INT222:ADVANCED WEB DEVELOPMENT

L:0   T:0   P:4   Credits:2

Course Outcomes: Through this course students should be able to

CO1 :: understand the role of server side JavaScript in web application development

CO2 :: analyze how Node.js is architectured to allow high scalability wth asynchronous code

CO3 :: make an HTTP Server using the core modules in Node.js

CO4 :: employ MongoDB database with Node.js

CO5 :: NULL

CO6 :: NULL

List of Practicals / Experiments:

JavaScript Primer
- Defining Variables and their Scope
- Understanding JavaScript Data Types
- Working with Operators and Loops
- Creating Functions, JavaScript Objects
- Working with Arrays
- Adding Error Handling

Getting Started with Node.JS
- Introducing Node.JS
- Node Pacakage Manager (npm)
- Use of Node.JS
- Installing Node
- Using Events, Listeners, Timers and Callbacks

Debugging, Testing and Deploying
- Debugging Node.js Applications
- Testing Node.js Applications
- Deploying Node.js Applications

Handling Data I/O in Node.js
- Working with JSON
- Using Buffer Module to Buffer Data
- Using Stream Module to Stream Data
- Compressing and Decompressing Data with Zlib
- Accessing the File System from Node.js

Basic Websites With Node.JS
- HTTP
- Introducing Express
- More on Express
- Persisting Data

Implementing HTTP Services in Node.JS
- Processing URLs
- Processing Query Strings and Form Parameters
- Understanding Request , Response and Server Objects

- Implementing HTTP Client and Servers in Node,

Implementing Socket Services in Node.js
- Understanding Network Sockets

- Understanding TCP Server and Socket Objects

- Implementing TCP Socket Servers and Clients

- Implementing TLS Severs and Clients

Intermediate Sites with Node.js
- A Socket.IO Chat Server

- A Streaming Twitter Client

- JSON API

Scaling Applications using Multiple Processors
- Understanding the Process Module

- Implementing Child Processes

- Implementing Process Clusters

- OS and Util modules

Creating Middleware with Connect
- What is Middleware?

- Middleware in Connect

- Access Control with Middleware

Getting Started with MongoDB
- Understanding MongoDB and Its Data Types

- Building the MongoDB Environment

- Connecting to MongoDB from Node.js

- Accessing and Manipulating Databases

- Accessing and Manipulating Collections

- Administering Databases

- Managing Collections

Using Node.js with Backbone.js
- What is Backbone.js

- How Backbone.js Works

- A Simple Backbone.js View

- Creating Records with Backbone.js

Text Books:
1. PROFESSIONAL NODE.JS: BUILDING JAVASCRIPT BASED SCALABLE SOFTWARE by PEDRO TEIXEIRA, WILEY

References:
1. SAMS TEACH YOURSELF NODE.JS IN 24 HOURS by GEORGE ORNBO, SAMS PUBLISHING