

Course: 504: Web Framework and Services

Course Code	504
Course Title	Web Framework and Services
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including class work, examination, preparation etc.)
Review / Revision	2021-2022
Implementation	A.Y. 2022-2023
Purpose of Course	To make students aware of Open Source Web Based Tools and Database
Course Objective	1. To make students understand the concepts of Open Source Web Based Dynamic Scripting Language. 2. To make students understand the concepts of Open Source Database.
Pre-requisite	Basic knowledge of Scripting Language & HTML and Python.
Course outcome	Ability to develop Web Based Applications.
Course Content	<p>Unit-1: PHP fundamentals</p> <p>1.1 Concepts of Php and introduction 1.2 Php syntax: variables, constants, echo and print commands 1.3 Data types 1.4 Operators, Conditional Statements (if. Else, Switch. Case), Arrays 1.5 Sorting Arrays, Php Loops</p> <p>Unit-2: PHP functions</p> <p>2.1 Math functions, Date and Time functions, GET and POST methods 2.2 Files: include, file parsing, directories, file upload, file download 2.3 Cookies and Sessions, Send Email 2.4 Forms: creating, handling, validation of forms, Php filters, Json parsing 2.5 Classes and objects in Php 2.6 Regular expressions and exception handling</p> <p>Unit-3: PHP interaction with Database [MySQL / MongoDB or any other database can be used]</p> <p>3.1 Create database, Create table, Table handling: insert, update, delete operations. 3.2 Querying database using Php: select, update, delete, insert, where, order by 3.3 Processing search query in backend using Ajax</p> <p>Unit-4: PHP – Python integration</p> <p>4.1 Executing python script using PHP: 4.1.1 Calling Python script using echo 4.1.2 Calling Python script using escapeshellcmd() , shell_exec() method 4.2 Executing PHP script using Python: 4.2.1 subprocess module in Python: 4.2.1.1 Methods: check-call(), check-output(), decode(), Popen() , communicate(), split() 4.2.2 os module in Python: 4.2.2.1 write(), read(), close(), mkdir(), makedirs(), path, exists(), isfile(), join() 4.2.2.2 isdir(), listdir(), walk(), chdir()</p>

	Unit-5: Python Web Framework: Flask 5.1 Installation of Flask and Environment setup 5.1.1 Web server Gateway Interface 5.1.2 Web template engine (Jinja2) 5.1.2 creating the Flask class object 5.1.3 creating and hosting first basic Flask app. 5.1.3.1 route() , run(), add_url_rule() 5.2 URL building and its advantages 5.2.1 url_for() function 5.3 Flask HTTP methods: 5.3.1 GET, POST, HEAD, PUT, DELETE 5.3.2 Dynamic data representation using Jinja2. 5.3.2.1 Jinja2 Delimiters 5.3.2.2 Embedding Python statement in HTML 5.3.2.3 Static File reference in HTML 5.4 Flask request object: (Form, args, files, redirect) 5.4.1 Form request object, render_template() method, Form data Handling 5.4.2 Flask Session, Creating session, session variable, session.pop() 5.4.3 file uploading: request.files[] object, save() method, saving file to specific folder. 5.4.4 Redirecting : redirect() method, location, status code and response. [All Units carry Equal Weightage]
Reference Books	1. Core PHP Programming – Leon Atkinson – Pearson Publishers – ISBN 978- : 0130463463 2. The Complete Reference PHP – Stever Holzner – McGraw Hill – ISBN 978- : 0070223622 3. PHP 5.0 and MySql Bible – Tim Converse, Joyce Park, Clark Morgan John – Wiley & Sons – ISBN 978-0764557460 : 4. MySQL Bible – Steve Suehring John – Wiley & Sons – ISBN 978- : 0764549328 5. PHP Black Book – Peter Moulding – Paraglyph, Incorporated – ISBN 978- : 1932111095 6. PHP and MongoDB Web Development Beginner's Guide – Rubayeet Islam – Packt Publishing Limited – ISBN : 978-1849513623 7. Beginning Ajax with PHP: From Novice to Professional - Lee Babin – Apress – ISBN 978-1590596678 : 8. Developing Web Applications in PHP and AJAX – B. M Harwani – McGraw Hill Education – ISBN 978-0070144521 : 9. JSON: Main principals – David V. 10. Python 101 – Michael Driscoll – ISBN : 9780996062817 11. Flask: Building Python Web Services – Gareth Dwyer, Shalabh Aggarwal, Jack Stouffer – Packt Publishing – ISBN : 9781787288225 12. Building Web Apps with Python and Flask – Malhar Lathkar – BPB PUBN – ISBN : 9789389898835
Teaching Methodology	Class Work, Discussion, Self-Study, Seminars and/or Assignments
Evaluation Method	30% Internal assessment. 70% External assessment.