Course Number & Name: 113CSS-4Object Oriented Programming

Credits and Contact Hours: 4 crs; 3 hrs for Theory+2 hrs for Lab+1 hr for Tutorial

Course Coordinator's Name: Dr. Zakaria SaeedToukal

Textbook Title, Author, and Year: The Complete Reference, JAVA 2, *Herbert Schildt ,Latest Edition, McGraw Hill Publishing Company Ltd .*

a. Supplemental Material:

- Thomas WU, An Introduction to Object Oriented Programming with Java, Latest Edition, McGraw Hill.

- Bruce Eckel, Thinking in Java, 2nd Edition, Prentice Hall

- Deitel & Deitel Java How to Program, Latest Edition, Prentice Hall

Specific Course Information

a. Catalog Description: Introduction to object oriented programming (OOP) concepts, basic Java syntax, introduction to objects and classes, data types, variables and operators, selection and control structures, array, properties of classes, inheritance, package and interface, abstract class, polymorphism, exception handling, thread.

b. Prerequisites: 111CSS-4

c. Required, Elective, or Selected Elective: Required

Specific Goals for the Course

a. Specific Outcomes of Instruction:

- Describe principles, usage and benefits of Object Oriented Programming (OOP).
- Recognize Java syntax and semantics.
- Use of Java Standard classes.
- Implement Object Oriented techniques to solve problems.
- Evaluate the workflow program including error handling.
- Assess Object Oriented application.

b. Student outcomes addressed by the course: b,c,i,j,k

Brief List of Topics to Be Covered

- Quick overview of Java. Principles of OOP, Anatomy of First Simple program of Java.
- Examining Java's most fundamental elements: Data types and variables use of data types and dynamic initialization. Scope and life time of variable.

- Operators, Control Statements: Selection (if, nested if, if – else – if, switch), iteration (while, do – while, for) and jump (break, continue and return)
- Basic elements of class, operator new, creation of objects, methods, constructors, Overloading methods, overloading constructors.
- Using objects as parameters. Argument passing by value and by reference, returning objects.
- Introducing access control, Understanding static.
- Array Basics, Arrays of Objects.
- Inheritance Basics, Polymorphism, Method overriding, Applying method overriding.
- Using abstract classes, using final to prevent overriding. Packages, access protection, importing packages
- Defining and implementing Interface, Variables in interface
- Exception handling mechanisms
- I/O Basics, Streams, Reading characters and string, Reading and Writing files.