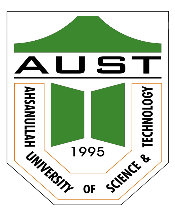
**Ahsanullah University of Science and Technology**

**Department of Computer Science and Engineering**

**Course Outline**

**Course No :** CSE1206

**Course Title :** Object Oriented Programming Lab **Credit Hour :** 1.5

**Semester (Session) :** Fall 18

**Student Year & Student Semester :** 1st Year, 2nd  Semester

**Course Teacher(s) :**  Dr.  Shahriar Mahbub, Associate Professor

Tanvir Ahmed, Assistant Professor

Mir Imtiaz Mostafiz, Lecturer

Nudrat Nawal, Adjunct Faculty

Abrar Abir, Adjunct Faculty

Nowshin Nawar Arony, Adjunct Faculty

**Course Objective:**

Introduction to Object Oriented Programming (OOP); Concepts and Techniques of OOP: Classes and Objects (General forms, Special keywords and methods, objects as parameters), Polymorphism and Overloading; Class hierarchy and inheritance: Creating class hierarchy, Member access and inheritance, Method overriding; OOP facilities for extensive and robust program design.

This lab complements the *Object Oriented Programming (CSE1205)* course.

**Preferred Programming Language/Tools:** Java.

**Text/ Reference books:**

* Java: The Complete Reference (10th edition), Herbert Schildt, Publisher: McGraw-Hill Education.
* Head First Java (2nd edition), Kathy Sierra, Publisher: O'Reilly Media.
* Java How to Program (10th edition), Paul Deitel, Publisher: Prentice Hall.

**Session Plan:**

|  |  |
| --- | --- |
| **Week** | **Topics/Contents** |
| 01 | **Introduction to Java + Basic Programming Concept** Create a simple program using java, compile and run using command prompt, How to install Eclipse java editor/Netbean, First program on Eclipse/Netbean, Java variables, data types, data input, arrays and control statements. |
| 02 | **Encapsulation: Class and Object** More than one class, Adding methods to a class, Passing values, Assigning object reference variables. |
| 03 | **Encapsulation: Class and Object** Using objects as parameters, Argument passing, Returning objects, Constructors, Parameterized Constructors. |
| 04 | **Overloading Methods and Polymorphism**  Different ways of method overloading, Method overloading and type promotions, Overloading constructors. |
| 05 | **Introduction to Inheritance**  Member access and inheritance, Superclass and subclass, Superclass and subclass constructors. |
| 06 | **Method Overriding**  Method overriding, Prevent overriding, prevent inheritance. |
| 07 | **Mid-Term test and Arrays**  Mid-term test will be held based on the topics covered up to 6th week.  One dimensional arrays, Multidimensional arrays, Alternative array declaration syntax, Arraylist. |
| 08 | **Abstract class**  Using abstract class, String handling |
| 09 | **Interfaces**  Defining an interface, nested interface, Applying interfaces, Interface Extension. |
| 10 | **Exception Handling**  Exception handling fundamentals, Exception types, Using try and catch, Multiple catch clauses, Introduction to throw, throws and finally |
| 11 | **File I/O**  File, I/O exceptions, The byte streams, Serialization. |
| 12 | **Working with windows, graphics and text**  Windows fundamentals, Frame windows, Working with graphics and colors, Managing text. |
| 13 | **Multithreading and Networking**  Networking basics, Networking classes and interfaces, Synchronizations and creating multiple threads, Thread priorities. |
| 14 | **Lab Final and Multithreading** Using isAlive() and join(), Deadlock. |

**Note:** *This Session Plan is subject to change. Course teacher will slow down or*

*speed up each chapter to meet the needs of students*.

**Marks Distribution:**

|  |  |
| --- | --- |
| Attendance and Class Performance | 20 |
| Assignment (Home Assignment/ Offline/ Class Assignment/Online) | 40 |
| Lab Quiz ( Mid Term and/or Term Final) | 40 |
| **Total** | **100** |

In each lab class, some related programming problems will be given to the students that should be solved in the lab. Again, some problems will be given on the same topic as individual assignments that will be checked in the next lab class.