Course Code: CS4006   Course Title: Open Source Web based Programming
Course Credits: 4   [Lectures: 04, Tutorial: 00, Practical: 05]
Prerequisites: Fundamentals of Programming, Introduction to Web Design, Object Oriented Programming, Relational DBMS
Prerequisites By Topics:
Objectives: To provide knowledge of web programming to design and develop open source web based application.
Course Outcomes: Upon completion of the course, students shall be able to

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

Course Objective and Course Outcomes Mapping:

To provide knowledge of web programming: CO1, CO2

To design and develop open source web based application: CO2, CO3, CO4 and CO5

Programme Outcomes:

PO1: Ability to understand the concepts of key areas in computer science.

PO2: Ability to design and develop system, component or process as well as test and maintain it so as to provide promising solutions to industry and society.

PO3: Effective communication and presentation skill.

PO4: Ability to understand professional and ethical responsibility.

PO5: Recognition of the need for life-long learning.

Programme Outcomes and Course Outcomes mapping:

Course Outcomes	Programme Outcomes				
	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓			
CO2	✓	✓		✓	
CO3	✓	✓		✓	✓
CO4		✓			✓
CO5		✓			✓

1 Basics of Web Programming   [15 %]
    1.1. Introduction to Web Technologies
    1.2. N-Tier architecture : Needs, Advantages, Disadvantages, Applications and Life Cycle
    1.3. Exception handling: Needs and types
    1.4. Array: Overview, and operations on associative array
    1.5. Object-Oriented concepts
    1.6. Embed web document
2 Data Transfer and State Management   [20 %]
    2.1. Introduction and needs
    2.2. Data validations: Importance, methods of client side and server side data validation
    2.3. Dynamic web form: Introduction, generation, guidelines and data transformation control
    2.4. Data transfer between web pages
    2.5. Cookie & Session Management

2.5.1 : Introduction, Needs, Advantages and Disadvantages
2.5.2 : Operations : Create, Store, Retrieve, Destroy and Exception handling
2.5.3 : State Security: Regeneration and Time Management

3 File Management and Namespace [15 %]
   3.1.   Overview of File management
   3.2.   Directory and files operations
   3.3.   File upload: Needs, application, single and multiple file upload, validation
   3.4.   Namespace : Introduction, Creation, Importing and Aliasing

4 Structured Data Management [20 %]
   4.1.   Data type: Structured, unstructured, semi-structured
   4.2.   Database connectivity: Needs and Pooling
   4.3.   Encrypted storage and retrieval
   4.4.   Report Generation: Needs, representation structure, dashboard and basic data analysis

5 Asynchronous Web Application Development [15 %]
   5.1.   Data Transmission : Needs, Advantages, Disadvantages and Applications
   5.2.   Asynchronous request and response object management
   5.3.   Global and local events handling
   5.4.   Asynchronous data retrieval and processing

6 Remote Services [15 %]
   6.1.   Introduction and Uses
   6.2.   Remote services types : Simple Object Access Protocol and Representational State Transfer
   6.3.   Data parsing : Needs, working and types
   6.4.   Creating remote services and usage

Course Units and Course Outcomes Mapping:

Unit No.	Unit	Course Outcomes				
		CO1	CO2	CO3	CO4	CO5
1	Basics of Web Programming	✓				
2	Data Transfer and State Management	✓	✓			
3	File Management and Namespace		✓	✓		
4	Structured Data Management		✓	✓		
5	Asynchronous Web Application Development		✓		✓	
6	Working with Remote Services		✓	✓	✓	✓

Computing Environment:

CE#1 PHP 5 or above Open Source Web Technology to do practical work associate with all units.

CE#2 MySQL Relational DBMS for data management in unit no 4 and 6.

Text Book:

1.   Steven Holzner, The Complete Reference PHP, Mc Graw Hill

Material References :

1.   Steve Suehring, Tim Converse and Joyce Park, PHP6 and MySQL, Wiley India Pvt. Ltd.
2.   PHP and MySQL, Hugh E. Williams, O'Reilly
3.   PHP Documentation from http://php.net/manual/en/
4.   http://api.jquery.com/Ajax_Events/
5.   https://learn.jquery.com/ajax/jquery-ajax-methods/

Course Curriculum Execution Guidelines

Semester Objectives:
Content Delivery: *The course content shall be delivered by following pattern, wherein teacher must give approximately 75% hours exclusively for imparting conceptual knowledge. Rest 25% hours for demonstration/hands-on regarding supported tool and technology.*

Activity Type	Activity	Objective	During
Bridge	-	-	-
Extension	*Organizing expert session*	*Awareness for recent trends and technologies for web application development.*	6th week of semester

Activities/Practicum By Teacher: **The following activities shall be carried out by the teacher:**

Programme Outcome	Course Outcome	Mode of Transaction	Activity List and Description	Unit	Week	Semester Objective
PO1, PO2, PO4, PO5	CO1 ,CO2, CO3	Demonstration	MVC structure based Web Application Development using a framework.	1,2 ,3	8	Enhance Technical Writing Skill

Activities/Practicum By Student: **The following activities shall be carried out by the students:**

Programme Outcome	Course Outcome	Activity List and Description	Unit	Week	Semester Objective
PO1, PO2, PO4, PO5	CO1 ,CO2, CO3	Template integration	2,3	8	Promote Class Participation

Laboratory Guidelines:

❖ A course teacher shall prepare a fresh practical list for each academic year with no repeated problems from previous two consecutive years.
❖ The practical problem list shall consists of "Required number of problems" for journal certification as well as "Practice problems" of varying nature from each unit as per its weightage and criticality.
❖ Laboratory supervisor or course teacher shall sign in the journal only if he/ she is satisfied by the work of student.
❖ Journal shall be verified by the laboratory teacher as well as by the course teacher at-least thrice in a semester at an interval of 10 laboratory sessions or an appropriate interval upon the discretion of the course teacher.
❖ Journal must not be certified if required number of problems are not included and not written clearly or copied.
❖ After approved by Course Co-ordinator, the List of problem definition shall be kept by concern teacher on web site before the commencement of the semester.
❖ Problem list shall contain practical problems from each of the units are as follow:

Unit No.	No. of problems for journal certification	Covering Unit / Sub-Unit
1	2	1.3 to 1.6
2	2	2.2 to 2.5
3	2	3.1 to 3.4
4	3	4.2 to 4.4
5	2	5.2, to 5.4
6	2	6.2 to 6.4
Total	**13**	

Project Guidelines [for courses with project as practical credits]: *N/A*

Concept linkage: *A course must establish concept linkage as mentioned in the table through content delivery mode, active learning activities or through assessments.*

Unit/Sub-Unit	Prior concept linkage	Contemporary Linkage	Post concept linkage
1	030010114 : Unit 2, 3 030010214: Unit 2, 3 030010314: Unit 1		030010512: Unit 2
2.3		030010413: Unit 3	030010512: Unit 5
3	030010214: Unit 6		
4		030010413: Unit 5	030010512: Unit 4
5			030010514: Unit 6

➢ *The concepts mentioned in **Prior Concept Linkage** shall be taken as base and revised in context of the respective unit/sub-unit by the course teacher.*
➢ *The concepts mentioned in **Contemporary Linkage** shall be correlated by the course teacher during the discussion of the respective unit/sub-units with those in current semesters.*
➢ *The concepts mentioned in **Post Concept Linkage** shall be correlated by the course teacher during the discussion of the respective unit/sub-units.*

Assessment Pattern

Bloom's Category	% weightage in CIE		
	Quiz	Unit Test	Internal
Remembering	30	34	34
Understanding	50	33	33
Analysis	20	33	33
Subject to change based on the nature of course and as prescribed by Examination Committee of the institute after due approval from Director.			

Course Level Assessment Questions

Course Outcomes	Questions satisfying achievement of specific CO	Bloom's Taxonomy
CO1, CO2, CO3, CO4, CO5	Q1: Questions can MCQ, Matching, True/False, type short of Shallow and Intermediate types. Q2: Questions can be of form queries, missing code, code shuffling, Snippet. Q3: Questions may be in the form of detailed answer.	Remembering/Understanding/Analysis

Q(U): Write missing statements in given below code to achieve given output.

```php
<?php
        $product=array("Laptop"=>10,"Mobile"=>5,"Camera"=>8,"Tablet"=>22);
        foreach (_____)
        {
        _____;
        }
?>
```

Output:
        Value:10 and Key:Laptop
        Value:5 and Key:Mobile
        Value:8 and Key:Camera
        Value:22 and Key:Tablet

Q(U) :The session is already start on a server namely "mySession". Write a snippet to change session name "mySession" to "newSession".

Q(U) :Consider the below HTML code and write a PHP snippet to check whether the inputted date is a valid date ? If it is not then display appropriate message to user.

```html
<form method="post">
   <input type="text" name="txtdob" />
   <input type="submit" name="btnSub"/>
</form>
```

Q(U): Consider below two arrays namely ItemListAry and ItemSoldAry. ItemListAry contains items which are available in stock. Write snippet to check whether "Cake" is available in Item list or not. If it is available, then remove it from ItemListAry array and add it into the ItemSoldAry array.

```php
<?php   $ItemListAry=array("Wafer"," Biscuit","Cake", "Chocolate");
        $ItemSoldAry=array();   ?>
```

Q(U):Analyze the following code, correct it if any errors and write its output.

```php
<?php
    <form method="get" >
            <input type="file" name="userFile[]" multiple/>
            <input type="submit" name="btnsub"/>
    </form>
    If(iiset($_POST["btnsub"]))
        {
                If(iiset($_FILES["file"]))
                {
                        print_r($_FILES["file"]);
                }
        }   ?>
```

Q(R): Explain variable function and conditional function with the help of suitable example.

Q(A): Consider the Online Examination System in which candidate has to Register in the system before he/she going for appearing the exam. When candidate doing Registration he/she has to upload their profile picture in either in .jpg or in .png format and its size must be between 12KB to 15 KB otherwise system not allow user to upload profile picture and display appropriate error message. Consider the given scenario and write PHP script to uploading profile picture in d:/Files/ProfilePhoto directory.

Q(A):A company ITWorld software Pvt. Ltd provides various software products to its clients. Company assigned multiple employees on a single project, for that organization maintains a file "ProjectWorkInfo.txt". This file contains project information like Project id, Project title, Project type (Mobile Application/Web Application) and Employee name. Assume that 10 records already stored in file "ProjectWorkInfo.txt "and each record field is separated by tab. Consider the given scenario and write PHP script that allow user to select project type and based on it display project information from the "ProjectWorkInfo.txt" in proper format.

Q(R) Explain steps for parsing the PHP code with the help of diagram.

Q(R) How the information of multiple uploaded file will be manage by server in case of multiple file uploding? Explain in detail.