Syllabi and Scheme of Examinations
for
Skill Enhancement Courses for Under Graduate Programs
(Single Major / Multidisciplinary Programs)

(Based on Curriculum and Credit Framework for UG Programs under NEP)

With Effect from the Session 2024-25

MAHARSHI DAYANAND UNIVERSITY
ROHTAK (HARYANA)

Syllabi and Scheme of Examinations for Skill Enhancement Courses for Under Graduate (Single Major/Multidisciplinary/ Single Major after 2nd Semester of Multidisciplinary Programs) of Computer Science w.e.f. 2024-25

Skill Enhancement Course (SEC)	Nomenclature of Course	Course Code	Credits Distribution			Total Credits	Workload			Total Workload	Marks				Total Marks
			L	T	P		L	T	P		Theory		Practical		
											External	Internal	External	Internal	
SEMESTER 1 (2024-25)															
SEC 1 @ 3 credits	Web Development-I	24CSC401SE01	1	0	2	3	**1**	**0**	**4**	**5**	20	05	35	15	75
SEMESTER II (2024-25)															
SEC 2 @ 3 credits	Web Development-II	24CSC402SE01	2	0	1	3	**2**	**0**	**2**	**4**	35	15	20	05	75
SEMESTER 1II (2024-25)															
SEC 3 @ 3 credits	Java Programming	25CSC403SE01	2	0	1	3	2	0	2	4	35	15	20	05	75
SEMESTER VI (2024-25)															
SEC 4 @ 2 credits (offered only in case of Single Major Program)	Machine Learning and Python Programming	26CSC406SE01	0	0	2	2	0	0	4	4	0	0	35	15	50
SEMESTER VI1 (2024-25)															
SEC 5 @ 4 credits (if offered as an option)	MERN Stack Development	27CSC407SE01	2	0	2	4	2	0	4	6	35	15	35	15	100
SEMESTER VII1 (2024-25)															
SEC 6 @ 4 credits (if offered as an option)	Advanced Machine Learning and Generative AI (Option-1)	24CSC408SE0	2	0	2	4	2	0	4	6	35	15	35	15	100
	OR														
	Social Media Analytics	27CSC408SE01	3	0	1	4	3	0	2	5	50	25	20	05	100

L: Lecture; T: Tutorial; P: Practical

Syllabi for Skill Enhancement Courses for Under Graduate Programs (Single Major / Multidisciplinary Programs) of Computer Science

Semester: I
Session: 2024-25

Name of the Program		**Program Code**	**-----**
Name of the Course	**Web Development-I**	**Course Code**	**24CSC401SE01**
Hours/Week	**1+0+4**	**Credits (L:T:P)**	**1:0:2**
Max. Marks	**Theory: 25 (20+5)** **Practical: 50 (35+20)**	**Time of end term Examination**	**3 Hours**

Note: The examiner has to set nine questions in all by setting two questions from each Unit and Question No. 1 consisting of short-answer type questions covering the entire syllabus. Student will be required to attempt five questions in all by selecting one question from each Unit and Question No. 1, which is compulsory.

Course Objectives:

In this course, students will learn fundamental aspects of web server, browser and web development. The course will also provide foundational programming skills related to web development. Basic programming skills including HTML, CSS and Java Script language useful for designing the websites will also be covered. By the end of the course, students will gain practical skills and knowledge applicable to real-world scenarios, equipping them to tackle a variety of programming challenges related to website development.

Course Outcomes:

By the end of the course the students will be able to:
CO1: Gain knowledge about various aspects related to web development
CO2: Understand server side and client side scripting
CO3: Develop proficiency in writing codes for web development using HTML and DHTML.
CO4: Demonstrate an understanding of various interactive tools useful in developing interactive sites
CO5: Learn different style layouts to be applied during web sites development.

Unit – I

Introduction to Internet: Overview of Internet, World Wide Web, Evolution and History of WWW; Basic Features; Evolution of Web development.

Web Browsers: Web Servers; Hypertext Transfer Protocol; URLs; IP Addresses; Domain Names; Searching and Web- Casting Techniques; Search Engines and Search Tools; Internet Security; The Web Programmers; Toolbox.

Web Technologies: Introduction Web Technologies; Introduction to HTML, CSS, and JavaScript; Client-Side vs. Server- Side Scripting.

Unit– II

Web Publishing: Hosting your Site; Internet Service Provider; Planning and designing your Web Site; Steps for developing your Site; Choosing the contents; Home Page; Domain Names; Creating a Website and the Markup Languages (HTML, DHTML).

Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts; Lists, Tables; meta element; New HTML5 Form input Types; input and data list elements; auto complete Attribute; Page-Structure Elements; Introduction to DHTML and its features.

Unit–III

Brief Introduction to Interactivity tools: CGI; Features of Java; Java Script; Features of ASP; VBScript; Macromedia Flash; Macromedia Dreamweaver;

JavaScript: The JavaScript execution environment; The Document Object Model ; Element access in JavaScript; Events and event handling ; Handling events from the Body elements, Button elements, Text box, and Password elements ; The DOM 2 event model ; The navigator object ; DOM tree traversal and modification;

Unit– IV

Introduction to CSS: Introduction to CSS, Block and Inline Elements, Inline Styles, using internal CSS, using external CSS, How CSS rules cascade, inheritance, why use external style sheets?.

CSS3 Basics: CSS selectors, color: foreground color, background color, contrast, opacity; text: Typeface terminology, Specifying Typefaces, fonts; list tables and forms: list-style, table properties, styling forms, styling text input.

Layout and positioning: layout: key concepts in positioning elements, controlling the position of elements: relative positioning, absolute positioning, fixed positioning, z-index, float, clear, creating multi column layout with float, fixed width layout, liquid layout, layout grids, Images: controlling size of images in CSS, aligning images using CSS, centering images using CSS, background images, gradients, Media Queries.

Suggested Readings:

1. Thomas A. Powell: Web Design: The Complete Reference, 4/e, Tata McGraw-Hill
2. Wendy Willard: HTML Beginners Guide, Tata McGraw-Hill.
3. Web Design: The Complete Reference , 4/e, Thomas A. Powell, Tata McGraw-Hill
4. Deitel and Goldberg: Internet and World Wide Web, How to Program, PHI.
5. Any other book covering the contents of the subject.

Note: Latest and additional good books may be suggested and added from time to time.

Practical-I (List of Programs/Lab Assignments)

1. WAP that explains the HTML **style Attributes** to specify the style properties for the HTML element.
2. WAP that illustrates the **HTML heading tags.**
3. WAP that illustrate the use of <p> and <hr> HTML tags
4. WAP that illustrate the use of different text formatting HTML tags
5. WAP that illustrate the use of RGB color values to style our html elements.
6. WAP that Creating a simple table in HTML using a table tag
7. WAP that demonstrates an ordered list (<ol>) with five programming languages listed sequentially, each item numbered automatically by the browser.
8. WAP for Implementation of Unordered List horizontally.
9. WAP that illustrate the use of CSS color, font family and font size properties.
10. WAP that illustrate the use CSS Table properties.
11. WAP to create a 3D Groove border using CSS.
12. WAP to dynamically change color by percentage CSS.
13. WAP to set the order of the flexible items using CSS.
14. WAP to create reflection effect using HTML and CSS.
15. WAP to create Image Folding Effect using HTML and CSS.
16. WAP to design a Parallax Webpage using HTML & CSS.
17. WAP to create RGB color generator using HTML CSS and JavaScript.
18. WAP to use Google material icon as list-style in a webpage using HTML and CSS.
19. WAP to design a calendar using HTML and CSS?
20. WAP to design Background color changer using HTML CSS and JavaScript.
21. WAP to create Image Stack Illusion using HTML and CSS.
22. WAP to create Hover animations on Button.
23. Create a web page that contains the image of a human. Form an image map such that the user clicks on any part of the body, a web page showing information on that part of the body is displayed.
24. Create a registration form for your institution which will ask first name, last name, age, sex, date of

birth, class, address, contact number, email id from the candidate. When you submit the form it should display the confirmation message that "You details are saved" (use JavaScript for displaying the confirmation message).

25. Create an HTML page with a paragraph. Apply a style directly using inline styles to change the color and font size. Then use internal CSS to change the background color of the paragraph.
26. Create a nested HTML structure (e.g., a containing a <p> and an <a>). Apply CSS styles to the parent and observe how styles are inherited by child elements. Modify styles on child elements to see how inheritance works.
27. Create a webpage that includes an iframe displaying another webpage. Ensure the iframe has a set width and height, and add a border around it.
28. Create an HTML page and use different types of CSS selectors (universal, type, class, ID, attribute, descendant, child, sibling). Apply styles using these selectors and Design an HTML table and use CSS to style it. Apply borders, padding, background colors, and hover effects
29. Create an HTML page with a background image and a foreground text. Use CSS to set the opacity of the background image .
30. Design an HTML page with overlapping elements. Use CSS to apply different z-index values to control the stacking order of the elements.
31. Create a HTML form that has number of Textboxes. When the form runs in the Browser fill the textboxes with data. Write JavaScript code that verifies that all textboxes has been filled. If a textboxes has been left empty, popup an alert indicating which textbox has been left empty
32. Create an HTML page and use CSS media queries to apply different styles for different screen sizes (e.g., mobile, tablet, desktop).
33. Create a form having number of elements (Textboxes, Radio buttons, Checkboxes,and so on). Write JavaScript code to count the number of elements in a form
34. Write a JavaScript program that creates an array of 5 numbers. Use array methods to add a number to the end, remove a number from the beginning, and find the index of a particular number.
35. Write a JavaScript function that changes the background color of a div element when a button is clicked. Provide multiple buttons to change to different colors.

Any other Programs/Lab Assignments given by the teachers.

Semester: II
Session: 2024-25

Name of the Program	**-----**	**Program Code**	**-----**
Name of the Course	**Web Development-II**	**Course Code**	**24CSC402SE01**
Hours/Week	**1+0+4**	**Credits (L:T:P)**	**1:0:2**
Max. Marks	**Theory: 25 (20+5)** **Practical: 50 (35+20)**	**Time of end term examination**	**3 Hours**

Note: The examiner has to set nine questions in all by setting two questions from each Unit and Question No. 1 consisting of short-answer type questions covering the entire syllabus. Student will be required to attempt five questions in all by selecting one question from each Unit and Question No. 1, which is compulsory.

Course Objective:

The objective of this course is to acquire knowledge and Skills for creation of Web Sites. Also to acquire the knowledge regarding creation of Web applications using tools and techniques used in industry and how to design a basic web site using HTML & CSS to demonstrate responsive web design.

Course Outcomes:
By the end of the course the students will be able to:

CO1: Understand the fundamental concepts of XML and its structure
CO2: Work with XML schema and Web casting techniques for Web development.
CO3. Learn the concept of Website planning.
CO4: Get acquaintance with different web technologies like AJAX, JSON.,Node.js, MongoDB etc..
CO5: Learn fundamentals and essentials of PHP programming.

Unit–I

XML: Introduction, Syntax, Document structure, Document Type definitions, Namespaces,

XML Schemas: Displaying raw XML documents, Displaying XML documents with CSS, XSLT style sheets, XML Processors, Web services.

ECMA Script: ECMA Script versions, ES5 Features, ES6 introduction, Var Declarations and Hoisting, let declaration, Constant declaration, function with default parameter values, default parameter expressions, unnamed parameters, the spread operator, arrow functions, object destructuring, array destructuring, sets and maps, Array. find(), Array, findIndex(), template strings, Javascript classes, callbacks, promises, async/await.

Unit–II

A**JAX:** Introduction, Need for AJAX, Working of AJAX, Handling Ajax request and response, data formats: XML, JSON, Working with JSON data, Loading HTML with Ajax, Loading XML with Ajax, Loading JSON with Ajax.

JQuery: Introduction, A basic JQuery example, Need of JQuery, finding elements, JQuery selection, getting element content, updating elements, changing content, inserting elements, adding new content, getting and setting attributes, getting and setting CSS properties, using each(), events, event object, effects, animating CSS properties, using animation, traversing the DOM, working with forms, JavaScript libraries, JQuery and Ajax.

Unit–III

Web Servers: Introduction, HTTP Transactions, Multitier Application Architecture, Client Side Scripting versus Server-Side Scripting, Accessing Web Servers.

Server Side Scripting with Node.js: Getting to know node, node.js changed JavaScript forever, features of node, when to use and not use node, asynchronous callbacks, the NoSql movement, node and MongoDB in the wild, Hello World in Node, package.json, modules, Built-in Modules: FS Module, HTTP Module, Events; Node Package Manager (npm), web server using http, node.js with express, middleware, routing in express, CRUD operations in express, web server using express, making it live on Heroku

Node.js with MongoDB: Basics of MongoDB, MongoDB CRUD Operations, Building a data model with

MongoDB and Mongoose, Defining simple mongoose schemas, build node express app with MongoDB.

Unit–IV

Introduction to PHP: Basic Knowledge of websites ; Introduction of Dynamic Website ; Introduction to PHP ; Why and Scope of PHP ; XAMPP and WAMP Installation PHP Functions ; PHP Functions

Creating an Array ; Modifying Array Elements ; Processing Arrays with Loops ; Grouping Form Selections with Arrays ; Using Array Functions ; Using Predefined PHP Functions ; Creating User- Defined Functions PHP Programming Basics ; Syntax of PHP ; Embedding PHP in HTML ; Embedding HTML in PHP ; Introduction to PHP Variable ; Understanding Data Types ; Using Operators ; Using Conditional Statements ; If(), else if() and else if condition Statement ; Switch() Statements ; Using the while() Loop ; Using the for() Loop.

Suggested Readings:

1. Bing Liu, Web Data Mining: Exploring Hyperlinks, Contents, and Usage Data, Second Edition, Springer.
2. Ramesh Sharda, Dursun Delen, Efraim Turban, Business Intelligence and Analytics: Systems for Decision Support, Pearson Education.
3. Reza Zafarani, Mohammad Ali Abbasi, and Huan Liu, Social Media Mining: An Introduction, Cambridge University Press.
4. Bing Liu, Sentiment Analysis and Opinion Mining, Morgan & Claypool Publishers.
5. Nitin Indurkhya, Fred J. Damerau, Handbook of Natural Language Processing, Second Edition, CRC Press.
6. Matthew A. Russell, Mining the Social Web, Second Edition, O'Reilly Media.
7. Thomas A. Powell, Web Design: The Complete Reference, Fourth Edition, Tata McGraw-Hill.
8. Deitel and Goldberg, Internet and World Wide Web: How to Program, PHI.
9. Any other book covering the contents of the subject.

Note: Latest and additional good books may be suggested and added from time to time.

List of Experiments/Programs/Lab Assignments

1. Create an XML document to store information about a collection of books, including elements for title, author, publication year, and genre. Write a simple HTML page that uses JavaScript to load and display the XML data.
2. Create an XML file and an XSLT stylesheet to transform the XML data into an HTML table. Use the transformNode or XSLTProcessor methods to apply the transformation and display the result in a web page.
3. Write an HTML page with a script that loads an XML file containing a list of employees. Parse the XML data with JavaScript and display the employee names and departments in a list on the web page.
4. Develop a form that allows users to submit their contact information (name, email, message). Use AJAX to send the form data to a server-side script (e.g., a PHP script) that echoes the received data. Display the server's response on the web page.
5. Write an Ajax script to get player details from xml file when user select player name in any game. Also create xml file to store details of player(name, country, wickets and runs)
6. Write an AJAX request to a URL that does not exist. Implement error handling to display a user-friendly message when the request fails.
7. Write a jQuery code to select values from a JSONobject. Also Write a JQuery code to remove all CSS classes from an Applications.
8. Create a PHP script that defines variables of different data types (string, integer, float, boolean, array). Output the values and types of these variables using echo and var_dump.
9. Develop an HTML form to upload a file. Write a PHP script to handle the file upload, save the file on the server, and display a message indicating the file upload status.
10. Create a MySQL database and table to store user information (name, email). Write a PHP script to connect to the database and insert a new user record. Display a success message upon successful insertion.
11. Create a web page for Travel agency using PHP.

Any other Programs/Lab Assignments given by the teachers.

Semester: IV
Session: 2025-26

Name of the Program		**Program Code**	**-----**
Name of the Course	**Machine Learning and Python Programming**	**Course Code**	**26CSC406SE01**
Hours/Week	**0+0+4**	**Credits (L:T:P)**	**0:0:2**
Max. Marks	**Practical: 50 (35+15)**	**Time of end term examination**	**3 Hours**

Note: The examiner has to set nine questions in all by setting two questions from each Unit and Question No. 1 consisting of short-answer type questions covering the entire syllabus. Student will be required to attempt five questions in all by selecting one question from each Unit and Question No. 1, which is compulsory.

Course Objectives:

The course is designed to impart knowledge of one of the latest and most powerful programming languages – Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language.

Course Outcomes:

By the end of the course the students will be able to:
CO1: Develop problem-solving skills and critical thinking in Python using basic programming constructs including variables, operators and data types.
CO2: Will be able to learn the automating repetitive tasks using loop and conditional controlled statements.
CO3: Understand the complex data types including lists, tuples, dictionaries and Function packages.
CO4: Identify and use libraries for algorithmic thinking to implement various data structures. CO5: Will be able to implement important context of database programming.

Unit–I

Introduction to Python: History and Features of Python Programming, Basics of Python: Keywords, Variables, Operators, I/O Statements, Indentation, and Comments. Python Basic Data Types, Data Types Declaration, and Implementation.

Unit–II

Flow Control Statement: if statement, if-else statement, nested-if statement, if-elif-else ladder, While loop, range() Function, For Loop, Nested Loops, Infinite Loop, Break Statement, Continue Statement, Pass Statement.

Unit–III

Python Complex data types: String Data Type, String Manipulation Methods and implementation using Python Programming, List and Dictionary Data Type, Declaration, and Implementation using Various built-in Functions and Libraries.

Unit–IV

Python File Operations: Reading Files, Writing Files in Python, Understanding Read Functions: read(), readline(), readlines(), Understanding Write Functions: write() and writelines() Manipulating file pointer using seek Programming, using file operations.

Database Programming: Connecting to a Database, Creating Tables, INSERT, UPDATE, DELETE and READ operations, Transaction Control, Disconnecting from a database, and Exception Handling in Databases.

Suggested Readings:

1. Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2nd Edition, Green Tea Press.
2. Al Sweigart, Automate the Boring Stuff with Python.
3. Charles Dierbach, Introduction to Computer Science Using Python, 1st Edition, Wiley India Pvt. Ltd.
4. Wesley J. Chun, Core Python Applications Programming, 3rd Edition, Pearson Education India.
5. Roberto Tamassia, Michael H. Goldwasser, and Michael T. Goodrich, Data Structures and Algorithms in Python, 1st Edition, Wiley India Pvt. Ltd.
6. Reema Thareja, Python Programming Using Problem Solving Approach, Oxford University Press.
7. Charles R. Severance, Python for Everybody: Exploring Data Using Python 3, 1st Edition, Shroff Publishers.
8. Any other book covering the contents of the subject.

Note: Latest and additional good books may be suggested and added from time to time.