

# BCA/IMCA SEMESTER 1

## Fundamentals of Web Technology (BC01001031)

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### 1. Introduction to CSS

**CSS (Cascading Style Sheets)** is a stylesheet language used to control the presentation, design, and layout of web pages.

It separates **content (HTML)** from **design (CSS)**, allowing developers to create visually appealing, consistent, and responsive websites.

#### Why CSS?

- HTML defines **structure**
- CSS defines **style**
- Together, they create complete web pages

### 2. CSS Declarations

A CSS rule consists of a **selector** and a **declaration block**.

#### Structure of a CSS Rule

```
selector {  
  property: value;  
}
```

#### Declaration

A **declaration** contains:

- **Property:** Styling attribute (color, font-size, width)
- **Value:** Assigned setting (blue, 20px, 80%)

Example:

```
h1 {  
  color: red;  
  font-size: 24px;  
}
```

Here:

- h1 → selector
  - color: red; → declaration
  - font-size: 24px; → declaration
- 

### 3. Using CSS

CSS can be applied to an HTML document in **three ways**:

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#### 1. Inline CSS

Used directly inside HTML tags.

```
<p style="color: blue; font-size: 18px;">Hello</p>
```

- Fast, but not recommended for large websites
  - Difficult to maintain
- 

#### 2. Internal CSS

Defined inside <style> tag within <head>.

```
<head>
<style>
  p { color: green; }
</style>
</head>
```

- Suitable for single-page styling
- 

#### 3. External CSS (Most commonly used)

Stored in a separate .css file.

```
<link rel="stylesheet" href="style.css">
```

- Best practice

- Clean and reusable
- All pages can share the same stylesheet

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## 4. Sample CSS File

A sample style.css file:

```
body {  
  background-color: #f2f2f2;  
  font-family: Arial, sans-serif;  
}
```

```
h1 {  
  color: #333;  
  text-align: center;  
}
```

```
p {  
  line-height: 1.5;  
  color: #555;  
}
```

This file may be linked to any HTML page.

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## 5. CSS Selectors (Detailed)

Selectors are used to **target HTML elements** for styling.

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### 1. Element Selector

Targets elements by tag name.

```
h1 { color: red; }
```

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### 2. Class Selector

Targets elements with a specific class.

Used with a **dot** (.).

```
.title { color: blue; }
```

Usage:

```
<h1 class="title">Heading</h1>
```

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### 3. ID Selector

Targets a unique element.

Used with **hash** (#).

```
#main { background: yellow; }
```

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### 4. Universal Selector

Targets all elements (\*).

```
* { margin: 0; padding: 0; }
```

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### 5. Group Selector

Targets multiple selectors.

```
h1, p, h2 {  
  color: green;  
}
```

---

### 6. Descendant Selector

Targets elements inside another element.

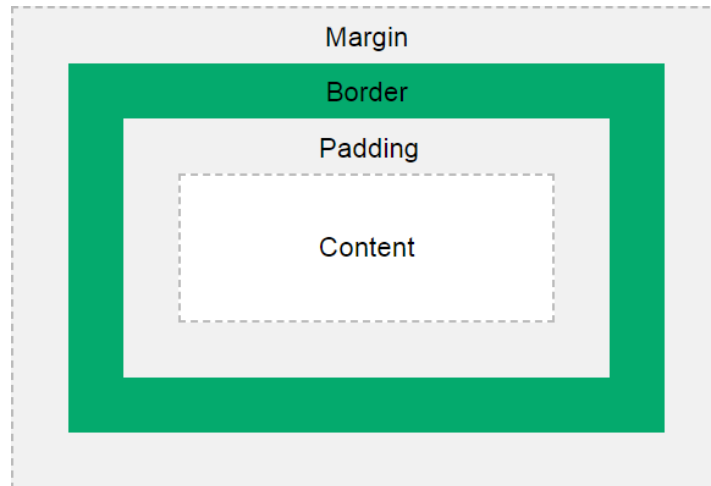
```
div p {  
  color: purple;  
}
```

---

### 6. CSS Box Model Concept

The **box model** describes how every HTML element is treated as a rectangular box.

The box consists of:



## Components

### 1. Content

This is the actual data inside an element, such as text, images, or any visible information.

### 2. Padding

Padding is the space between the **content** and the **border**.  
It provides inner spacing so that content does not touch the border.

### 3. Border

The border is the line that surrounds the padding and content.  
It can have different styles, widths, and colors.

### 4. Margin

Margin is the space **outside** the border.  
It creates distance between the element and surrounding elements on the page.

## Example

```
div {  
  width: 200px;  
  padding: 10px;  
  border: 2px solid black;  
  margin: 20px;  
}
```

---

## 7. Padding

Padding is the **inner space** around the content.

```
p {  
  padding: 20px;  
}
```

### Different Ways

- padding-top
- padding-right
- padding-bottom
- padding-left

Shorthand:

```
padding: 10px 20px 15px 5px; /* top, right, bottom, left */
```

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## 8. Float and Clear

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### Float

Used to position elements **left** or **right**.

```
img {  
  float: left;  
  margin-right: 10px;  
}
```

Float is commonly used for:

- Wrapping text around images
  - Creating column layouts
- 

### Clear

Used to **stop** floating elements from affecting the layout.

```
div {  
  clear: both;
```

```
}
```

Values:

- left
- right
- both
- none

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## 9. Z-Index

z-index controls the **stacking order** of positioned elements (i.e., which element appears on top).

```
div {  
  position: absolute;  
  z-index: 10;  
}
```

**Higher z-index = Comes to the front**

Used for:

- Modals
- Dropdown menus
- Popups
- Overlapping images

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## 10. Websites Benefits of CSS

### 1. Separation of content and design

HTML is used to structure the content (text, images, headings), while CSS is used to style the appearance (colors, fonts, layout).

This separation makes websites cleaner and easier to manage.

### 2. Consistency across webpages

A single external CSS file can be linked to all pages of a website.

This ensures the same layout, colors, and fonts across the entire site, giving a uniform look.

### 3. Faster page loadng

CSS avoids repeating styling code inside HTML.

Because styles are written once and reused, file size becomes smaller, and pages load faster.

#### **4. Easy maintenance**

When design changes are needed, updating **one CSS file** automatically updates the design on all pages.

This saves time and effort.

#### **5. Responsive design**

CSS allows layouts to adjust according to screen size using media queries.

This helps websites work smoothly on mobiles, tablets, and desktops.

#### **6. Reusability**

CSS classes and external stylesheets can be reused in multiple pages or projects.

This reduces duplication and speeds up development.

#### **7. Better accessibility**

CSS improves readability by controlling spacing, font size, contrast, and layout.

It helps users, including those with visual or physical disabilities, navigate the website easily.