PARUL UNIVERSITY - Faculty of Engineering and Technology

Department of Computer Science & Engineering

SYLLABUS FOR 5th Sem BTech PROGRAMME

Object Oriented Programming with Java (203105333)

Type of Course: BTech

Prerequisite: Basic knowledge of programming

Rationale: This course is designed to provide knowledge of platform independent object oriented programming language. Java is a base language for advanced technology like three tier architecture applications, cloud computing and web development.

Teaching and Examination Scheme:

Teaching Scheme			Credit	Examination Scheme					Total
				External		Internal			
Lect Hrs/	Tut Hrs/	Lab Hrs/		T	P	T	CE	P	
3	0	0	3	60	-	20	20	-	100

Lect - Lecture, **Tut** - Tutorial, **Lab** - Lab, **T** - Theory, **P** - Practical, **CE** - CE, **T** - Theory, **P** - Practical

Contents:

Sr.	Topic	Weightage	Teaching Hrs.
1	**FUNDAMENTALS - I**: Review of OOP - Objects and classes in Java , Defining classes, Methods, Access specifiers, Static members, Constructors,Garbage collection, Arrays, Strings, Packages.	25%	14
2	**FUNDAMENTALS - II**: Inheritance ,Class hierarchy, Polymorphism, Dynamic binding, Final keyword ,Abstract classes , Object class , Reflection, Interfaces,Object cloning ,Inner classes ,proxies, Streams, I/O Programing.	30%	12
3	**EVENT DRIVEN PROGRAMING**: Graphics programming,Frame,Components,Working with shapes, Using color, fonts, and images,Basics of event handling,Event Handlers, Adapter classes,Actions, Mouse Events, AWT Event Hierarchy, Introduction to Swing, Model-View- Controller, Design pattern ,Buttons, Layout Management , Swing Components.	15%	6
4	**GENERIC PROGRAMMING**: Motivation for generic programming ,Generic classes,Generic methods, Generic code and virtual machine, Exceptions ,Exception hierarchy, Throwing and catching exceptions ,Stack Trace Elements.	15%	10
5	**CONCURRENT PROGRAMMING**: Multithreaded programming,Interrupting threads,Thread states,Thread properties,Thread-Synchronization,ThreadsafeCollections, Executors,Synchronizers, Threads and Event-Driven programming.	15%	10

*Continuous Evaluation:

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc.

Reference Books:

1. Introduction to Java Programming (Comprehensive Version) (TextBook)
   Daniel Liang; Pearson
2. Core Java Volume-II Fundamentals
   Horstmann & Cornell; Pearson
3. Complete Reference Java 2 (TextBook)
   Herbert Schildt; TMH

Course Outcome:

After Learning the course the students shall be able to:

After learning the course the students shall be able to:
1. Understand the principles and practice of object oriented programming.
2. Write, compile and debug programs with Java compiler.
3. Create a robust application using exception handling.
4. Design different components and make it event driven by using AWT and Swing.
5. Understand the principles of synchronization and design application using multi threading.