**5 Years Integrated M.Sc. (IT)/ B.Sc. (IT) – Semester 5**
**Lesson Planning**
**Open Source Web based Programming**

**Course Objective:** To provide knowledge of Web programming to design and develop open source web based application

**Course Outcome:**

CO1: Describe the basic concepts and standardization of programming with open source technology.
CO2: Validate user input, manage data flow amongst web pages and apply state management techniques.
CO3: Understand the usage of data management using file and database as well as extends its security.
CO4: Develop and implement an application that manages asynchronous data.
CO5: Design, develop and use applications by creating and using remote service.

| Sub Unit | Topics | No. of Lectures | Reference Chapter/Additional Reading | *Teaching Methodology* |
|---|---|---|---|---|
| 1 | Introduction to Procedural SQL | | | |
| 1.1. | Introduction to Web Technologies<br>• Basic concepts like request, response.<br>• Overview of HTML, CSS & PHP<br>• Static and dynamic web content<br>• Basic building blocks of PHP: Internal data types, Variables, Constant<br>• Control statements and Iterative statements | 3 | http://www.beginwithjava.com/servlet-jsp/web-application-overview/web-application.html<br>SH#1, Page No:03-30 | Demonstration and PPT Presentation |
| 1.2. | Web application architecture | 1 | SV#3, Page No:55-61 | |
| 1.3. | Exception handling | 1 | SS#9, Page No: 241-250 | |
| 1.4. | Array | 2 | SH#3, Page No: 81-121 | |
| 1.5. | Object-Oriented concepts in PHP | 2 | SH#7, Page No: 245-260 | |
| 1.6. | Embed web document - include and required | 1 | SH#4, Page No: 157-158 | |
| 2 | Data Transfer and State Management | | | |
| 2.1. | Introduction and needs<br>- Web pages to communicate with PHP | 1 | SH#5, Page No: 161-170 | Demonstration and PPT |

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|---|---|---|---|---|
| 2.2. | Data Validation: Client-side data validation, Server-side data validation, -Custom validation | 2 | SH#5, Page No: 221-224 | Presentation |
| 2.3. | Dynamic web form control generation | 1 | SH#5, Page No: 247-253 | |
| 2.4. | Data transfer between web pages - GET and POST methods, Hidden field, URL rewriting | 1 | SH#5, Page No: 171-183 | |
| 2.5. | Cookie & Session Management | 1 | SS#12, Page No: 355-365, 388, 424 | |
| 2.6. | Operation: create, store, retrieve, destroy and exception handling, State security: Regeneration and time management | 2 | | |
| 3 | File Management and Namespace | | | |
| 3.1. | Overview of File management. | 1 | SH#9, Page No:319-333 | Demonstration and PPT Presentation |
| 3.2. | Directory and file operation - File Operations: Open, read, write and close. | 1 | SH#5, Page No: 187-191 | |
| 3.3. | File upload - Single and Multiple file upload, Validations in terms of size, file format supported, Custom validation. | 2 | SH#11, Page No: 408-411 | |
| 3.4. | Namespace: Introduction, Creation, Importing and Aliasing | 1 | SS#16, Page No: 692-695 | |
| 4 | Structured Data Management | | | |
| 4.1. | Data types: Introduction of unstructured, structured and semi-structured data, Requirements of structured data with its applications, data types with characteristics. | 2 | SH#10, Page No:361-364 | Demonstration and PPT Presentation |
| 4.2. | Database connectivity: Needs and Pooling, Exception handling | 2 | SH#10, Page No:370-383, http://php.net/manual/en/ | |
| 4.3. | Data Processing: Encrypted storage and retrieval with the help of hash function | 3 | http://php.net/manual/en/ | |
| 4.4. | Report Generation: Needs, types and representation structure, Dashboard, introduction to data analysis | 3 | http://php.net/manual/en/ | |
| 5 | Asynchronous Web Application Development | | | |
| 5.1. | Data Transmission: Needs, Advantages, Disadvantages and Applications | 2 | http://api.jquery.com/Ajax_Events/ | Demonstration and PPT Presentation |
| 5.2. | Asynchronous request and response object management | 2 | | |
| 5.3. | Global and local events handling | 1 | | |
| 5.4. | Asynchronous data retrieval and processing -AJAX and JQuery | 2 | | |
| 6 | Remote Services | | | |
| 6.1. | Introduction and Uses | 1 | https://learn.jquery.com/ajax/j query-ajax-methods/ | Demonstration and PPT Presentation |
| 6.2. | Remote services types: SOAP and Restful | 2 | | |
| 6.3. | Data parsing: Needs, working, XML and JSON | 3 | | |

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| 6.4. | Creating remote services and usage: Basic functionalities like login and registration | 2 | | |
| **References:** | | | | |

**Text Book:**


1. Steven Holzner, The Complete Reference PHP, Mc Graw Hill. [SH]
2. Steve Suehring, Tim Converse and Joyce Park, PHP6 and MySQL, Wiley India Pvt. Ltd. [SS]


**Other Reference:**


1. Hugh E. Williams, PHP and MySQL, O'Reilly. [HW]
2. Sharanam Shah, Vaishali Shah - Java EE 6 Server Programming, Shroff publishers & Distributors - [SV]
3. http://php.net/manual/en/
4. http://api.jquery.com/Ajax_Events/
5. https://learn.jquery.com/ajax/jquery-ajax-methods/
6. http://www.beginwithjava.com/servlet-jsp/web-application-overview/web-application.html
7. https://www.open.edu/openlearn/science-maths-technology/introduction-web-applications-architecture/content-section-1.1