**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 | Muhammad Faisal Fiaz |
| Counseling Timing | As on website. |
| Contact | [Faisal.Fiaz@umt.edu.pk](mailto:Faisal.Fiaz@umt.edu.pk) |

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

**Dean’s signature…………………………… Date…Feb 2016…………….**

**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 discussion  Introduction to Object Oriented Programming and Java  Installation & Environment Set up  Hands-on OO programming in Java: Lab 1  Primitive data types and logical operations | TB: p.41-60  Every 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.63-91  Operators  TB: p.93-106  Controlling Execution |
| 3 | OOP Concepts, Class Vs Object  Variable declaration,  Initializing and Cleanup,  Static variables | TB: p.107-119 |
| 4 | Constructors  Method 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 Class  Strings  Hands-on OO programming in Java: Lab 3 | TB: p.355-389 |
| 8 | **Mid Term Exam** |  |
| 9 | Wrapper Classes  Hands-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 Classes  Hands-on OO programming in Java: Lab 5 | TB: p.243-272 |
| 15 | Upcoming technologies & techniques  Android  J2ME | Internet |