COURSE SYLLABUS

Software Engineering Certificate

Learn front-end development with HTML & CSS, JavaScript, and React, and back-end development with Python, Django, and Node.js. Get 1-on-1 mentoring and a structured curriculum to become a skilled Software Engineer or Full-Stack Developer.

For more information, visit
https://www.creativelive.com/learning-path/software-engineering-bootcamp



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Course Outline

This package includes these courses

- Web Development with HTML & CSS (18 Hours)
- Advanced HTML & CSS (18 Hours)
- Flexbox, Grid, & Bootstrap (12 Hours)
- JavaScript for Front-End (18 Hours)
- Front-End Tools & Portfolio (18 Hours)
- JavaScript Programming Bootcamp (120 Hours)
- JavaScript Development with Node, Express, & MongoDB (96 Hours)
- React Development Bootcamp (96 Hours)
- Entering the Web Development Industry (24 Hours)
- Python Programming Bootcamp (30 Hours)
- Python Web Development with Django (60 Hours)
- Web Development Labs (0 hours)

Choose two of the classes below as free electives (contact us after registration).

- SQL Bootcamp
- WordPress Bootcamp
- Python for AI: Create AI Apps with Flask & OpenAI
- AI Coding Bootcamp with Claude Code Course (Self-Paced)

Web Development with HTML & CSS

Learn how to code and style websites from scratch using HTML and CSS. This course covers everything from structuring content and applying styles to making pages responsive and publishing them online.

- Structure webpages with HTML, using semantic elements for better organization and accessibility
- Style content with CSS, including fonts, colors, backgrounds, and spacing for polished designs

- Implement responsive design techniques with media queries and CSS Grid/Flexbox
- Utilize browser developer tools to inspect and refine code in real-time
- Upload and publish websites using FTP for live deployment
- Work on hands-on projects to build a strong foundation in front-end web development

Advanced HTML & CSS

Enhance your CSS skills with advanced styling, layout techniques, and interactive elements. Learn to create visually dynamic webpages using modern CSS methods, including animations, responsive images, and custom properties.

- Master advanced CSS concepts such as positioning, attribute selectors, and relational selectors.
- Use multiple backgrounds, gradients, shadows, and CSS variables for cleaner, scalable styles.
- Implement responsive images, the picture element, and viewport-based units.
- Create off-screen navigation menus and dynamic layouts with Flexbox and CSS Grid.
- Add interactive elements with CSS transitions, transforms, and hover effects.
- Utilize SVG graphics, pseudo-elements, and dark mode styling for modern web design.

Flexbox, Grid, & Bootstrap

Learn how to use CSS Flexbox and Grid to create responsive webpage layouts that adapt to different screen sizes. This course covers modern layout techniques and introduces Bootstrap for rapid page development.

- Use CSS Flexbox to align and distribute webpage content efficiently.
- Master CSS Grid for advanced layout structures and responsive design.
- Implement Bootstrap’s grid system and components for faster development.
- Reorder, size, and align elements dynamically with Flexbox and Grid.
- Create responsive navigation bars, pricing grids, and image galleries.
- Apply best practices for flexible, scalable, and visually appealing web layouts.

JavaScript for Front-End

Learn how to enhance your webpages with interactive elements and animations using JavaScript and GreenSock (GSAP). This course covers JavaScript fundamentals and dynamic motion design techniques for creating engaging web experiences.

- Write JavaScript code to add interactivity, handle user events, and manipulate webpage elements.
- Use JavaScript libraries to quickly implement common functionalities like slideshows and tabbed panels.
- Animate webpage elements with GreenSock (GSAP), the industry-standard framework for web animation.
- Create smooth scrolling effects, parallax animations, and interactive transitions.
- Apply animations to text, images, and SVG graphics for visually dynamic designs.
- Build a strong foundation in JavaScript and GSAP to create interactive, engaging web projects.

Front-End Tools & Portfolio

Learn how to turn a webpage design into fully functional code while mastering essential front-end development tools. This course covers Git, GitHub, Emmet, and Visual Studio Code to streamline coding and collaboration.

- Build a coding portfolio by developing a project from scratch with expert guidance.
- Learn Git fundamentals to track code changes, revert versions, and manage repositories.

- Use GitHub for collaboration, including pushing, pulling, cloning, and handling merge conflicts.
- Master Visual Studio Code shortcuts and features to improve workflow and efficiency.
- Utilize Emmet coding shortcuts to speed up HTML and CSS development.
- Gain hands-on experience in real-world coding workflows and best practices.

JavaScript Programming Bootcamp

Master the fundamentals of JavaScript programming to build interactive web applications. This hands-on course covers key programming concepts, DOM manipulation, APIs, and object-oriented programming.

- Learn JavaScript fundamentals, including variables, conditional logic, loops, and arrays.
- Manipulate the DOM by dynamically updating content, handling events, and modifying CSS.
- Work with functions, callbacks, and arrow functions for cleaner and more efficient code.
- Utilize JavaScript's built-in array and string methods for data processing and organization.
- Fetch and display real-time data using APIs, JSON parsing, and asynchronous programming.
- Explore object-oriented programming (OOP) principles to create reusable and scalable code.

JavaScript Development with Node, Express, & MongoDB

Learn how to build and host full-stack web applications using JavaScript with Node.js, Express, and MongoDB. This course covers back-end development, API creation, and database management for modern web applications.

- Work with Node.js to build server-side applications, handle file execution, and manage input/output operations.
- Use npm (Node Package Manager) to install and manage dependencies for scalable projects.
- Develop RESTful APIs with Express.js, creating efficient routing and middleware functions.
- Set up and configure MongoDB to store, query, and manage structured data.
- Implement authentication and security measures for secure database connections.
- Optimize application performance with advanced query filtering, pagination, and data population.

React Development Bootcamp

Learn how to build dynamic, interactive web applications using React and Node.js. This course covers the core concepts of React, state management, API integration, and cloud deployment for full-stack development.

- Understand React fundamentals, including components, props, state, and hooks.
- Use React Router to manage navigation and create seamless single-page applications.
- Integrate databases and APIs to build fully functional, data-driven applications.
- Implement CRUD operations to manage and manipulate application data.
- Deploy React applications to the cloud using AWS and alternate deployment stacks.
- Explore advanced topics like AI integration and mobile development with React.

Entering the Web Development Industry

Gain the skills and knowledge needed to land a job as a web developer. This course covers portfolio development, interview preparation, and networking strategies to help you break into the tech industry.

- Build a professional web development portfolio showcasing your skills and projects.
- Practice solving coding challenges and algorithms commonly asked in technical interviews.

- Develop a networking strategy to connect with tech recruiters and industry professionals.
- Learn how to present your skills and experience during job interviews effectively.
- Gain insight into the day-to-day responsibilities and expectations of web developers.
- Prepare for real-world job applications with hands-on workshops and expert guidance.

Python Programming Bootcamp

Learn Python programming from the ground up, covering essential concepts, real-world applications, and coding best practices. This course prepares you to tackle technical challenges and build a portfolio of Python projects.

- Master Python fundamentals, including variables, data types, loops, and functions.
- Develop logical programming skills using conditionals, indexing, and slicing techniques.
- Work with file handling operations such as reading, writing, and appending to text files.
- Explore computer science fundamentals, including Big-O notation and sorting algorithms.
- Gain hands-on experience with object-oriented programming (OOP) to build scalable applications.
- Use Git and GitHub to manage projects and create a professional coding portfolio.

Python Web Development with Django

Learn how to build and deploy web applications using Django, a powerful Python web framework. This course covers back-end development, API creation, and automation techniques for scalable applications.

- Set up Django projects and work with URL dispatchers, templates, and database models.
- Develop full-stack web applications using Django's MVC architecture and generic views.
- Implement authentication, user management, and secure API endpoints with Django REST.
- Automate tasks with Django, including background processes and scheduled jobs.
- Work with APIs, including building and consuming RESTful web services.
- Deploy Django applications and APIs to production environments for real-world use.

Web Development Labs

This hands-on, project-focused course is designed to equip you with the essential skills to create functional, visually appealing, and professional websites and web applications. Whether you're aiming to start a career in web development or elevate your existing skill set, this course provides the tools and practical experience needed to succeed.

- Code-along to book (class-style)
- On-your-own coding challenges (but with kickstarter code/scaffolding)
- Job interview-style challenges (harder, no scaffolding, ok-better-best solutions)
- Debugging code (errors and/or flaws in logic that make it not work)
- Targeted drills: "reps" to build specific skills