GRAPHIC ERA (Deemed to be University), Dehradun

Dept. of Computer Sc. and Engineering

Sixth Semester 2017-2018

Course Handout

Vision and Mission of the Department of Computer Sc. and Engineering

Vision

To impart quality education for producing world class technocrats and entrepreneurs with sound ethics, latest knowledge and innovative ideas in Computer Science and Engineering to meet industrial needs and societal expectations.

Mission

M1. To impart world class value based technical education in all aspects of Computer Science and Engineering through state of the art infrastructure and innovative approach.

M2. To produce ethical, motivated and skilled engineers through theoretical knowledge and practical applications.

M3. To inculcate ability for tackling simple to complex individually as well as in a team..

M4. To develop globally competent engineers with strong foundations, capable of “out of the box” thinking so as to adapt to the rapidly changing scenarios requiring socially conscious green computing solutions.

Program Educational Objectives (PEOs)

PEO 1. To produce the students employable towards building a successful career based on sound understanding of theoretical and applied aspects and methodology to solve multidisciplinary real life problems.

PEO 2. To produce professional graduates ready to work with a sense of responsibility, ethics and enabling them to work efficiently individually and also in team.

PEO 3. To inculcate competent students so that they are able to pursue higher studies and research in areas of engineering and other professionally related fields.

PEO 4. To inculcate ability to adapt to the changing technology through continuoual learning.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1. Ability to analyze, design, implement, and test software systems based on requirement specifications and development methodologies of software systems.

PSO2. Apply computer science theory blended with engineering mathematics to solve computational tasks and model real world problems using appropriate programming language, data structure, and algorithms.

PSO3. Ability to explore technological advancements in various domains, evaluate its merits and identify research gaps to provide solution to new ideas and innovations.

Date: *12-01-2018*

Course No*.:* **TIT605 B. Tech. (CSE)**

Course Title: **Java Programming**

Instructor-in-Charge: **Dr. D. R. Gangodkar , Hemant Singh,**

Course Description:

To study programming principles introduced in Java language. Provide an overview of special features of control structures, input/output streams, and abstraction mechanisms. Creating Java classes, derive new classes with effective use of inheritance and other object oriented features. To explore and use Java APIs, SDK and IDE. Study event generation, handling and delegation mechanism for developing Graphical User Interfaces. Understand concepts of Network programming and usage of databases for storing the data.

Course Outcomes: After completion of the course students will be able to

1. Understand the object-oriented approach in programming along with the purpose and usage principles of inheritance, polymorphism, encapsulation and method overloading etc.
2. Demonstrate ability to test and debug Java programs using IDE
3. Analyze, design and develop small to medium sized application programs that demonstrate professionally acceptable programming standards
4. Demonstrate skills of developing event-driven programs using graphical user interfaces
5. Develop applications using Client/Server communication
6. Develop applications that involve storage and retrieval of data using databases.

Text Book(s):

TB1 Patrick Naughton and Herbert Schildt, “Java 2 The Complete Reference”, 2nd edition, Tata McGraw Hill, 2002.

TB2 Bruce Eckel, “Thinking in Java”, 4th edition, Pearson Education India, 2008

TB3 E. Balaguruswamy, “Programming with Java a Primer”, 4thedition, Tata McGraw Hill, 2009.

Reference Books:

R1 Cay S Horstmann and Gary Cornell, "Core Java Volume –I and II", Standard edition, Sun Microsystems, 2001

R2 Harvey Deitel and Paul Deitel, "Java How to Program", 4th edition, PHI Learning, 2004

Course Plan: Lecture No.	**Learning Objectives**	**Topics to be covered**	**Reference Chap./Sec. (Book)**
1-6	What is java? Feature of java Language, advantages of java over other languages. Concept of platform independence. Basic structure of java program and construct of java.	Importance and features of Java, Concepts of Java Virtual machine (JVM) Keywords, constants, variables and data types, operators and expressions, Control statements, Conditional statements, loops and iterations,Wrapper classes,Scanner Class.	(TB1, TB2, R1)
7-11	Concept of class and object. Oops concepts, adding methods, data members to class, constructor, different type of data structure.	Class definition, adding variables and methods, creating objects, constructors, defining methods, calling methods, Arrays,String Handling in java	(TB1, TB2, R1)
12-15	Understanding Oops concepts and implementation in java	Inheritance, super classes, multilevel hierarchy, abstract and final classes, overloading and overriding	(TB1, TB2, R2)
16-19	Understanding of java packages and their advantages. Concept of Multiple inheritance (Interfaces)	Packages and interfaces: Packages, Defining Packages, Using Packages, import and static import, Access protection. Defining Interfaces, abstract	(TB1, TB2, R2)

		methods declarations, implementing interfaces, extended interfaces, interface references.	
20-23	Concept of Error checking at run time (Exceptions) and implementation in java	Exception Types, Exception class, Runtime Exception Class, Error Class, Checked and unchecked Exceptions, defining new exceptions; Handling: try, catch and finally; throw statement, throws clause.	(TB1, TB2)
24-27	Concept of Stream and File handling	Basics, Byte and Character Streams, reading and writing from console and file.	(TB1, TB2, R2)
28-31	Concept of Multitasking (Using Threads). Creation of threads and solve some real world problems	Java thread model, synchronization, messaging, thread class, Runnable interface, inter thread communication, Producer/ consumer problems, wait () and notify ().	TB1, R1, R2
31-34	Understanding of Java.net package. Concept of sockets and create application	Networking fundamentals, Client/server model, Internet addresses, Sockets, networking classes and interfaces, using Java.net package	(TB1, R1, R2)
35-39	Understanding the GUI application using Swing and Event Handling	Introduction to Awt and Swings, Swings advantages over AWT, Swing applications, Swing Controls, Graphics in swing	(TB1, R1)
40-45	Concept to connect application with database (JDBC)	The Concept of JDBC, JBDC drivers (Type1 Driver, Type4 Driver), Connection interface, Creating and executing SQL statements.	(TB1, R1, R2)

Evaluation Scheme:

EC No.	Component	Duration	Marks	Weightage (%)	Nature
1.	Mid Term Test	2 hrs.	50	25	Closed Book
2.	End Term Examination	3 hrs.	100	50	Closed Book
3.	Class Participation		5	5	
4	Quizzes (Surprise and announced)		5	5	*Refer Note1
5	Assignments		5	5	*Refer note3
6	Seminar/Project/ Group task		50	10	*Refer Note4

Note1: Two to three assignments would be given in the semester

Chamber Consultation Hour: To be announced in the class

Note 3: Notices, slides and assignments: Would be made available through university LMS system

Note 4: To be announced in the class

Signature of the Course Instructor