

CSS Detailed Course Outline

This CSS course outline covers everything from the basics to advanced concepts, including modern CSS features, responsive design, and animations.

1. Introduction to CSS

- What is CSS?
 - How CSS works with HTML
 - CSS syntax and structure
 - Types of CSS (Inline, Internal, External)
 - Setting up a CSS file
 - Understanding the Cascade, Specificity, and Inheritance
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2. CSS Selectors & Combinators

- Basic Selectors
 - Element (`h1`)
 - Class (`.class`)
 - ID (`#id`)
 - Attribute Selectors (`[type="text"]`)
 - Grouping Selectors (`h1, h2, p`)
 - Pseudo-classes
 - `:hover`, `:focus`, `:nth-child(n)`, `:first-child`
 - Pseudo-elements
 - `::before`, `::after`, `::first-letter`
 - CSS Combinators
 - Descendant (`div p`)
 - Child (`div > p`)
 - Adjacent Sibling (`h1 + p`)
 - General Sibling (`h1 ~ p`)
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3. CSS Box Model

- Content, Padding, Border, and Margin
 - Box-Sizing (`content-box` vs. `border-box`)
 - Understanding Width & Height
 - Overflow (`visible`, `hidden`, `scroll`, `auto`)
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4. CSS Units & Measurements

- Absolute Units (`px`, `cm`, `in`)
 - Relative Units (`em`, `rem`, `%`, `vw`, `vh`)
 - CSS Functions
 - `calc()`, `min()`, `max()`, `clamp()`
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5. CSS Colors & Backgrounds

- Color Models (`RGB`, `RGBA`, `HEX`, `HSL`)
 - Background Properties
 - `background-color`, `background-image`, `background-position`
 - `background-repeat`, `background-size`, `background-attachment`
 - Gradients (`linear-gradient()`, `radial-gradient()`)
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6. CSS Typography

- Font Properties (`font-family`, `font-size`, `font-weight`)
 - Text Styling (`text-align`, `text-decoration`, `text-transform`)
 - Line Height and Letter Spacing
 - Using Google Fonts
 - Variable Fonts
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7. CSS Flexbox

- Flex Container (`display: flex;`)
- Flex Properties
 - `flex-direction`, `justify-content`, `align-items`, `align-content`

- `flex-wrap`, `flex-grow`, `flex-shrink`, `flex-basis`
 - Creating Responsive Layouts with Flexbox
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8. CSS Grid

- Grid Container (`display: grid;`)
 - Grid Properties
 - `grid-template-columns`, `grid-template-rows`
 - `grid-gap`, `justify-items`, `align-items`
 - `grid-area`, `grid-template-areas`
 - Difference Between Flexbox & Grid
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9. CSS Positioning & Layouts

- Static, Relative, Absolute, and Fixed Positioning
 - Sticky Positioning (`position: sticky;`)
 - Z-Index and Stacking Context
 - Float & Clear (Legacy Method)
 - CSS Layout Techniques
 - Holy Grail Layout
 - Sidebar Layout
 - Card Layouts
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10. Responsive Web Design (RWD)

- Media Queries (`@media`)
 - Mobile-First vs. Desktop-First Approach
 - Fluid Typography and Images
 - CSS Grid and Flexbox for Responsive Design
 - CSS Viewport Units (`vw`, `vh`, `vmin`, `vmax`)
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11. CSS Transitions & Animations

- Transitions (`transition-property`, `transition-duration`)
 - Keyframes (`@keyframes`)
 - CSS Animation Properties (`animation-name`, `animation-duration`)
 - CSS Hover Effects
 - Scroll Animations
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12. CSS Variables & Custom Properties

- Declaring and Using CSS Variables (`--main-color: blue;`)
 - The `var()` Function
 - Global vs. Local Variables
 - Dark Mode with CSS Variables
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13. Advanced CSS Features

- CSS `clip-path` & `mask-image`
 - CSS Shapes (`shape-outside`)
 - CSS Scroll Snap
 - CSS Writing Modes (`writing-mode: vertical-rl;`)
 - CSS Grid Auto-Placement
 - Using `:has()` for Parent Selection
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14. CSS Preprocessors (Sass & LESS)

- Introduction to Preprocessors
 - Installing and Using Sass (`.scss` files)
 - Variables, Nesting, Mixins, and Functions
 - Extending Styles (`@extend`)
 - Compiling Sass to CSS
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15. CSS Frameworks & Utility Libraries

- Bootstrap (`.container`, `.row`, `.col-6`)

- Tailwind CSS (`flex`, `bg-blue-500`, `p-4`)
 - CSS-in-JS (Styled Components in React)
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16. Modern CSS Best Practices

- CSS Reset & Normalize.css
 - Writing Maintainable CSS (BEM Methodology)
 - Performance Optimization (Minification, Critical CSS)
 - Accessibility (A11Y) Best Practices
 - Cross-Browser Compatibility
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17. Hands-On Projects

1. **Portfolio Website** (Responsive Layout, Animations)
 2. **Blog Design** (Typography, Grid & Flexbox)
 3. **E-commerce Product Page** (Cards, Hover Effects)
 4. **Dark Mode Toggle with CSS Variables**
 5. **CSS-Only Slideshow**
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Conclusion & Next Steps

- CSS Interview Questions
- Exploring CSS Houdini
- Combining CSS with JavaScript for Interactive UI
- Further Learning Resources