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| **Javascript and Ajax** |
| 3 days |

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| **Introduction** | This course is designed to for Web developers to enable them to learn the basics of JavaScript and Ajax along with some advanced features of JavaScript. |
| **Learning Objectives** | Introduction to JavaScript implementation parts – ECMA Script, BOM and DOM  Participants will be able to use the basic syntaxes of DHTML(JavaScript ,DOM,CSS)  Participants will be able to understand the basic unit of execution of JavaScript i.e. Functions and Event Handling with recent Event Propagation Model of JS.  Participants will be able to understand and write effective  AJAX code for a web application with XML and JSON data elements  Participants will learn the DOM component creation and Usage.  Advanced scenarios of JS like Design Patterns, Multithreading, Cookies and Cross Domain Issues. |
| **Prerequisites** | Basic HTML, Basic Knowledge of any server-side web technology(JSP/PHP/ASP etc.) and XML |
| **Hardware/Software** | JDK1.5 or higher, Eclipse IDE, Tomcat6, Internet Explorer, Mozilla and Firebug,Visual Studio 2012 |
| **Recommended Books** | Professional JavaScript for Web Developers and Ajax in action |
| **Relevant Trainings** | Intermediate Servlet and JSPs, Ajax, JQuery |
| **Remarks, If any.** |  |

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| **Contents** | | **Weightage** |
| **Module1:Basics of Javascript** | Introduction to JavaScript  Parts of JavaScript, <Script> Element  Declaring local and global variables  Control flow statements (loops,if-else)  Creating functions and calling them  Function declaration hoisting and Function Expression, Browser Object Model  Regular Expressions | 6% |
| **Module2: Understanding HTML DOM** | Understanding DOM model  Different Node types  Properties of a Node  Methods of a Node  Document Object  How to handle Events in DOM |
| **Module3:Event Propagation** | Understanding Events and Event Handlers  Event Capturing and Event Bubbling  Cross Browser Event Handling – addEventListener() and attachEvent()  Understanding the Event Object |
| **Module4:Object Oriented Programming concepts in JavaScript** | Understanding Object and Its Properties  Configurable, Enumnerable, Writable and Value  Accessor properties: Get and Set  Object Creation using Direct Method & Templates  Functions used to encapsulate the Object creation( Closures) | 4% |
| **Module5:Introduction to Ajax and its basic Process** | Characteristics & Issues of Conventional Web Applications  Basic Ajax Process  States, methods and properties of XMLHttpRequest  Handling events and response | 7% |
| **Module6:GET/POST Ajax Call** | Making a ‘Get/Post/Head’ Ajax call  Get vs. Post Request issues  Browser caching problem |
| **Module7:Handling XML/JSON Request & Response** | **Handling XML Request & Response**  Send/Receive XML data from client to server and vice versa  Send/Receive JSON data from client to server and vice versa  JSON vs XML |
| **Module8: Timer Functions in JavaScript and Introduction to Web Workers** | setTimeout and setInterval  Multi-Threading using Web Workers | 6% |
| **Module9:Cookies and Cross Domain Issues** | Introduction to Cookie data storage medium  Demo implementation of cookie in JS  Introduction to Web data Storage  XHR request and cross domain issues  Cross Origin Resource Sharing (CORS) |
| **Module10: Best Practices in JavaScript** | Variable and function Naming  Unobtrusive Approach  Avoid Globals, Optimize Loops  With Statement and eval() issue  Use of Object Literals  Memory Management  Maintainability of code and Performance Issues |
|  | **Total** | **25%** |