

CS – 14: NODE JS				
Objectives: <ul style="list-style-type: none"> Understand the JavaScript and technical concepts behind Node JS Structure a Node application in modules Understand and use the Event Emitter Build a Web Server in Node and understand how it really works Use npm and manage node packages Build a web application and API more easily using Express Understand how to Connect to database in Node 				
Pre-Requisites: Basic Knowledge of JavaScript and OOPS				
Sr. No	Topics	Details	Weightage in %	Approx Lectures
1	Introduction, Set up Development Environment, Other JavaScript Based Technologies	<ul style="list-style-type: none"> 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 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 IDE Node.js vs JavaScript Node.js vs AJAX Node.js vs JQuery Node.js vs Angular JS 	20	12
2	Node.js Basic, Node.js Modules, Node Package Manager (NPM)	<ul style="list-style-type: none"> Primitive Types Object Literal, Functions, Buffer, Access Global Scope 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 	20	12

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		<ul style="list-style-type: none"> • NPM, Installing Packages Locally • Adding dependency in package.json • Installing packages globally • Updating packages 		
3	Creating Web Server, File System, Debugging Node.js Application	<ul style="list-style-type: none"> • Handling HTTP requests • Sending requests • 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 	20	12
4	Event, Database Connectivity	<ul style="list-style-type: none"> • EventEmitter class • Methods and Events of EventEmitter Class • Returning event emitter • Extend EventEmitter Class • Passing Arguments and 'this' to listeners • Asynchronous and Synchronous call • Handle Events only Once, Error Events • Connection string for database connectivity, • Configuring, Working with insert, select command, Updating records, Deleting records, Drop tables, Ordered Result Set 	20	12
5	Express and Node.js	<ul style="list-style-type: none"> • 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. 	20	12
		Total	100	60

References Books
<ol style="list-style-type: none">1. Dhruti Shah, "Node.JS Guidebook", BPB Publications, 2018.2. Sebastian Springer, Node.js: The Comprehensive Guide (Grayscale Indian Edition) Paperback - Shroff/Rheinwerk; First edition, 20223. https://nodejs.org/en/docs/

Course Outcome:

After completion of the course students will be able:

- Understand Node JS and REPL terminal.
- Experiment with Node JS Modules and Node Package Manager.
- Develop applications to handle events in Node JS
- Make use of Web Server to manage database.
- Demonstrate Express Framework