**COURSE PLAN**

|  |  |
| --- | --- |
| Target | 50% (marks) |
| Level-1 | 40% (population) |
| Level-2 | 50% (population) |
| Level-3 | 60% (population) |

1. **Method of Evaluation**

|  |  |
| --- | --- |
| **UG** | **PG** |
| Quizzes/Tests, Assignments (30%) | Quizzes/Tests, Assignments, seminar (50%) |
| Mid Examination (20%) | End semester (50%) |
| End examination (50%) |  |

1. **Passing Criteria**

|  |  |  |
| --- | --- | --- |
| **Scale** | **PG** | **UG** |
| **Out of 10 point scale** | SGPA – “6.00” in each semester  CGPA – “6.00”  Min. Individual Course Grade  –  “C”  Course Grade  Point –  “4.0” | SGPA – “5.0” in each semester  CGPA – “5.0”  Min. Individual Course Grade  –  “C”  Course Grade  Point –  “4.0” |

\*for PG, passing marks are 40/100 in a paper

\*for UG, passing marks are 35/100 in a paper

1. **Pre-requisites:** Elementary Knowledge of Computers and basic designing
2. **Course Objectives:**

* To understand the basics of Web Designing using HTML, DHTML, and CSS.
* To introduce the fundamentals of the Internet, and the principles of web design.
* To build dynamic web pages with validation using Java Script event handling mechanisms and Angular JS.
* To understand the development of server-side applications using Node JS.
* To introduce backend development using server-side scripting language.

1. **Pedagogy**

* Presentation
* Class Test
* Quizzes
* Voiceover Presentation & Video lectures
* Performance Tests
* YouTube videos
* Concept diary (needs to be maintained by students-short and concise notes that include course concepts that he/she has understood)

1. **References:**

|  |  |
| --- | --- |
| Text Books | 1. Steven Holzner,” HTML Black Book”, Dreamtech press.  2. M. Wandschneider, Learning Node.js: a hands-on guide to building Web applications in JavaScript. Upper Saddle River, Nj: Addison-Wesley, 2013.  3. Internet and World Wide Web How to program, P.J. Deitel & H.M. Deitel Pearson  4. AngularJS Essentials – Rodrigo Branas, Packt Publishing Ltd. |
| Web resources |  |
| Journals |  |
| Reference books | 1. Robert W. Sebesta, “Programming with World Wide Web”, Fourth Edition, Pearson, 2008.  2. Fritz Schneider, Thomas Powell, JavaScript: The Complete Reference 2nd Edition, Tata McGraw - Hill Education  3. D. Herron, Node.js Web Development. Packt Publishing Ltd, 2018. |

**GUIDELINES TO STUDY THE SUBJECT**

**Instructions to Students:**

1. Go through the 'Syllabus' uploaded on the My UPES- LMS platform in order to find out the Reading List.
2. Get your schedule and try to pace your studies as close to the timeline as possible.
3. Get your on-line lecture notes (Content, videos) at Lecture Notes section.  These are our lecture notes. Make sure you use them during this course.
4. Check your LMS student portal regularly.
5. Go through study material.
6. Check mails and announcements on LMS student portal.
7. Keep updated with the posts, assignments and examinations which shall be conducted on the LMS student portal.
8. Be regular, so that you do not suffer in any way.
9. **Cell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.
10. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.
11. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail [to](mailto:abc@ddn.upes.ac.in) your concerned faculty. Please use an appropriate subject line to indicate your message details.

**RELATED OUTCOMES**

1. **The expected outcomes of the Program:**

|  |  |
| --- | --- |
| PO1 | Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| PO2 | Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| PO3 | Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| PO4 | Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. |
| PO5 | Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. |
| PO6 | The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| PO7 | Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. |
| PO8 | Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| PO9 | Individual and team-work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| PO10 | Communication: Communicate effectively on complex engineering activities with the engineering community and with society at-large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| PO11 | Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. |
| PO12 | Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. |

1. **The expected outcomes of the Specific Program:**

|  |  |
| --- | --- |
| PSO1 | Perform system and application programming using computer system concepts, concepts of Data Structures, algorithm development, problem solving and optimizing techniques. |
| PSO2 | Apply software development and project management methodologies using concepts of front-end and back-end development and emerging technologies and platforms. |
| PSO3 |  |

1. **The expected outcomes of the Course:**

On completion of this course, the students will be able to,

|  |  |
| --- | --- |
| CO 1 | Understand web application architecture and can develop basic websites using HTML and Cascading Style Sheets. |
| CO 2 | Gain skills in different programming control structures and functions for development of dynamic client-side web applications. |
| CO 3 | To build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms |
| CO 4 | Implement a functional front-end web application using Angular JS. |
| CO 5 | Understand handling of data and will be able to perform basic database operations |

1. **Co-Relationship Matrix**

Indicate the relationships by1- Slight (low) 2- Moderate (Medium) 3-Substantial (high)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Program**  **Outcomes**  **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| **CO 1** | 1 | - | 2 | - | 3 | - | - | - | 2 | - | - | - | 3 | 2 |
| **CO 2** | 1 | - | 2 | - | 3 | - | - | - | 2 | - |  | - | 2 | 2 |
| **CO 3** | 1 | - | 1 | - | 3 | - | - | - | 2 | - | - | - | 3 | 2 |
| **CO 4** | 1 | - | 2 | - | 3 | - | - | - | 2 | - | - | - | 3 | 2 |
| **CO 5** | 1 |  | 1 | - | - | - | - | - | 1 | - | - | - | 2 | 2 |
| **Average** | 1 | - | 2 | - | 3 | - | - | - | 2 | - | - |  | 3 | 2 |

1. **Course outcomes assessment plan:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **components**  **Course Outcomes** | **Assignment** | **Test/Quiz** | **Mid Semester** | **End Semester** | **Any other** |
| **CO 1** | **R** | **R** | **£** | **R** | **£** |
| **CO 2** | **R** | **R** | **£** | **R** | **£** |
| **CO 3** | **R** | **R** | **£** | **R** | **£** |
| **CO 4** | **R** | **R** | **£** | **R** | **£** |
| **CO 5** | **R** | **R** | **£** | **R** | **£** |

**BROAD PLAN OF COURSE COVERAGE**

**Course Activities:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unit | Description | Planned | | | Remarks |
| From | To | No. of Sessions |
| 1. | Introduction to HTML |  |  | 8 |  |
| 2. | Introduction to Client-side scripting |  |  | 10 | Quiz #1 |
| Lab Test # 1 |
|  |
| 3. | Angular JS |  |  | 10 | Class Test # 1  Assignment 1 |
|  |
| 4. | Development using NodeJS |  |  | 9 | Quiz # 2 |
| Assignment 2 |
|  |
| 5. | Working with Data |  |  | 8 | Class Test # 2 |
| Lab Test # 2 |

Sessions: Total No. of Instructional periods available for the course: 45

**SESSION PLAN**

**UNIT-I**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Topics to be Covered** | **CO Mapped** | **Assessment** |
| 1 | Web Fundamentals: Internet, Intranet and Extranet, web browsers | CO1 |  |
| 2 | web servers, working of search engine. Development Process: Client and Server scripting and languages | CO1 |  |
| 3 | HTML tags, W3C Validation service | CO1 |  |
| 4 | Headers, HTML form elements and designing web forms | CO1 |  |
| 5 | meta tags, CSS and its types, Types of CSS Selectors | CO2 |  |
| 6 | CSS properties, CSS Box Model, CSS Positioning (relative, absolute and fixed) | CO1, CO2 |  |
| 7 | Responsive design with CSS | CO2 |  |
| 8 | HTML APIs – geolocation, drag and drop. | CO2 |  |

**SESSION PLAN**

**UNIT-II**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Topics to be Covered** | **CO Mapped** | **Assessment** |
| 9 | JavaScript: Overview, Syntax, Data types | CO2 |  |
| 10 | Enabling JavaScript, java script variables | CO2 | Quiz 1 |
| 11 | Functions and control statements | CO2 |  |
| 12 | Java Script Arrays | CO2 |  |
| 13 | form validation | CO2 | Lab Test1 |
| 14 | JS objects – Date, Math, String | CO3 |  |
| 15 | Event handling in JavaScript | CO3 |  |
| 16 | JS Browser Object Model – window object, history object | CO3 |  |
| 17 | Navigator object, Screen object | CO3 |  |
| 18 | HTML Document Object Model | CO3 |  |

**SESSION PLAN**

**UNIT-III**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Topics to be Covered** | **CO Mapped** | **Assessment** |
| 19 | Introduction to Angular JS | CO3, CO4 | Class Test1 |
| 20 | Features of angular JS | CO4 |  |
| 21 | Architectural concepts and Expressions | CO4 | Assignment 1 |
| 22 | Built-in filters, basic usage of filters | CO4 |  |
| 23 | Introduction to directives | CO4 |  |
| 24 | Angular Controllers | CO4 |  |
| 25 | Modules | CO4 |  |
| 26 | Working with Angular Forms | CO3 CO4 |  |
| 27 | Working with Events | CO3, CO4 |  |
| 28 | Form Validation | CO3, CO4 |  |

**SESSION PLAN**

**UNIT-IV**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Topics to be Covered** | **CO Mapped** | **Assessment** |
| 29 | Introduction to NodeJS, Advantages of Node JS | CO5 |  |
| 30 | Traditional Web Server Model | CO5 | Quiz 2 |
| 31 | Node.js Process Model | CO5 |  |
| 32 | Environment Setup, Node JS console | CO5 | Assignment 2 |
| 33 | Node JS modules and its types | CO5 |  |
| 34 | Functions, Buffer | CO5 |  |
| 35 | Understanding Node event driven framework | CO5 |  |
| 36 | Event Emitter class, Events and Event Loop, Inheriting events | CO5 |  |
| 37 | Node Package Manager | CO5 |  |

**SESSION PLAN**

**UNIT-V**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Topics to be Covered** | **CO Mapped** | **Assessment** |
| 38 | Introduction to MongoDB | CO5 |  |
| 39 | Setting up MongoDB | CO5 |  |
| 40 | Hosting and authenticating into database | CO5 | Class Test 2 |
| 41 | Model Creation | CO5 | Lab Test # 2 |
| 42 | Managing Database Connections | CO5 |  |
| 43 | Performing basic operations – Insert, update, delete, search | CO5 |  |
| 44 | Performing basic operations – Insert, update, delete, search | CO5 |  |
| 45 | Doubt Session |  |  |