KL UNIVERISTY
FIRST SEMESTER 2010-11
Course Handout
Academic Division

Dated: 07-07-2010

Course No. : **CS C204**
Course Title : **OOPS through Java**
Course Structure : **3-0-2**
Course coordinator : **Dr K Raghava Rao**
Instructor : **Dr J K R Sastry**

1. Course Description:

In the earlier courses students have learnt programming using structured techniques especially using C Language. More of the advancements have taken place related to programming by using new concepts which are centered on real life objects such as inheritance, encapsulation etc. The concepts introduced through the object oriented languages have addressed the real deficiencies that existed in structured programming languages.

In this courses object oriented programming is taught using JAVA as the platform.

2. Scope and Objective of the Course:

Programming in JAVA is very complex as JAVA language can be used for the development of verities of applications through series of Libraries supported by JAVA.

In this course basic language constructs, Programming database interface and programming the development of user interface will only be covered.

Objectives of the Course:

1. Students Must be completely aquatinted with object oriented terminology and programming concepts
2. Must be able to understand various functions related to education. Banking and insurance domain
3. Must be able to develop programs in JAVA for solving various problems that are related to education, Banking and insurance domain
4. Must be able to develop programs using JAVA and NET beans as the development platform
5. Must understand the preliminary concepts of database management and must be able program access and manipulating the database using Java
6. Must be acquainted with the concepts of development of user interface and be able to program the User Interface development in JAVA
7. Must understand and implement concurrent processing concepts through synchronization and serialization.
8. Must understand and implement programming of the networks in client server mode.

3. Books:

(i) Textbook:

a. Herbert Schildt, 'The Complete Reference Java2',5th Edition TMH (for Units-I and II) ,2002 (T1)

(ii) Reference Book:

1. Deitel & Deitel 'JAVA – How to program' 6th Edition – PHI,2007
1. Jim Keogh "The complete reference J2EE" ,TMH (unit V)

4. Syllabus:

UNIT-I

Introduction: OOP Principles: Encapsulation, Inheritance and Polymorphism.JVM: The Byte code, Scope of variable & Data types, Arrays, Operators, Control statements, Type Conversion and Casting, Compiling and running of simple Java program, how different from C, C,++. Concept of API in Java, API Categories and application of API in JAVA Programming

Classes and Objects: Concepts of classes and objects, Declaring objects, Assigning Object Reference Variables, Methods, Constructors, Access Control, Garbage Collection ,Usage of static with data and methods, usage of final with data, Overloading methods and constructors, parameter passing - call by value, recursion, Nested and Inner classes, Exploring the String class.

UNIT-II

Inheritance: Inheritance Basics, member access rules, Usage of super key word, forms of inheritance, Method Overriding, Abstract classes, Dynamic method dispatch, Using final with inheritance, The Object class.

Packages and Interfaces: Packages, CLASSPATH, Importing packages, differences between classes and interfaces, Implementing & Applying interface

Strings & I/O Streams: Steam Classes, Byte streams, Character streams, Object serialization

UNIT-III

Exception Handling: Exception Handling Fundamentals, Types of Exceptions, Usage of try and catch, throw throws and finally keywords, Java's Built-in exceptions, Creating Own Exception Subclasses.

Multithreading: Concepts of Multithreading, differences between process and thread, thread life cycle, Creating Multiple Threads using Thread class, Runnable interface, Thread priorities, Synchronization, Inter thread Communication, Deadlocks, thread groups.

UNIT-IV

Applets: The Applet class, Applet Architecture, Skeleton, Display Methods, Parameter Passing to Applets

Event Handling: Two Event Handling Mechanisms, The Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Suing the Delegation Event Model.

Swing: Controls, Layout Managers and menus, JApplet, Icons and Labels, Text Fields, Buttons, Combo Boxes, Tabbed Panes, Scroll Panes, Trees, Tables, Exploring swing

UNIT V:

JDBC, Networking and Java Library: Basics of Networking, InetAddress, TCP/IP sockets, Datagram's, URL, URL connection, String handling, java.util, java.io and java.net packages.

5.Course Plan:

Lecture No.	Topic	Objective Reference	Topic reference	Related LAB Exp	Teaching Mode
UNIT-I					
1.	Introduction to OOP Principles, Encapsulation, Inheritance and Polymorphism	1	T1: P017-039		Class Room PPT
2	Introduction to Byte code, Data types, Variables, Dynamic initialization	1	T1: P041-053		Class Room PPT
3	Discussion on scope and life time of variables, Arrays, Operators	1,3,4	T1: P054-096	Array Processing	Class Room PPT
4	Discussions on Control statements, Type Conversion and Casting	1, 3,4	T1: P099-126	Conversion and casting	Class Room PPT
5	Developing and running simple Java Programs	2,3,4	T1:127-128		Class Room PPT
6	Introducing Concepts of classes and objects, Declaring objects	1,2,3,4	T1: P129-134		Class Room PPT
7	Introducing Object Reference Variables, Methods, Constructors, Access Control	1,2,3,4	T1: P137-147		Class Room PPT
8	Memory Management within JAVA including memory allocation and de allocation - Explaining Garbage Collection	1,4	T1: P150-151		Self Learning

Lecture No.	Topic	Objective Reference	Topic reference	Related LAB Exp	Teaching Mode
1.	Introducing static and Final Declaration for data and methods	1,2,3,4	T1: P151		Class Room PPT
2.	Overloading methods	1,2,3,4	T1:	Method	Class Room

	and constructors		P156-161	Overloading	PPT
3.	Function Calling, Passing Parameters by reference and value, Function Recursion	1,2,3,4	T1: P165-171		Self Learning
4.	Nested and Inner classes,	1,2,3,4	T1: P181-184		Class Room PPT
5.	Exploring the String class	1,2,3,4	T1: P185-187		Class Room PPT
UNIT-II					
6.	Inheritance Basics, member access rules, Usage of super key word, forms of inheritance	1,2,3,4	T1: P190-203	Inheritance	Class Room PPT
7.	Discussion on method overriding	1,4	T1: P208-210	Method Overriding	Class Room PPT
8.	Abstract classes, final with inheritance, and introducing the concept of Object	1,2,3,4	T1: P216-222		Class Room PPT
9.	Discussion on dynamic method dispatch	1,4	T1: P211-215		Self Learning
10.	Introducing the Packages, CLASSPATH, and Importing packages,	1	T1:P224-234		Class Room PPT
11.	Discussion on Differences between classes and interfaces, Implementing & Applying interface	1,4	T1:P235-240		Class Room PPT
12.	Discussion on Class Hierarchy for Stream Classes, Byte streams, and Character streams	1,3,4	T1:P314-317	File Processing	Class Room PPT
13.	Programming using input/output streams	2,3,4	T1:P319-323		Class Room PPT
14.	Programming using input/output streams	2,3,4	T1:P570-575		Class Room PPT
15.	Introducing the Object Migration through serialization	1,3,4	T1:P577-584		Class Room PPT

UNIT-III

Lecture No.	Topic	Objective Reference	Topic reference	Related LAB Exp	Teaching Mode
1.	Introducing Exception Handling Fundamentals	1,2,3,4	T1: P249-250	Exception Handling	Class Room PPT
2.	Presentation of processing Exception handling through try and catch, throw, throws and finally keywords	1,2,3,4	T1:P253-254		Class Room PPT
3.	Discussion on modeling, system Built-In and user defined exceptions	1,2,3,4	T1:P265-268		Class Room PPT
4.	Introducing Concurrent processing through Multithreading,	1,3,4,7	T1: P273-274	Multi Threading	Class Room PPT
5.	Presenting concurrent processing through multiple threads and bringing out differences between process, thread, and thread life cycle	1,3,4,7	T1:P275		Class Room PPT
6.	Presenting concurrent processing through thread priorities, and synchronization	1,3,4,7	T1: P289-297		Class Room PPT
7.	Presenting Inter thread Communication, and resolving issues like Dead locks	1,3,4,7	T1:P297-302		Self Learning
UNIT-IV					
8.	Introducing the Applet class, Applet API and Applet Architecture	1,2,3,4,6	T1: P627-632		Class Room PPT
9.	Discussion on Displaying output thorough Applets	1,2,3,4,6	T1: P632		Class Room PPT
10.	Discussion on passing parameters between the Applet and the Browser and in between the applets	1,2,3,4,6	T1:P633		PPT, Group Discussion
11.	Introducing the Event Handling Mechanism supported in Java	1,2,3,4,6	T1: P644-647		Class Room PPT
12.	Introducing the Event Handling Framework supported in Java through Delegation Event Model, Event Classes, Sources of Events	1,2,3,4,6	T1: P654		Class Room PPT
13.	Discussion on Event Handling Interfaces and the process of invoking the event	1,2,3,4,6	T1: P655-656		Class Room PPT

Lectu	Topic	Objective	Topic	Related LAB	Teaching

re No.		Reference	reference	Exp	Mode
1.	Introduction to programming User Interface in JAVA	1,2,3,4,6	T1:P921		Class Room PPT
2.	Introducing the SWING Library for implementing user interface in JAVA	1,2,3,4,6	T1:P921	Develop-ment of user Interface using SWING	Class Room PPT
3.	Swing programming using Layout Managers, menus, and JApplets	1,2,3,4,6	T1: P923		Class Room PPT
4.	Swing Programming through Labels, Text Fields, Buttons, Combo Boxes,	1,2,3,4,6	T1:923-935		Class Room PPT
5.	Swing Programming through Tabbed Panes, Scroll Panes, Trees, and Tables	1,2,3,4,6	T1:936-947		Class Room PPT
UNIT-V					
6.	Introduction to Database Management	1	T2: 98		Class Room PPT
7.	Introduction to Built in Java Library (JDBC) for interfacing with Databases	1,2,3,4,5	T2: P123		Class Room PPT
8.	Programming using JDBC Library	1,2,3,4,5	T2: P125	Database Accessing	PPT, Simulatio n
9.	Introduction to Basics of Networking,	1,2,3,4,8	T1: P587-590		Class Room PPT
10.	Introduction to API for Network Programming	1,2,3,4,8	T1: P592		Class Room PPT
11.	Network Programming through TCP/IP sockets,	1,2,3,4,8	T1: P594-596	Networking	PPT, Simulatio n
12.	Network Programming using Data grams,	1,2,3,4,8	T1: P623-624		Self Learning
13.	Networking through URLS and URL Connections	1,2,3,4,8	T1: P599		Class Room PPT
14.	Introduction to Programming through Utilities Libraries	1,2,3,4,8	T1: P597-P599		Class Room PPT

6.Self learning material:

Lecture No.	Topic	Objective Reference	Topic reference	Related LAB Exp	Teaching Mode
8.	Memory Management within JAVA including memory allocation and de allocation - Explaining Garbage Collection	1,4	T1: P150-151		Self Learning
11.	Function Calling, Passing Parameters by reference and value, Function Recursion	1,2,3,4	T1: P165-171		Self Learning
17.	Discussion on dynamic method dispatch	1,4	T1: P211-215		Self Learning
30.	Presenting Inter thread Communication, and resolving issues like Dead locks	1,3,4,7	T1:P297-302		Self Learning
48.	Network Programming using Data grams,	1,2,3,4,8	T1: P623-624		Self Learning

7.Evaluation Scheme:

Component	Duration (minutes)	% Weightage	Marks	Date & Time	Venue
Test-1	50 Min	7.5	10	13-08-2010 9.30 to 10.20 A.M	CSE002, 102 103, 202, 209, 309, NSH
Test-2	50 Min	7.5	10	17-09-2010 9.30 to 10.20 A.M	CSE002, 102 103, 202, 209, 309, NSH
Assignment submission		3.75	5	Continuous	
Assignment Test	50 Min	3.75	5	29-10-2010 9.00 to 10.20 A.M	CSE002, 102 103, 202, 209, 309, NSH
Quiz	30 Min	3.75	5	29-10-2010 9.00 to 10.20 A.M	CSE002, 102 103, 202, 209, 309, NSH
Regular Lab Evaluation	Continuous	12.5	50		
Comprehensive Lab Exam	3 Hrs	10	40		
Comprehensive Exam	3 Hrs	45	60		
Attendance for Theory & Tutorial		3.75	5	Continuous	
Attendance for Lab		2.5	10	Continuous	

8. Chamber consultation hour: Informed in the class in first week.

9. Notices: All notices regarding the course will be put in E-learning website.

10.Tutorial: Tutorial will be conducted by the respective in charge faculty. The tutorials are planned to supplement the material taught in the lectures and clear doubts. Student must attend registered section for tutorial in the respective classroom. Class assignment, class tests and other evaluation components will also be conducted during tutorials. Students must actively participate in the tutorial and come prepared for it.

Course Coordinator