INT222:ADVANCED WEB DEVELOPMENT

L:2 T:0 P:2 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: Describe server-side JavaScript in web application development

CO2 :: Analyze the web application development using HTTP, FS and Buffer modules

CO3 :: Assess the node express, JSON, Socket.IO to allow high scalability with asynchronous code

CO4 :: demonstrate the use of CRUD application using Backend database in web application development

CO5 :: connect MongoDB database with Node.js

CO6 :: design rich interactive environments for the Web-based applications

Unit I

Getting Started with Node.JS : Introducing Node.JS, Node Pacakage Manager (npm), Custom NPM modules,, Installing Node, use Node.js REPL, Explore and use built-in modules of Node.js, Use of Node.JS and GitHub, collaborate on code with others using the git tool

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, Using Events, Listeners, Timers and Callbacks.

Unit II

Handling Data I/O in Node.js : Working with fs module, Working with JSON, Using Buffer Module to Buffer Data, Using Stream Module to Stream Data, Compressing and Decompressing Data with Zlib

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

Unit III

Basic Websites With Node.JS : Introducing Express, More on Express, GET, POST, bodyParser

Creating Middleware with Connect : What is Middleware?, Middleware in Connect, Access Control with Middleware

Socket Services in Node.js: : Understanding Network Sockets, A Socket.IO Chat Server, , A Streaming Twitter Client

Unit IV

Introduction to Backend: : Introduction to PostgreSQL database, Basics of the CRUD pattern., Build application using CRUD, Add User Interface for To-do Application, Convert visual design into working HTML and CSS, Sequelize association, migration and validation.

Unit V

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

Unit VI

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

List of Practicals / Experiments:

List of Practical

- Create JavaScript Objects and functions

- Working with the arrays

- Assessing file system from Node.js

- Create a basic website using node.js

- Implementing HTTP Services in Node.JS

- Implementing Socket Services in Node.js

- Use Jason API website development

- Building the MongoDB Environment and Administering Databases

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

    2. LEARN POSTGRESQL by LUCA FERRARI, ENRICO PIROZZI, PACKT PUBLISHING