

Graphics and Web Designing

Total Time: 120 hours
Lecture: 30 hours
Practical: 90 hours

Course Description:

This course introduces students to basic of web and graphics design using HTML, CSS, JavaScript and Photoshop. Throughout the course students are introduced to planning and designing effective web and graphics layouts. By the end of this course, students will be able to create quality web pages and websites using a combination of HTML, CSS and JavaScript, and create original graphics design using different tools and features of Photoshop.

Course Objectives:

At the end of the course, student will be able to:

1. Recognize HTML web page elements
2. Plan, design and publish a multi-page website using HTML, CSS, and JavaScript
3. Explain the basic features and tools of Photoshop
4. Create original graphic design using image editing and manipulating techniques

Course Contents:

Theory	30 hrs
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Unit 1: Web	3 hrs
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- 1.1 Introduction
- 1.2 Internet
- 1.3 History of Internet
- 1.4 World Wide Web
- 1.5 Webpage, Structure and Components of Webpage, Web pages vs. Websites
- 1.6 Static vs. Dynamic pages

Unit 2: HTML	5 hrs
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- 2.1 Introduction, Editors, Basics, Elements, Attributes, Headings, Paragraph, Styles, Formatting, Quotations, Comments, Colors, Anchor, Images, Tables, Lists, **Blocks**, iframes, Computer code, sub and sup, Symbols, Charset, Entities
- 2.2 Forms, Form Elements, **Form Validations**, Input Types, Input Attributes,
- 2.3 HTML 5, Browser Support, New Elements, **Semantics**, Migration from HTML 4 to HTML 5, **Coding Conventions**
- 2.4 **HTML Canvas, HTML SVG**

2.5 HTML Multimedia, HTML Video, HTML Audio, HTML Plug-ins, HTML YouTube

Unit 3: CSS

5 hrs

- 3.1 Introduction, Syntax, Terminology, and naming conventions, CSS file linking and types, Class, ID, and element selectors, Pseudo selectors, Selectors best practices, CSS comments, Inheritance in CSS
- 3.2 Colors, Backgrounds, Fonts, Line-height, Text properties, Align, Opacity
- 3.3 Border, Margin, Padding, Height/Width, Box Model, Outline, Icons, Links, Lists, Tables, Display, Max-width, Position, Overflow, Float, Inline-block
- 3.4 Responsive design, Mobile friendly and mobile first, Flexible and fluid layouts, Media queries, Testing responsive design, Introduction to CSS Frameworks (Bootstrap, Foundation)

Unit 4: JavaScript

5 hrs

- 4.1 Introduction, History of JavaScript, Tools for JavaScript Development, Web Console, JavaScript to HTML
- 4.2 Variables, Data types, Arithmetic operators and math, Strings and Numbers, Conditional statement and logic, Arrays, Proper and methods in Arrays, Loops, Looping through Arrays, Break and continue loops
- 4.3 Functions, Arguments and return values, Variable scope, lets and const, Objects, Object constructors
- 4.4 DOM: The document object model, Target elements in the DOM with query Selector methods, Access and change elements, classes, attributes, Add DOM elements, Add inline CSS to an element
- 4.5 Events, Type of DOM events, Trigger function with event handlers, Add and use event listeners, Pass arguments via event listeners,
- 4.6 Terms introduction: jQuery, ajax

Unit 5: Fundamentals of Graphic Design

4 hrs

- 5.1 Introduction, Visual elements, Key Principles, Types of Graphic Design
- 5.2 Visual elements of graphic design: Line, Color, Shape, Texture, Space, Forms, and Typography
- 5.3 Principle of graphic design: Contrast, Hierarchy, Alignment, Balance, Proximity, Repetition, Simplicity and Function
- 5.4 Psychological skills to be a graphic designer, Graphic design jobs
- 5.5 Images, Types of Images: Vector and Raster Graphics, Image file formats
- 5.6 Color palette, wheel

Unit 6: Photoshop

8 hrs

- 6.1 Introduction, History, Opening documents in Photoshop, A tour of interface, Working with multiple document, Panning and zooming, Screen modes, Arranging panels, Switching and saving workspace, Customizing the toolbar, Modifying keyword shortcut for speed
- 6.2 File formats, Color modes and bit depth, Understanding and changing document size, Image size, Dimension, and Resolution, Multiple undo and history panel, Saving documents
- 6.3 Layers basics, Loading, selecting, transforming, and aligning, Working with layer group, Merging and flattening layers
- 6.4 Using text tools
- 6.5 Crop tool, Straightening a crooked image, Cropping to the perfect size, Increasing canvas size, Auto-fill with Content Aware Crop
- 6.6 Color basics, Brush options: Healing, Spot healing, Patch, Clone Stamp
- 6.7 Layer mask essentials, Using gradient to blend images, Using blending options
- 6.8 Using Marquee and Lasso tools, Combining selections, Quick select and layer mask touchups, Selecting soft edge objects using Select and Mask, Using selection and mask to refine a hard edge selection, Making selection based on color and focus, Paths and Pen tool, Smart objects
- 6.9 Scaling, Skewing and rotating layer with free transform, Correcting perspective
- 6.10 Adjustment layer introduction, Histogram, Dynamic range and levels, Local color and contrast with curves, Changing vibrance, hue and saturation, Custom black and white conversion, Limiting adjustments with clipping masks
- 6.11 Filters overview, Smart filters, Sharpening images, Camera Raw as filter, Filter to multiple layers
- 6.12 Printing basics, Optimizing images for the web, Using save for web and devices, Creative image slices

PRACTICAL

Unit 1. Introduction to Web

- 1.1 Use Internet
- 1.2 Create Webpage

90 hrs

3 hrs

Unit 2. HTML

20 hrs

- 2.1 Prints your name to the screen in green color with Tahoma font
- 2.2 Print a paragraph that is description of a book, include the title of the book as well its author. Title and author should be underlined, adjectives and nouns should be italicized and bolded
- 2.3 Print your name to the screen with every letter being a different heading size
- 2.4 Print 5 names with a line break between each name. The list should be alphabetized, and to this place subscripted number next to each name based on where it will go in the alphabetized list. (Example: Alan 1)
- 2.5 Create a page with a link at the top of it that when clicked will jump all the way to the bottom of the page. At the bottom of the page there should be a link to jump back to the top of the page.
- 2.6 Display an image that has a border of size 2, a width of 200, and a height of 200.
- 2.7 Create a sing-up page form with two input textas user name and password (password should be of type password), one select as country, one radio button as gender and a submit button.
- 2.8 Create a contact us page with one text input as name, one input with type email, one text input as subject, one text area as message and a send message button
- 2.9 Create a table having cell borders to create following output:

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

- 2.10 Create a table having cell borders to create following output:

av Bar

link 1
link 2
link 3
link 4
link 5

Favorite and Least Favorite Things			
		Bob	Alice
Favorite	Color	Blue	Purple
	Flavor	Banana	Chocolate
Least Favorite	Color	Yellow	Pink
	Flavor	Mint	Walnut

s the footer, where you'd have your "Thanks, Cruzio" statement, links to the validators and your "Last updated" statement.

- 2.11 Create a table having cell borders to create following output:
- 2.12 Write a HTML5 code to create a hypertext reference that links to a page at the location "<https://www.google.com>". The text of the links should be "Google.com"
- 2.13 Create a HTML5 blog post page that includes: <header>, <nav>, <section>, <article>, <embed>, <audio>, <video> and <footer> tag

Jnit 3. CSS

20 hrs

- 3.1 Write a simple HTML5 page with the title "Simple CSS example". The body of the page should contain a single paragraph with the text "Hello". The text should have the "color" property set to "green". An internal style sheet should be used to define an appropriate style that can be applied to the paragraph.
- 3.2 Create a page with two <div> tags with each div tag put a paragraph. Assign "class" property to first div and "id" property to second div. An external style should be used to change the background color of first div to red using "class" property and change the background color of second div to yellow using "id" property.

3.3 Create a page that has comment system layout as below:

CSS to be applied:

1. "Speak Your Mind" should be have a font size of 20px with font color of orange and aligned left
2. The text area and input should have white background color with 1px border size of color #dddddd. The text area and input size should also have proper margin and padding.
3. The "POST COMMENT" button should have font size of 12 px with font color of orange and aligned right. The button should have white background color and padding of 10px with 2px border size of color orange.

3.4 Design a two column bio-data webpage and apply external CSS. The page should have navigation menu, your profile image, a table to show your education history and use of bullets to list down your skills set.

3.5 Design the landing page of following sites: google.com, facebook.com

3.6 Apply Media queries and make the previously made bio-data design responsive in all screen size.

JavaScript **20 hrs**

- 4.1 Write a JavaScript program to get the website URL (loading page).
- 4.2 Write a JavaScript program to compute the sum of the two given integers. If the two values are same, then returns triple their sum.
- 4.3 Write a JavaScript program to create a new string adding "Py" in front of a given string. If the given string begins with "Py" then return the original string.
- 4.4 Write a JavaScript program to reverse a given string.
- 4.5 Write a JavaScript program to convert a given number to hours and minutes.
- 4.6 Write a JavaScript program to convert temperature to and from Celsius, Fahrenheit.
[Formula: $c/5 = (f-32)/9$ [where c = temperature in Celsius and f = temperature in Fahrenheit]]

Expected Output :

Speak Your Mind

Write Comment

Name

Email Address

POST COMMENT

60°C is 140 °F

45°F is 7.2222222222222°C

- 4.7 Write a JavaScript program to sort all the numbers of a given array into ascending and descending order.
- 4.8 Write a JavaScript program to compute the sum and product of an array of integers.
- 4.9 Write a JavaScript function to get a random item from an array.
- 4.10 Write a JavaScript to get 10 random integer from a range of 1 to 100.
- 4.11 Write a JavaScript function that reverse a number.
- 4.12 Write a JavaScript function that checks whether a passed string is palindrome or not?
- 4.13 Write a JavaScript function that generates all combinations of a string.
- 4.14 Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case.
- 4.15 Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string.
- 4.16 Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string.
- 4.17 Write a JavaScript program to list the properties of a JavaScript object.

Sample object:

```
var student = { name : "David Rayy", sclass : "VI", rollno : 12 };
```

Sample Output:

```
name,sclass,rollno
```

- 4.18 Write a JavaScript program to delete the rollno property from the following object. Also print the object before or after deleting the property.

Sample object:

```
var student = { name : "David Rayy", sclass : "VI", rollno : 12 };
```

- 4.19 Write a JavaScript program to calculate multiplication and division of two numbers (input from users). Use event listeners to capture the data from value on button click. Add an additional function, calculate the multiplication and division of the two number using the key press so that user doesn't have to click the button.

1st Number :	<input type="text" value="12"/>
2nd Number:	<input type="text" value="10"/>
<input type="button" value="Multiply"/>	<input type="button" value="Divide"/>
The Result Is :	
<input type="text" value="120"/>	

- 4.20 Here is a sample html file with a submit button. Now modify the style of the paragraph text through JavaScript code.

```
<!DOCTYPE html>
<html>
<head><meta charset=utf-8 />
<title>JS DOM paragraph style</title>
</head>
<body>
<p id='text'>JavaScript Exercises - w3resource</p>
<div>
    <button id="jsstyle" onclick="js_style()">Style</button>
</div>
</body>
</html>
```

Clicking on the button the font, font size, and color of the paragraph text will be changed.

- 4.21 Here is a sample html file with a submit button. Write a JavaScript function to get the value of the href, hreflang, rel, target, and type attributes of the specified link.

```
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
</head>
<body>
<p>
    <a id="w3r" type="text/html" hreflang="en-us" rel="nofollow"
target="_self" href="https://www.google.com/">
        Google
    </a>
</p>
<button onclick="getAttributes()">
    Click here to get attributes value
</button>
</body>
</html>
```

- 4.22 Write a JavaScript function to add rows to a table.

- 4.23 Write a JavaScript function to remove items from a dropdown list.

- 4.24 Create an Analog clock that make clock move forward second by second

- 4.25 Debugging Errors in JS

Unit 5.	Fundamentals of Graphic Design	
5.1	Assignment: Visual elements, Principle of Graphic Design	2 hrs
Unit 6.	Photoshop	
6.1	Remove Background/unwanted content	25 hrs
6.2	Create Clipping Mask	
6.3	Blend images and create a composite image	
6.4	Crop and straighten image	
6.5	Improve lighting and color	
6.6	Repair and colorize old photos	
6.7	Smooth skin and remove blemishes and scars	
6.8	Convert black and white image onto color image	
6.9	Add creative effects using layer mask	
6.10	Create light effects using filters	
6.11	Remove red eye for a photo	
6.12	Create a photo frame	
6.13	Create a three page brochure design	
6.14	Create a logo, t-shirt, business card, letter-pad, and cup design for a company	
6.15	Create a banner of an event	
6.16	Create a 404 error page design	
6.17	Create a web layout design	

(Note: Additional 52 hours theory and 80 hours practical will be provided during the industrial practice period at training institution)

Reference:

1. Craig Grannell, The Essential Guide to CSS and HTML Web Design
2. Elisabeth Robson and Eric Freeman, Head First HTML and CSS
3. Paul Wilton, Jeremy McPeak, Beginning JavaScript
4. Elisabeth Robson and Eric Freeman, Head First JavaScript Programming
5. David Dabner and Sandra Stewart, Graphic Design School: A foundation course for Graphic Designers
6. Carolyn Knight and Jessica Glaser, The Graphic Design exercise book: Creative briefs to enhance your skills and develop your portfolio
7. The official training workbook from Adobe, Adobe Light room CC and Photoshop CC for Photographers Classroom in a Book, 1st Edition

Web and Graphics Design

S.N.	Assignments	Skills
1.	Observe webpages and websites	<ul style="list-style-type: none"> - Identify the structure and components of webpages and websites - Understand the HTML, CSS, JavaScript codes used to build them webpages and websites
2.	Design forms and tables using HTML and CSS	<ul style="list-style-type: none"> - Understand the web design layout - Collect the required information - Submit the layout of form and tables - Write codes to build forms and tables
3.	Design a carousel using	<ul style="list-style-type: none"> - Write codes to create a carousel image slideshow
4.	Design multi-level navigation menu	<ul style="list-style-type: none"> - Write codes to create a multi-level navigation menu
5.	Design login, logout, and contact page	<ul style="list-style-type: none"> - Design web layouts - Write codes to create login, logout and contact page - Apply style sheet to beautify the pages
6.	Design Error pages	<ul style="list-style-type: none"> - Collect and identify the requirements - Write codes to design error pages - Apply style sheet to beautify the pages
7.	Form validation using HTML	<ul style="list-style-type: none"> - Collect and identify the requirements - Write codes to perform form validations
8.	Embed Google Maps, YouTube videos	<ul style="list-style-type: none"> - Write codes to add Google Maps, YouTube videos to a webpage
9.	Design a webpage using HTML and CSS	<ul style="list-style-type: none"> - Collect or identify the requirements - Construct and validate the web design layout - Write codes to build a webpage using external CSS style sheet
10.	Design a website using HTML, CSS and JavaScript	<ul style="list-style-type: none"> - Collect or identify the requirements - Construct and validate the web design layout - Write codes to build a multipage website using external CSS style sheet and JavaScript
11.	Design a responsive website	<ul style="list-style-type: none"> - Collect or identify the requirements - Construct and validate the responsive web design layout - Write CSS media queries to design a responsive website for mobile and tablets
12.	Form Validation using JavaScript	<ul style="list-style-type: none"> - Collect and identify the requirements - Write codes to perform form validations using JavaScript
13.	Create a pop-up email subscription box	<ul style="list-style-type: none"> - Construct and design the layout of email-subscription box

		<ul style="list-style-type: none"> - Write codes to create a pop-up email subscription box using HTML, CSS and JavaScript
14.	Arithmetic and String manipulation using JavaScript	<ul style="list-style-type: none"> - Collect or identify the requirements - Construct the workflow of logic for manipulation - Write codes to perform arithmetic and string manipulation operations
15.	Create page loading animation	<ul style="list-style-type: none"> - Write codes to create a page loading animation using HTML, CSS and JavaScript
16.	Fix web design bugs and issues	<ul style="list-style-type: none"> - Identify the web design and bugs of webpages and websites - Construct and validate the fixes codes - Write codes to fix the web design bugs and issues
17.	Observe logos, banners and several other graphic design layouts	<ul style="list-style-type: none"> - Identify the visual element graphic design - Identify the basic principles of graphic design
18.	Design a ID Card	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of ID Card - Validate the layout design - Design the ID Card using Photoshop
19.	Design a logo	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the design of logo - Validate the design - Design the logo using Photoshop
20.	Create multiple event banners	<ul style="list-style-type: none"> - Collect or identify the requirements of event - Sketch the layout design of banners - Validate the design - Design the banners using Photoshop
21.	Create icon sets	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the design of icon sets - Validate the design - Design the icon sets using Photoshop
22.	Create festive day banners	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of festive day - Validate the design - Design the banners using Photoshop
23.	Create a T-shirt design	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the design of T-shirt - Validate the design - Design the T-shirt using Photoshop
24.	Create one page brochure	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of brochure - Validate the design - Design the brochure using Photoshop

Create a three page brochure	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of three page brochure - Validate the design - Design the three page brochure using Photoshop
Design business card and letter pad	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of business card and letter pad - Validate the design - Design the business card and letter pad using Photoshop
Design web page components: login, logout, navigation menu, pagination, contact form and comment system	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of web page components - Validate the design - Design the web page components using Photoshop
Design a single web page	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of web page - Validate the design and alignments - Design the web page using Photoshop
Design a multi-page website	<ul style="list-style-type: none"> - Collect or identify the requirements - Sketch the layout design of web site - Validate the web site and alignments - Design the web site using Photoshop