

Internet Technologies

Unit	Topic	Primary reference	Hours
1	Network address translation	https://www.ciscopress.com/articles/article.asp?p=25273	8 Hrs
	Subnet Masking	https://www.ciscopress.com/articles/article.asp?p=330807&seqNum=2	
	Difference between Intranet and Internet, Working of Internet	R1 Chapter 1	
	Dynamic and Static Routing	https://www.ciscopress.com/articles/article.asp?p=2180209&seqNum=3 https://www.ciscopress.com/articles/article.asp?p=2180209&seqNum=4	
	Domain Name Server	https://www.ciscopress.com/articles/article.asp?p=2446655	
	Networking tools - ipconfig, ping, netstat, tracert	https://www.ciscopress.com/articles/article.asp?p=2420613	
2	Introduction to Internet Protocols: HTTP, HTTPS, FTP, SMTP, IMAP, POP3, VoIP	https://www.ciscopress.com/articles/article.asp?p=1687881	2 Hrs
3	Web Servers: Introduction, Working, Configuring, Hosting and Managing a Web server, Client-side Technologies, Server-side Technologies, and hybrid technologies	R1 Chapter 1-2	4 Hrs
	Proxy Servers: Introduction, Working, Type of Proxies, setting up and managing a proxy server	https://www.varonis.com/blog/what-is-a-proxy-server/ (Up to Proxy server risks)	
4	Combining Web Applications and Mobile Applications	R3 Lesson 11 (Up to page 246)	38 Hrs
	Introduction to forums, blogging, portfolio, developing a responsive website JavaScript, jQuery, JSON	https://imtips.co/blog-or-forum.html (Except Common FAQ's on Forums and Blogs) R2 Chapter 2,3,4 Complete R2 Chapter 5 up to page 236 (Except 228-235) R2 Chapter 6 up to page 270 (Except 258-259,264) R2 Chapter 7 up to page 357 (Except 330-341, 346-353) R2 Chapter 8 up page 396 (Except 375, 380-381, 383-387)	
	NODE.js	https://nodejs.dev/learn/introduction-to-nodejs https://nodejs.dev/learn/differences-	

		between-nodejs-and-the-browser https://nodejs.dev/learn/run-nodejs-scripts-from-the-command-line https://nodejs.dev/learn/how-to-exit-from-a-nodejs-program https://nodejs.dev/learn/build-an-http-server https://nodejs.dev/learn/reading-files-with-nodejs https://www.w3schools.com/nodejs/nodejs_mysql.asp	
	BOOTSTRAP	https://www.w3schools.com/bootstrap/bootstrap_get_started.asp https://www.w3schools.com/bootstrap/bootstrap_grid_system.asp	
5	Search Engines - components, working, optimization, Crawling, BOTS	https://developers.google.com/search/docs/beginner/how-search-works	4 Hrs
6	Introduction to cookies and sessions. Introduction to e-commerce websites and e-carts	R1 Chapter 13 (Page 301-303 except Setting a cookie, Page 312-Using Sessions)	4 Hrs

Primary References:

- R1.** Learning PHP, MySQL, JavaScript, CSS & HTML5, (Robin Nixon), 3rd Edition, O'Reilly Media
- R2.** JavaScript and JQuery – Interactive Front-end Web Development, (Jon Duckett), John Wiley and Sons, Inc.
- R3.** Web Design with HTML and CSS Digital Classroom, (Jeremy Osborn, Jemmifer Smith and AGI Creative Team), Wiley Publishing, Inc.

Secondary References:

- C1.** Network Fundamentals, CCNA Exploration Companion Guide, (Mark A. Dye, Rick McDonald, Antoon W. Ruffi), Cisco Press
- C2.** <https://api.jquery.com/>
- C3.** <https://www.json.org/>

Practicals:

1. Display your systems IP Address, Subnet mask using ipconfig, and find out the network address and the maximum number of systems possible on your network and range of IP addresses available to these systems.
2. With help of ping, check if you are connected to other systems of your network and find the route to connect to that system using tracert. List all the processes which are using ports for TCP protocol.
3. Create an HTML page that shows information about you, your course, hobbies, address, and your plans. Use CSS for styling of HTML page so that looks nice.
4. Create an HTML page with the sole purpose to show multiplication tables of 2 to 10 (row-wise) created by JavaScript. Initially, the page is blank. With help of setInterval function print a row every 5 seconds in different colors and increasing font size.
5. Create an HTML page with a paragraph written on it and under which 9 buttons are placed in a 3X3 grid. The first row is for buttons labeled with colors names Red, Green, and Blue, the second row with numbers 10, 20, 30, and the third row with different font names. Click event of each of the buttons should make the appropriate change in the style of paragraph.
6. Create a form that takes data about a pet. The form must be well designed and should accept the pet's name, age, weight, type, and what it likes most. At the submission of this form create a Pet object in JavaScript filled with these values and log that object and equivalent JSON on the console.
7. Store JSON data of few pets that you created in previous practical in a JSON file (copy from console output of previous program to a .json file). Using AJAX, load data from the file and display it in a presentable way using HTML and CSS.
8. Create a plain HTML page for B.Sc. Hons CS course, mentioning details like fee, eligibility criteria, papers with names and credits, and future possibilities after the course. A button for styling should be there at bottom of the page. On clicking on this button JavaScript should redesign the complete page using jQuery in a nice presentable way.
9. Create an HTML page for an image gallery which shows the use of BOOTSTRAP to rearrange and resize its contents on resizing the browser.
10. Create an HTTP server using Node.js which handles requests on port 10000 or a free port beyond 10000. Modify the server in such a way that opening localhost:10000 will display "Hello world, This is my Node.js server" on browser.
11. Create index.html file containing two forms for SignIn and SignUp. Submitting SignIn form should search for credentials in mysql database using server created in previous practical. On successful signin, a welcome page should be displayed. Submitting SignUp form should insert new entry for credentials in mysql database using server created in previous practical. On successful signup, user should be returned back to index.html.