:**

Lab Manuals, interactive discussions, hands-on practice in lab, formal assessments.

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Marks Evaluation Marks in percentage**

Sessionals(Weekly Lab Experiments) 40%

Final exam 60%

Total 100%

**Recommended Text Books:**

Bruce Eckel, ‘Thinking in Java’ Latest edition.(4th), 2006.

**Reference Books:**

Java: How to Program By Dietel 9th Ed., 2011 and

Beginning Java2 by I. Horton, 2011.

Java2: The Complete Reference by P. Naughton & H. Schildt, 1996

**Calendar of Course contents to be covered during semester**

**Course code: CS150 Course title: OBJECT ORIENTED PROGRAMMING**

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|  **Week** |  **Experiment Contents** | **Reference Chapter(s)** |
|  1 | Course outline discussionIntroduction to Object Oriented Programming and JavaInstallation & Environment Set upHands-on OO programming in Java: Lab 1Primitive data types and logical operations | TB: p.41-60Every Thing is an Object |
|   2 | Control programming flow if statement, switch statement,for loop, while loop, do-while loop, continue, break, nested loops | TB: p.63-91OperatorsTB: p.93-106Controlling Execution |
|  3 | OOP Concepts, Class Vs ObjectVariable declaration, Initializing and Cleanup, Static variables | TB: p.107-119 |
|  4 | ConstructorsMethod overloading.Hands-on OO programming in Java: Lab 2 | TB: p.107-143 |
|  5 | Interfaces and Inheritance | TB: p.165-217 |
|  6 | Abstract Class and Interfaces More on Interfaces, Inheritance, Constructors | TB: p.219-241 |
|   7 | Input from the user using Scanner ClassStringsHands-on OO programming in Java: Lab 3 | TB: p.355-389 |
|  8 | **Mid Term Exam** |  |
|  9 | Wrapper ClassesHands-on OO programming in Java: Lab 4 |  Internet  |

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|  10 | String Buffer Collections: java.util package. (Discussion of useful classes such as ArrayList, HashMaps etc ) | TB: p.276-301 |
|  11 | Basic I/O concepts, Exception Handling,File Handling | TB: p.647-677 |
|   12 | Basic Graphical User Interface Components  | TB: p.933-945 |
|  13 | Events and Event Handling | TB: p.945-951 |
|  14 | Inner Classes , Adapter ClassesHands-on OO programming in Java: Lab 5 | TB: p.243-272 |
|  15 | Upcoming technologies & techniquesAndroidJ2ME | Internet |