**Shyama Prasad Mukherji College**

**Teaching Plan**

**Course and Year:** BSc(H) Computer Science III Year

**Semester:** V Sem

**Taught individually or shared:** Individually

**Paper:** Internet Technologies

**Faculty:** Pratibha Yadav

**No. of Classes** (per week)**:** 4 Theory+ 12 Practical

**Course Objective:**

This course introduces the protocols used in the Internet, its architecture, and security aspects of the Internet. Students will have an insight into how a search engine works and web crawls. Students will be able to:

* Describe the Internet, its architecture, services and protocol.
* Implement a simple search engine.
* Implement a web crawler.
* Use JavaScript technologies to make a website highly responsive, more efficient and user friendly

| **Teaching Plan** |
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| **Unit 1: Introduction** |
| **Readings prescribed in the syllabus for each unit:**  Learning PHP, MySQL, JavaScript, CSS & HTML5, (Robin Nixon), 3rd Edition, O’Reilly Media  [https://www.ciscopress.com/articles/article.asp?p=25273](about:blank)  [https://www.ciscopress.com/articles/article.asp?p=330807&seqNum=2](about:blank)  [https://www.ciscopress.com/articles/article.asp?p=2180209&seqNum=3](about:blank)  [https://www.ciscopress.com/articles/article.asp?p=2180209&seqNum=4](about:blank)  [https://www.ciscopress.com/articles/article.asp?p=2446655](about:blank)  [https://www.ciscopress.com/articles/article.asp?p=2420613](about:blank) |
| **Unit 2: Introduction to Internet Protocols** |
| **Readings prescribed in the syllabus for each unit:**  [https://www.ciscopress.com/articles/article.asp?p=1687881](about:blank) |
| **Unit 3: Web Server** |
| **Readings prescribed in the syllabus for each unit:**  Learning PHP, MySQL, JavaScript, CSS & HTML5, (Robin Nixon), 3rd Edition, O’Reilly Media  [https://www.varonis.com/blog/what-is-a-proxy-server/](about:blank) |
| **Unit 4** |
| **Readings prescribed in the syllabus for each unit:**   * JavaScript and JQuery – Interactive Front-end Web Development, (Jon Duckett), John Wiley and Sons, Inc. * Web Design with HTML and CSS Digital Classroom, (Jeremy Osborn, Jemmifer Smith and AGI Creative   [https://imtips.co/blog-or-forum.html](about:blank)  [https://nodejs.dev/learn](about:blank)  [https://www.w3schools.com/bootstrap](about:blank) |
| **Unit 5: Search Engine** |
| **Readings prescribed in the syllabus for each unit:**  [https://developers.google.com/search/docs/beginner/how-search-works](about:blank) |
| **Unit 6** |
| **Readings prescribed in the syllabus for each unit:**  Learning PHP, MySQL, JavaScript, CSS & HTML5, (Robin Nixon), 3rd Edition, O’Reilly Media |

**No of classes required to complete the unit (approx.):**

1. **Unit I:** 8 Lectures
2. **Unit II:** 2 Lectures
3. **Unit III:** 4 Lectures
4. **Unit IV:** 38 Lectures
5. **Unit V:** 4 Lectures
6. **Unit VI:** 4 Lectures

**Sub topics to be covered and their order along with the respective time frames (if any):** Attached

**Methodology of Teaching:**

Practical demonstration, Lectures, Viva Voice, Assignment, Test

| **ASSESSMENT** |
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| Tentative date of assessments/ assignments (time frame): 1st Test: 2nd Week of Sep 2022  2nd Test: 3rd Week of Oct 2022  1st Assignment: 2nd Week Aug 2022  2nd Assignment: 1st Week Oct 2022 |
| Criteria of Assessment: Tests, Assignments, Project and Viva Voice |

**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. Rufi), Cisco Press  
**C2.** https://api.jquery.com/  
**C3.** [https://www.json.org/](about:blank)

| **Week** | **Topics to be Covered** |
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| 1-2 | Network address translation, Subnet Masking, Difference between Intranet and Internet, Working of Internet, Dynamic and Static Routing, Domain Name Server, networking tools - ipconfig, ping, netstat, traceroute |
| 3 | Introduction to Internet Protocols - HTTP, HTTPS, FTP, SMTP, IMAP, POP3, VoIP |
| 4-5 | Web Servers: Working, Configuring, Hosting and Managing a Web server  Proxy Servers: Working, Type of Proxies, setting up and managing a proxy server, Client-side Technologies, Server-side Technologies and hybrid technologies |
| 6-10 | JavaScript, jQuery, JSON |
| 11-12 | NODE.js, BOOTSTRAP |
| 13-14 | Introduction to forums, blogging, portfolio, Developing a responsive website, combining Web Applications and Mobile Applications |
| 15 | Search Engines - components, working, optimization, Crawling, BOTS Introduction to cookies and sessions, e-commerce websites and e-carts |