



Computer Science Paper-3
Web Frameworks
[Compulsory Core Course]

Semester III	Credits: 4	Subject Code: MS32003	Lectures: 48
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Course Outcomes:

At the end of this course, the learner will be able to:

Examine modern web technologies which are used widely in Industry as a part of full stack developer.

- Describe and use server side programming using Node.js
- Analyze asynchronous programming.
- Construct and deploy robust Django Web App
- Know the powerful way to develop the web application in Python.
- Integrate with Restful web services..

Unit-1 JavaScript basics and Introduction to Node JS	10
<ul style="list-style-type: none">• Chapter 1. Javascript Basics<ul style="list-style-type: none">○ Javascript HTML DOM○ Promises and Callbacks○ Data serialization :JSON, YAML, XML○ Introduction to JS Frameworks• Chapter 2. Introduction to Node JS<ul style="list-style-type: none">○ Introduction○ What is Node JS and its advantages○ Traditional Web Server Model○ Node JS Process model○ Installation of Node JS○ Node JS event loop• Chapter 3. Node JS Modules<ul style="list-style-type: none">○ Functions○ Buffer○ Module and Module Types○ Core Module, Local Module○ Directories as module○ Module,exports	3 3 4
Unit-2 Node JS packages, Web Server and File System	11
<ul style="list-style-type: none">• Chapter 4. Node Package Manager<ul style="list-style-type: none">○ What is NPM?○ Installing package locally○ Adding dependencies in package.json	3

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<ul style="list-style-type: none"> ○ Installing packages globally ○ Updating packages ○ Managing Dependencies • Chapter 5. Web Server <ul style="list-style-type: none"> ○ Creating Web Server ○ Handling HTTP requests ○ Sending Requests ○ HTTP Streaming • Chapter 6. File System <ul style="list-style-type: none"> ○ FS Model ○ Files and Directories ○ Streams ○ Reading and Writing Files ○ Reading and Writing Directories ○ Other File Operations 	<p>3</p> <p>5</p>
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Unit-3 Event handling, databases and Express JS	16
<ul style="list-style-type: none"> • Chapter 7. Events <ul style="list-style-type: none"> ○ Asynchronous JS ○ Asynchronous control flow with callbacks ○ Promises ○ EventEmitter Class ○ ASync/Await ○ Returning Event Emitter ○ Inheriting Events • Chapter 8. Working with Databases <ul style="list-style-type: none"> ○ Connection String ○ Configuring ○ Working with Select command ○ Various database operations ○ MongoDB ○ Mongoose ODM ○ Mongoose Schema ○ Mongoose Model ○ Querying with Mongoose • Chapter 9. Express JS <ul style="list-style-type: none"> ○ Introduction to webservice ○ REST ○ Introduction to Express JS ○ Routing, Responding ○ Configuration ○ Views ○ Receiving Data ○ Error Handling 	<p>6</p> <p>5</p> <p>5</p>

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Unit-4 Django Framework	11
<ul style="list-style-type: none"> • Chapter 10. Introduction to Django <ul style="list-style-type: none"> ○ What is Django ○ Django and Python ○ Django MVT ○ How to get and install Django • Chapter 11. Getting Started with Django <ul style="list-style-type: none"> ○ About 3 core files : model.py, urls.py, views.py ○ Setting up database connections (MySQL/SQLServer) ○ Managing Users & Django admin tools ○ Installing and using 'Out of the Box' Django features • Chapter 12. Django URL Patterns and Views <ul style="list-style-type: none"> ○ Designing a good URL Schema ○ Generic Views • Chapter 13. Django Forms <ul style="list-style-type: none"> ○ Form Classes ○ Validations ○ Authentication ○ Advanced Form Processing Techniques 	<p>2</p> <p>3</p> <p>2</p> <p>4</p>

*Contact hours – 12 hours

Recommended Books:

- AidasBendoraitis ,Web Development with Django CookBook ,Second Edition PACKT Publishing ValentinBojinov, David Herron, Dioge Resende,Node.js complete reference guide, , packt Publishing Ltd
- Danial Roy Greenfeld and Audrey RoyGreenfeld ,Two Scoops of Django 1.11 : Best Practices for the Django web Framework Book
- Guillermo Rauch, John wiley&Sons ,Smashing Node.js, Java Script Everywhere
- Sandro Pasquali ,*Mastering Node.js* ,packt Publishing

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