Paper Name: INTERNET AND WEB TECHNOLOGIES

1. **Learning Outcome:**

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

   - Understand the concept of Internet and the World Wide Web
   - Understand the basic concept of web applications and web services.
   - Design basic well-structured web page using HTML and CSS

2. **Prerequisite:** NIL
3. **Semester: IV**
4. **Course Type: Compulsory**
5. **Course Level: 100-199**
6. **Theory Credit:** 3
7. **Practical Credit:** 1
8. **Number of required hours:**

   j) Theory: 45 hrs
   k) Practical: 30 hrs
   l) Non Contact: 5 hrs

9. List of reference books

a) Deitel, P. (2021) 5th ed. Internet and World Wide Web How to Program. Pearson.
b) Jackson J.C. (2007). Web Technologies: A Computer Science Perspective. Pearson.
c) Duckett, J. (2011). HTML and CSS: Design and Build Websites. John Wiley & Sons.
d) Robbins, J. N. (2018). Learning Web Design: A Beginner's Guide. O'Reilly Media.

10. Detailed Syllabus

Unit no.	Unit content	No.of classes
1	**Computer Networks and the Internet** Concepts of the Internet and its evolution. Review of Networking basics – LANs and WANs, Network topologies, protocols and layers. Different networking devices – End devices, Hub, Switch, Router, Server. Brief concept of Internet Protocol and addressing. Concept of DNS and NAT – their role in the Internet. Proxy and VPN. Browsers and their add-ons. Brief concept of Cloud Computing and CDN.	8
2	**Introduction to Web Technologies** Concept of World Wide Web (WWW), Overview of web browsers and their functionalities. Client-Server Architecture in Web Applications. Communication Protocols – HTTP, HTTPS, FTP. URI and URL. Request Response cycle. Working of DNS. Brief concepts of port, cache and cookies. Introduction to Web Hosting and control panels.	8

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3	**Front End Development using HTML** Website and Webpage. Basic concept of Markup Language. Introduction to HTML. Basic HTML structure. Text formatting Tags – headings, paragraph, line break, horizontal rule. Link and Navigation – anchor tags. Lists - ordered, unordered, definition list. Image and multimedia tags. Tables in HTML. Forms and Input types – text, email, password, radio, select, checkbox, textarea, date, url, submit, button. Brief concept of Semantic HTML – header, nav, main, section, article, aside, footer.	10
4	**Front End Design using CSS** Introduction to CSS. CSS syntax and rule structure. Inline, Internal and External CSS. CSS selectors – element, class, ID, attribute. Understanding the CSS Box Model – content, padding, border, margin. CSS colours and backgrounds – background-color, background-image, background-repeat. CSS typography – font properties, text properties.	9
5	**XML and Client-Server Computing** Basics of SGML. Understanding DTD and its role in validating markup languages. Introduction to XML. Creating XML DTDs. Concept of Client-Server Computing. 2-tier, 3-tier architecture. Fat client vs Fat server. Overview of CGI and JSP. Brief concept of JavaScript.	5
6	**Web Security** Understanding network security and Firewalls. Proxy Servers and their role in caching and security. Common web security vulnerabilities – XSS, SQL injection. Brief concept of SSL/TLS and HTTPS for secure communication.	5

30 hours

List of Practical

(This is a suggestive list only. Questions need not be restricted to this list.)

1. Create a basic HTML webpage structure with a heading, paragraph, and an image.
2. Build a navigation menu using an unordered list (<ul>) with clickable links.
3. Create a multi-level list of items.
4. Implement a form with input fields for name, email, and a submit button.
5. Create a table with multiple rows and columns to display tabular data.
6. Design an image gallery using HTML and CSS.
7. Implement an ordered list (<ol>) to display a step-by-step tutorial or instructions.
8. Create a dropdown select menu (<select>) with multiple options.
9. Use HTML5 semantic tags (such as <header>, <nav>, <section>, <article>, <footer>) to structure and organize content on a webpage.

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10. Build a registration form with fields for name, email, password, date of birth, address and other such fields with a submit button. Include appropriate input types, labels and placeholders.
11. Style a heading element with a custom font, colour and background.
12. Apply different background colors to alternate rows in a table.
13. Implement a hover effect on a button that changes its background colour or adds a solid border.
14. Style a form input field with custom border, padding, and background color.
15. Build a form with input fields for name and email. Design the form with CSS. Use an alert to display a success message when the form is submitted successfully, otherwise show an error alert. Use JavaScript for the validation.
16. Create a simple web portfolio having the details of a candidate. Use proper HTML elements and apply styles using CSS.

Particulars of Course Designer:

Name : Risheraj Baruah
Contact No. : +91 8486942427
Email id : rishirajbaruah@gauhati.ac.in

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