NODE JS WEB DEVELOPMENT

Course Code:20CSH103	L	T	P	C
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PREREQUISITE:

Basic Knowledge of JavaScript and OOPS

COURSE OUTCOMES:

At the end of the course student will be able to,

CO1: Understand Node JS and REPL terminal. (L2)
CO2: Experiment with Node JS Modules and Node Package Manager. (L3)
CO3: Develop applications to handle events in Node JS (L3)
CO4: Make use of Web Server to manage database. (L3)
CO5: Demonstrate Express Framework (L3)

UNIT-I **(6 Lectures)**

INTRODUCTION

Features and advantages of Node JS, Traditional Web Server Model, Node.js Process Model, Asynchronous programming with Node.js, Types of applications that can be developed using Node.js

SETUP DEVELOPMENT ENVIRONMENT

Install Node.js on Windows, working in REPL, Node JS Console, Creating a Node File with JavaScript, Accessing a Node.js File Through the Command Line Interface, Using Node.js in Net-Beans IDE.

OTHER JAVASCRIPT-BASED TECHNOLOGIES

Node.js vs JavaScript, Node.js vs AJAX, Node.js vs JQuery, Node.js vs Angular JS

Learning Outcomes:

At the end of the module, students will be able to:

1. Compare Node JS and traditional web server. (L2)
2. Construct Node File with JavaScript, Accessing a Node.js (L3)
3. Compare Node.js and other JavaScript-based technologies (L2)

UNIT-II **(6 Lectures)**

NODE.JS BASICS:

Primitive Types, Object Literal, Functions, Buffer, Access Global Scope.

NODE.JS MODULES:

Module, Module Types: Core Modules, Local Modules, Third Party Modules, Module Exports. Using Modules in a Node.js File, Using the Built in HTTP, URL, Query String Module, Creating a Custom Module

NODE PACKAGE MANAGER: NPM, Installing Packages Locally, Adding dependency in package.json, Installing packages globally, Updating packages.

Learning Outcomes:

At the end of the module, students will be able to:

1. Explain Node.js Basics. (L2)
2. Explain and Develop Node JS Modules. (L2 and L3)
3. Demonstrate Node Package Manager. (L2)

UNIT-III **(8 Lectures)**

CREATING WEB SERVER:

Handling HTTP requests, Sending requests

FILE SYSTEM:

Reading, Writing a File, Writing a file asynchronously, Opening a file, deleting a file, Other IO Operations: Append, Rename, Truncate. File System Module with URL Module
Create, Read, Remove a Directory

DEBUGGING NODE JS APPLICATION:

Core Node.js debugger, Node Inspector, Built-in debugger in IDEs

Learning Outcomes:

At the end of the module, students will be able to:

1. Build Web Server. (L3)
2. Make use of different methods of File System Module (L2 and L3)
3. Demonstrate Node JS Debugging. (L2)

UNIT-IV **(6 Lectures)**

EVENTS:

EventEmitter class, Methods and Events of EvenEmitter Class, Returning event emitter, Extend EventEmitter Class, Passing Arguments and 'this' to listeners, Asynchronous and Synchronous call, Handle Events only Once, Error Events.

DATABASE CONNECTIVITY:

Connection string, Configuring, Working with insert, select command, Updating records, Deleting records, Drop tables, Ordered Result Set

Learning Outcomes:

At the end of the module, students will be able to:

1. Explain EventEmitter class. (L2)
2. Illustrate listener for the event (L2)
3. Extend Node.js to work with Database. (L2)

UNIT-V **(6 Lectures)**

EXPRESS AND NODE JS

Introduction to Express Framework, Express Server Request-Response Routes, Route Parameters, Multiple Route Callback/Handler Functions, Methods of Response Object, Chaining Route Handlers, Send Static Files, Accept User Input, File Upload with Express, Manage Cookies, Send file as a response, Templates and Express.

Learning Outcomes:

At the end of the module, students will be able to:

1. Explain Express Framework (L2)
2. Demonstrate Basic Routing (L2)
3. Illustrate Cookies Management (L2)

TEXT BOOK:

1. Dhruti Shah, “Node.JS Guidebook”, BPB Publications, 2018.

REFERENCE BOOKS:

1. Basarat Ali Syed, Beginning Node.js, A press, 2014,

WEB REFERENCES

1. https://nodejs.org/en/docs/