Course : IT 701 : Application Development using Full Stack

Course Code	701
Course Title	Application Development using Full Stack
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 is designed to augment students programming skills with latest technologies.
Course Objective	To provide understanding of the prototypal inheritance, Node, express, mongoDB, Angular and making students able to develop programs Full stack programs.
Pre-requisite	Basic Javascript
Course Out come	This would help students to understand the paradigm change in programming and help them in developing applications using express,node with document database MongoDB along with angular.
Course Content	**Unit 1 : Introduction of Node.js Ecosystem** 1.1. Architecture of Node.js Ecosystem 1.2. Familiarity with JavaScript 1.3. The Problem with I/O 1.4. Prototypal inheritance 1.5. UI-UX, Responsive design, Security 1.6. Installing Node.js 1.7. REPL **Unit 2 : Node.js** 2.1 Module and npm 2.1.1 npm 2.1.2 package.json 2.1.3 The node_modules 2.1.4 require(), createServer() 2.2 Node concepts 2.1.1 The Event Loop 2.1.2 Asynchronous Coding 2.1.3 Callback Functions 2.1.4 Calling Conventions 2.1.5 Exception Handling 2.1.6 Callback Hell 2.1.7 Event Emitters 2.1.8 Extending EventEmitter 2.1.9 Listening for Events 2.1.10Exception Handling 2.1.11File Systems 2.1.12Node.js - RESTful API 2.3 Core Modules 2.3.1 Command Line Arguments 2.3.2 Working with the File System 2.3.3 Global objects 2.3.4 File Systems and Streams 2.3.5 Utility Modules 2.3.6 Web Module 2.3.7 Routes 2.3.8 Accessing Request Headers 2.3.9 Working with Database Engine like Mongo and Mongoose to insert, update and delete data **3. Express** 3.1 Routing 3.2 HTTP Methods 3.3 URL Building 3.4 Middleware 3.5 Templating 3.6 Static Files 3.7 Form Data

	3.8 Database 3.9 Cookies 3.10 Sessions 3.11 Authentication 3.12 RESTful APIs 3.13 Error handling **4. AngularJS** 4.1. Single-page Application Framework 4.2. Angular CLI 4.3. Model-View-Controller Architecture 4.4. Two Way Data Binding 4.5. Directives, Pipes, Components, Scope Inheritance, Method Chaining, Templates, Services, Forms and Validation 4.6. Animation and Routing 4.7. Calling API, Using Third Party API 4.8. Web-Sockets, Use of UI Frameworks Plug-ins **5. Developer tools** 5.1. Browser Tools 5.2. Version Control using Git and others Tools
Reference Book	1. Node.js, MongoDB and Angular Web Development: The definitive guide to using the MEAN stack to build web applications – Brad Dayley and Brendan Dayley-Second Edition- Kindle Edition 2. MEAN Cookbook: The meanest set of MEAN stack solutions around - Nicholas McClay-1st edition-Kindle edition 3. Node.js for PHP developers - Daniel Howard - First edition - O'Reilly 4. Full Stack JavaScript Development With MEAN: MongoDB, Express, AngularJS, and Node.JS - Colin J Ihrig and Adam Bretz-first edition- Kindle edition 5. Node.js 8 the Right Way: Practical, Server-Side JavaScript That Scales--Jim Wilson --Andy Hunt 6. Mastering Node.js - Second Edition: Build robust and scalable real-time server-side web application -- Sandro Pasquali --1st edition -- Paperback
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	30% Internal assessment 70% External assessment