Kadi Sarva Vishwavidyalaya, Gandhinagar
MASTERS OF COMPUTER APPLICATION (MCA)
Year – III (Semester – V) (W.E.F. June 2015)
Subject Name: Object Oriented Technology – III (OOT-III) – MCA-504(A)

Sub Total Credit	Teaching scheme		Examination scheme				
	(per week)		MID	CEC	External		Total Marks
	Th	Pr	Th	Th	Th.	Pr.	
5	3	4	25	25	50	50	150

Rationale (Course Objective) :

The objective of this course to impart the knowledge and develop skills of the usage of the software platform - J2EE with objective of the development the industry required applications using Struts, SOA with BPEL , JSF , Ajax and related concepts and components. The theory guidance will be laboratory work supported to provide leaner extensive hands-on sessions for building and implementation of developed.

Learning Outcome:

Students will be able to develop SOA with Web Services, ORM, and JSF etc. using the platform of J2EE.

Instructional Strategies:

- Problem solving approach in Theory sessions
- Components building and integration in lab sessions
- Application implementation and testing
- Integration of cooperating applications to shape project
- Emphasis on self study, presentation in seminars, acceptance testing of developed applications .

Course Content:

Unit 1 Spring Framework (20%)

Spring Architecture, Spring & MVC, Spring Context definition, Spring Framework, Spring Modules, Inversion of Control (IoC) in Spring, Aspect Oriented programming in Spring (AOP).

Unit 2 Enterprise Java Bean (20%)

EJB, Review of Types of EJB, EJB container client, Client interaction with bean, Server side component types, Session Beans, Stateless session bean, Stateful session bean, Message driven bean, Entity bean.

Unit 3 ORM (Object Relationship Mapping) (20%)

Introduction to ORM, Introduction to hibernate, Ideal solution for RDBMS and Object, Hibernate Objects, Hibernate Configuration files, Session operations, Mapping of relations, Fetching strategies, Querying using HQL, Hibernate Caching , JPA overview, JPA Key Concepts, Mapping Persistent Objects, Entity Relationship mapping , Query API And JPQL.

Unit 4 JSF(Java Server Faces) (20%)

Introduction to JSF, Overview of JSF architecture, concepts and features, JSF Request Process Life Cycle, UI Component Model, Using JSF Tag Libraries, Core Tags, Backing Beans, Page Navigation, Handling Events, Performing Validation and Data Conversion, Navigating between pages, Custom Components in JSF, Creating JSF project.

Unit 5 XML and Web Services (20%)

Service Oriented Architecture & Web Service, finding web services, describing a web service, developing web services using EJB with SOAP and REST

Text Books:

1. Java Server Programming J2EE 1.4 Ed. Black Book, Dreamtech Software Team, Kogent Solutions Inc.

Chapters

Chapter 11,13,14,15,19,21

Reference Book:

1. "Programming Jakarta Struts", Chuck Cavaness , O'Reilly Publication 2nd Edition
2. "EJB 3.0 in Simple Steps", Dreamtech Press, Kogent Solutions Inc
3. "Spring in Action", Craig Walls, Ryan Breidenbach, Dreamtech Press.

Practical: JDK, Netbeans, Eclipse and other suitable tools may be used to perform lab works.

Practical : Template Assignments

1. Develop an application which will take an input from user using suitable GUI say Student Roll No, Name, Address, Attendance(in %). Prepare on student controller which will keep all the information of student and show the detail information in result.jsp page(Use Spring Framework)
2. Assume that we have got three pdf files for the MCA-1 Syllabus, MCA-2 Syllabus and MCA-3 Syllabus respectively, Now write a Struts program which displays the appropriate PDF file to the client, by looking at a request parameter for the year (1, 2 or 3).
3. Assume that the information regarding the marks for all the subjects of a student in the last exam are available in a database, Develop a web service which takes the enrollment number of a student as a request parameter and displays the marksheet for the student.
4. Develop a CURD application using Spring and Hibernate to manage Employee task details. To perform the above operations create one table named EmployeeJob.

   Field Name Field Type
   EmpId Integer
   Empname Varchar
   Job_Allocation_datetime date
   Job_completion_time date
   Job_Hours int
5. Develop a CURD application using JSF and Hibernate to manage Student Marksheet.
6. Develop a spring application with hibernate to authenticate a user, where the loginid and password are available as request parameters. In case the authentication is successful, it should setup a new session and store the user's information in the session before forwarding to home.jsp, which displays the user's information like full name, address, etc.

7. Create a spring curd application to maintain course (Using JDBC)
8. Create a spring application with web services called Product with the following properties: name, description, price. Create a listener that notifies (through System.out) whenever a user adds a product to a shopping cart (i.e. adds an object to the session object) or removes it again. Hint: check out the class HttpSessionAttributeListener. Make it print the name and price of the object (hint: access the session through the HttpBindingEvent object). Also, let the listener print the total price of all objects saved in the session so far (one way to accomplish this could be to keep a collection of all objects saved to the session – or just their keys – in the listener or an associated class).
9. Develop an application using Spring to demonstrate how the client (browser) can remember the last time it visited a page and displays the duration of time since its last visit. (Hint: use Cookie).
10. Develop a JSF application to perform the database driven operation like insert, Delete, Update and select. To perform the above operations create one table named Employee.

    Field Name Field Type
    EmpId Integer
    Empname Varchar
    Emp_desig Varchar
    Emp_J_Date Varchar
    Emp_Salary Numeric