Course : ICT 101 : Java Web Development

Course Code	ICT 101
Course Title	Java Web Development
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2019
Purpose of Course	This course helps students to get an idea about how to use Java in Web Programming
Course Objective	The objective of the course is to make them understand and implement the Web Oriented Project Development Model of Java
Pre-requisite	Understanding of OOPS concept and its implementation by Java Language
Course Out come	Students will be able to develop Web Application in Java
Course Content	**Unit : 1 : Object Oriented Programming in Java** 1.1 Inheritance and Polymorphism 1.2 Overloading and Overriding 1.3 Abstract, Static , final classes 1.4 Interfaces 1.5 Overview of Threads 1.5.1 Creating Thread –Runnable interface 1.5.2 Multithreaded programs 1.5.3 Deadlock and Synchronization 1.6 Collections API 1.6.1 Collection 1.6.2 Java Streams 1.6.3 Set-HashSet,TreeSet 1.6.4 List-LinkedList 1.6.5 Set-HashSet,TreeSet 1.6.6 List-LinkedList 1.6.7 Map-HashMap,TreeMap 1.7 Working with Databases 1.7.1 CRUD operations 1.7.2 Working with RowSet 1.7.3 Working with detached RowSet **Unit : 2 : Java Servlets** 2.1 Java Web Architecture 2.1.1 The Java Advantage for Web 2.1.2 Java Editions, Java Enterprise Edition 2.1.3 Java EE Web Architecture 2.1.4 Java Web Application Servers 2.1.5 Installing and Configuring Payara Application Server 2.1.6 Java EE APIs for building Web Applications 2.1.7 IDEs for Enterprise Application Development 2.2 Introduction to Java Servlets 2.3 The Java Servlet API 2.5 Servlet Life Cycle

	2.6 Request and Response 2.7 Dispatching and forwarding the request 2.8 Getting Values from Forms and QueryStrings 2.9 Working with HTTP Headers 2.10 Session Tracking 2.10.1 Cookies 2.10.2 Hidden Form Field 2.10.3 URL Rewriting 2.10.4 HttpSession 2.10.5 ServletConfig and ServletContext 2.10.6 Attribute in Servlet 2.10.7 Servlet Filters 2.10.8 Servlet Web Listeners 2.10.9 Working with Databases 2.10.10 Configuring Deployment Descriptor(web.xml) 2.10.11 Asynchronous Servlet 2.10.12 Server Push **Unit : 3 : Java Server Pages** 3.1 Introduction to Java Server Pages(JSP) 3.2 Lifecycle of JSP 3.3 JSP Scripting Elements 3.4 Implicit Objects 3.5 JSP Directive Elements 3.6 Action Elements 3.7 Working with Java Beans 3.8 JSP Form Processing, Form Validation with Java Bean 3.9 JSP Custom Tags 3.10 State Management 3.11 Working with AJAX 3.12 Working with Web Sockets 3.13 EL - Expression Language **Unit : 4 : The Java Web Application Frameworks** 4.1 Component Based Framework – JAVA SERVER FACES 4.2 Introduction to JSF 4.3 Request Processing Lifecycle 4.4 JSF Managed Beans 4.5 JSF UI Components 4.6 JSF Validators and Converters 4.7 Event Handling 4.8 Composite Components 4.9 Templating in JSF 4.10 Working with databases 4.11 Working with primefaces 4.12 Action Based Framework 4.13 Introduction to Spring

	4.14 Lifecycle of Spring MVC 4.15 DispatcherServlet 4.16 Multiple Controllers 4.17 Working with databases Spring Boot **Unit : 5 : JavaScript and ReactJS in Java Applications** 5.1 Introduction to JavaScript and jQuery 5.2 JavaScript DOM 5.3 Introduction to ReactJS 5.4 ReactJS - Environment Setup 5.4.1 JSX 5.4.2 Components 5.4.3 Component API 5.4.4 Component Life Cycle 5.4.5 State 5.4.6 Props 5.4.7 Smart DOM Updates 5.4.8 Element Tree 5.4.9 Forms 5.4.10 Events 5.4.11 Keys 5.4.12 Router 5.4.13 React UI Workflow 5.4.14 JS API for using REST Services
Reference Book	1. JDBC 4.2, Servlet 3.1, and JSP 2.3 Includes JSF 2.2 and Design Patterns, Black Book, 2ed - Santosh Kumar, Dreamtech Press 2. Servlet & JSP: A Beginner's Tutorial - Budi Kurniawan, Brainy Software 3. The Definitive Guide to JSF in Java EE 8: Building Web Applications with JavaServer Faces - Bauke Scholtz, Arjan Tijms – Apress 4. Mastering JavaServer Faces 2.2 - Anghel Leonard - Packt Publishing 5. Spring in Action 4ed - Craig Walls – Manning 6. Getting Started With Spring Framework: A Hands-on Guide to Begin Developing Applications Using Spring Framework - Ashish Sarin, J Sharma - Createspace Independent Pub 7. Spring 5 Design Patterns - Dinesh Rajput – Packt 8. Learning Spring Boot 2.0 - Greg L. Turnquist - Packt
Teaching Methodology	Black Board Teaching, power point presentation for theory, practical shown in projector for showing programs
Evaluation Method	30% Internal Exam 70% External Exam