

CSS Unit 4 – Detailed Notes with Theory & Code Examples

This unit covers both **fundamental and advanced CSS concepts**. The content is organized **session-wise** with theoretical explanations and practical code examples so students can practice directly on their laptops.

Session 1: Introduction to CSS & Creating Style Sheets

Theory

- **What is CSS?**

- CSS (Cascading Style Sheets) is used to style and layout web pages (colors, fonts, spacing, positioning).
- Separates content (HTML) from presentation (CSS).

- **Ways to Apply CSS:**

- **Inline CSS** – applied directly inside an element using the `style` attribute.
- **Internal CSS** – placed inside `<style>` tags within the `<head>` of an HTML document.
- **External CSS** – stored in a separate `.css` file and linked using `<link>`.
- **Cascade Concept:**
 - Browser decides the final style based on **specificity, importance, and source order**.

Example

```
<!DOCTYPE html>
<html>
<head>
  <title>Intro to CSS</title>
  <!-- External CSS -->
  <link rel="stylesheet" href="styles.css">
  <style>
    /* Internal CSS */
    h1 { color: blue; }
  </style>
</head>
```

```
<body>
  <h1 style="color:red;">Hello, CSS!</h1> <!-- Inline CSS -->
</body>
</html>
```

Order of application: **Inline** > **Internal** > **External** (unless `!important` is used).

Session 2: CSS Properties & Styling Basics

Background Properties

- `background-color` : Sets the background color.
- `background-image` : Adds an image.
- `background-repeat` : Controls repetition (repeat, no-repeat, repeat-x, repeat-y).
- `background-position` : Sets the starting position.

Text Formatting

- `color` : Sets text color.
- `text-align` : left, right, center, justify.
- `text-decoration` : underline, overline, none.
- `text-transform` : uppercase, lowercase, capitalize.
- `line-height` : sets space between lines.

Controlling Fonts

- `font-family` : Defines font (e.g., Arial, Times New Roman).
- `font-size` : Specifies size (px, em, rem, %).
- `font-style` : normal, italic.
- `font-weight` : normal, bold, bolder, lighter.

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
  body { background-color: lightyellow; }
  h1 {
    color: green;
    font-family: Arial, sans-serif;
    font-size: 32px;
    text-align: center;
  }
  p {
```

```

        text-decoration: underline;
        text-transform: capitalize;
    }
</style>
</head>
<body>
    <h1>CSS Styling Example</h1>
    <p>this is styled paragraph text.</p>
</body>
</html>

```

Session 3: Working with Block Elements & Objects

Theory

- **Block Elements:** Take full width available. (e.g., `<div>`, `<p>`, `<h1>`).
- **Inline Elements:** Only occupy required space. (e.g., ``, `<a>`).
- CSS can convert block to inline and vice versa using `display` property.

Example

```

<!DOCTYPE html>
<html>
<head>
<style>
    div { background: lightblue; margin: 10px; padding: 10px; }
    span { background: yellow; }
</style>
</head>
<body>
    <div>This is a block element</div>
    <span>This is an inline element</span>
</body>
</html>

```

Session 4: Lists and Tables Styling

Styling Lists

- `list-style-type` : disc, circle, square, none.
- `list-style-image` : custom image marker.

Styling Tables

- `border`, `border-collapse`, `padding`, `text-align`.

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
  ul { list-style-type: square; }
  table { border-collapse: collapse; width: 50%; }
  th, td { border: 1px solid black; padding: 10px; text-align: center; }
</style>
</head>
<body>
  <ul>
    <li>HTML</li>
    <li>CSS</li>
  </ul>
  <table>
    <tr><th>Subject</th><th>Marks</th></tr>
    <tr><td>CSS</td><td>90</td></tr>
  </table>
</body>
</html>
```

Session 5: CSS Id and Class

Theory

- **Id Selector:** `#idname` (unique per page).
- **Class Selector:** `.classname` (can be reused for multiple elements).

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
  #uniqueHeading { color: red; }
  .highlight { background: yellow; }
</style>
</head>
```

```
<body>
  <h1 id="uniqueHeading">This uses ID</h1>
  <p class="highlight">This uses Class</p>
  <p class="highlight">Another element with same class</p>
</body>
</html>
```

Session 6: Box Model

Theory

- **Box Model Components:**
- **Content** – actual text/image inside.
- **Padding** – space between content & border.
- **Border** – edge of the element.
- **Margin** – space outside the border.

Example

```
<!DOCTYPE html>
<html>
<head>
<style>
  div {
    width: 200px;
    padding: 20px;
    border: 5px solid black;
    margin: 15px;
    background: lightgreen;
  }
</style>
</head>
<body>
  <div>Box Model Example</div>
</body>
</html>
```

Session 7: Advanced CSS (Selectors & Grouping)

Grouping

- Multiple selectors can share styles.

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

Attribute Selector

- `[attribute]` → selects elements with attribute.
- `[attribute="value"]` → matches specific value.

```
input[type="text"] { background: lightyellow; }
```

Pseudo Classes

- `:hover`, `:active`, `:first-child`, `:nth-child(n)`.

```
a:hover { color: red; }  
p:first-child { font-weight: bold; }
```

Session 8: Dimensions, Display, and Positioning

Dimensions

- `width`, `height`, `min-width`, `max-width`.

Display

- `block`, `inline`, `inline-block`, `none`.

Positioning

- `static`, `relative`, `absolute`, `fixed`, `sticky`.

Floating and Alignment

- `float: left/right;` to wrap text around images.
- `clear` to stop floating effect.

Example

```
<!DOCTYPE html>  
<html>  
<head>  
<style>  
  .box { width: 100px; height: 100px; background: red; position: absolute;  
  top: 50px; left: 50px; }
```

```
</style>
</head>
<body>
  <div class="box"></div>
</body>
</html>
```

Session 9: Navigation Bars & Image Sprites

Navigation Bar Example

```
<!DOCTYPE html>
<html>
<head>
<style>
  ul.nav { list-style-type: none; background: black; overflow: hidden; }
  ul.nav li { float: left; }
  ul.nav li a {
    display: block;
    color: white;
    padding: 14px;
    text-decoration: none;
  }
  ul.nav li a:hover { background: gray; }
</style>
</head>
<body>
  <ul class="nav">
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
    <li><a href="#">Contact</a></li>
  </ul>
</body>
</html>
```

Image Sprites

- Combine multiple images into one file to reduce requests.
- Use `background-position` to display specific part.

```
.icon { background: url('sprite.png') no-repeat; width: 32px; height: 32px; }
.home { background-position: 0 0; }
.contact { background-position: -32px 0; }
```

Session 10: CSS Colors, Page Layout & Site Design

CSS Colors

- Named colors (red, blue).
- RGB: `rgb(255, 0, 0)`.
- HEX: `#ff0000`.
- RGBA (with opacity): `rgba(255,0,0,0.5)`.

Page Layout Techniques

1. Using **CSS Grid**.
2. Using **Flexbox**.
3. Using **float-based layouts** (older method).

Example: Flexbox Layout

```
<!DOCTYPE html>
<html>
<head>
<style>
  .container { display: flex; }
  .box { flex: 1; padding: 20px; text-align: center; }
  .box1 { background: lightblue; }
  .box2 { background: lightgreen; }
  .box3 { background: lightpink; }
</style>
</head>
<body>
  <div class="container">
    <div class="box box1">Column 1</div>
    <div class="box box2">Column 2</div>
    <div class="box box3">Column 3</div>
  </div>
</body>
</html>
```