

Practicum

Software Engineer track

Syllabus

Each sprint lasts 2-3 weeks and takes up approximately 20 hours of study per week.

10 months
in total

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Introductory course

This course will take you through the fundamentals of software engineering and cover the basics of HTML and CSS. You'll do this by working through a series of mini-projects on the interactive platform, including a playlist cover and a landing page.

1 week
10 hours

Chapters

1. Introduction to HTML and CSS
2. Basic CSS Properties
3. More CSS
4. Your First Independent Project

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Onboarding to the Full Program

Learn more about the Software Engineer program. Find out how the training process is structured and how to set up your computer to write code.

3 hours

Advanced HTML and CSS

In this course, you'll discover just how much HTML and CSS have to offer by working through chapters about flexbox, animations, forms, positioning elements, and embedding media content. You'll also learn how to organize your code and structure projects using the BEM methodology, as well as how to manage your project with Git.

80 hours

Sprints & Chapters

Soft Skills

Projects

Sprint 1. 3 weeks

1. Flexbox
2. Advanced HTML and CSS Capabilities
3. BEM Methodology
4. Positioning Elements
5. File Structure and File Paths
6. Git for Beginners

- How to Set Goals

- Project 1
Landing page
HTML, CSS

Sprint 2. 3 weeks

7. Useful Things to Know Before You Get Started
8. Embedding Content
9. Animation and Special Effects
10. Forms
11. File Organization with BEM
12. Advanced Git
13. Bonus Lesson: Debugging in Web Development

- How to Think Like a Developer
- Growing From Your Mistakes

- Project 2
Landing page
HTML, CSS

Adaptive Web Design and Working with Layouts

Here, you'll get to see the kind of design specs professional software engineers work with and how to turn them into websites. You'll also build interfaces using Grid Layouts while ensuring that your site looks good on all devices, from desktop computers to smartphones.

40 hours

Sprints & Chapters	Soft Skills	Projects
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Sprint 3. 3 weeks

1. Working with Designs and Specifications	• Sketchy Briefs and Incomplete Design Specs	• Project 3 pt.1 Social media web app Adaptive layout
2. Design in a World of Ever-Changing Devices	• How to Incorporate the Learning Process in Your Life	
3. Grid Layout		
4. Developing an Interface for Different Devices		
5. Expert Git		

1-week break

Basic JavaScript and Working with the Browser

This is where programming truly begins. Fully immerse yourself in JavaScript as you learn about the different data types you can work with and how to use them with statements, loops, and functions. Then, put theory into practice to create a fully functioning interactive website.

40 hours

Sprints & Chapters

Soft Skills

Projects

Sprint 4. 2 weeks

1. JavaScript Crash Course
2. Under the Hood of a Browser: DOM
3. Debugging
4. Perfecting Git Skills

- How to Manage Your Time and Resources

- Project 3 pt.2
Social media web app
Adaptive layout

Sprint 5. 2 weeks

5. Primitive, Conditions, and Loops
6. Arrays
7. Functions
8. Manipulating the DOM
9. Git Tools

- How to Work with Documentation
- How to Become a Valuable Contributor to the Tech Community

- Project 3 pt.3
Social media web app
Vanilla JS

Sprint 6. 2 weeks

10. Objects
11. Event Handling
12. Working with Forms
13. Form Validation
14. Bonus Lesson: Debugging in JavaScript

- Project 3 pt.4
Social media web app
Vanilla JS

1-week break

Applied JavaScript

At this stage in the program, we'll dive even deeper into JavaScript and tackle the key concepts you'll need to master in order to become a software engineer. You'll learn about Object-Oriented Programming, asynchronous code, and how to interact with servers. You'll also be introduced to different programs used to bundle project files together, add third-party dependencies, and upload your project to the internet.

120 hours

Sprints & Chapters	Soft Skills	Projects
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Sprint 7. 2 weeks

1. Object-Oriented Programming	• Personal Branding for the Tech Industry	• Project 3 pt.5 Social media web app Vanilla JS
2. Interfaces in OOP – Part 1	• Teamwork	
3. Chapter 3: Modular JavaScript		

Sprint 8. 2 weeks

4. Destructuring Syntax		• Project 3 pt.6 Social media web app Vanilla JS
5. Interfaces in OOP – Part 2		
6. Project Building with Webpack		

Sprint 9. 2 weeks

7. Advanced Javascript: Asynchronous Programming	• Online Presence and Networking	• Project 3 pt.7 Social media web app Vanilla JS
8. Working with APIs		
9. Chapter 9: Object Prototypes: Preparing for an Interview		
10. Bonus Chapter: Open Source Projects		

Creating an Interface with React

Get acquainted with the React library and its ecosystem.
You'll start off by creating websites made up of
components that can be reused in different places.
You'll then be able to build on this to create more
complex interfaces much faster and write code that's
much easier to maintain.

80 hours

Sprints & Chapters	Projects
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Sprint 10. 2 weeks

1. Introducing React
 2. React Tools
 3. React Hooks
 4. Advanced Javascript "this":
Preparing for an Interview
- Project 4 pt.1
Web application
React

Sprint 11. 2 weeks

5. React Router
 6. React and Data
 7. Advanced React
 8. Whiteboard Coding:
Preparing for an Interview
- Project 4 pt.2
Web application
React

Back-End Basics for Software Engineers

Building a web app means working with a server. You'll learn how to use the JavaScript runtime environment, Node.js, to write server-side applications. You'll use this knowledge to set up a server and create a server-side API for the website you made in the previous course.

160 hours

Sprints & Chapters

Projects

Sprint 12. 2 weeks

1. Server-Side Development with Node.js
2. Express.js 101
3. Complexity Analysis of Algorithms: Preparing for an Interview

- Project 5 pt.1
Web application
Back-end

Sprint 13. 2 weeks

4. Building a REST API
5. Databases
6. Error Handling: From Theory to Practice
7. Regular Expressions
8. Functions Under a Microscope: Preparing for an Interview

- Project 5 pt.2
Web application
Back-end

Sprint 14. 2 weeks

9. Authentication and Authorization – Part 1
10. Chapter 10: Front-End Authentication with React
11. Chapter 11: Web Application Security

- Project 5 pt.3
Web application
Back-end + front-end authorization

Sprint 15. 2 weeks

12. Authentication and Authorization – Part 2

13. Chapter 13: Automated Testing

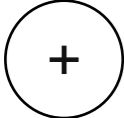
14. Chapter 14: Back-End Preparation and Deployment
- Project 5 pt.4
Web application
Back-end + front-end authorization

1-week break

Final Project

This is where you put everything you’ve learned throughout the program into practice and prove that you have what it takes to be a web developer. You won’t have to complete any other assignments or work through any lessons on the interactive platform. It’s just like real life: you'll have a task and a deadline, armed with nothing but your skills, knowledge, and a search engine.

120 hours



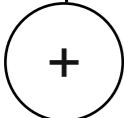
Career Prep Course (Optional)

If you want some guidance on landing your dream job after completing the main program, the Career Prep Course has all the information you need. First, you'll cover some of the groundwork needed before you can start applying for jobs. This includes learning how to write resumes and cover letters, building an online presence on LinkedIn and GitHub, and growing your professional network. Once that's done, you'll focus on the different stages of the job application process, from job search strategies to interviews, all the way to negotiating an offer. The Career Prep Course is available after Sprint 9.

6 weeks
30 hours

Chapters

- 1. Life After Practicum
- 2. The Resume
- 3. Creating an Online Presence
- 4. Being a Networking Ninja
- 5. Acing Your Job Interview
- 6. Acceleration Kick-Off

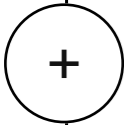


Career Acceleration* (Optional)

Prepare for real-world interviews and gain experience through authentic practice. This program is designed to help you find a job and also provides extra work with technical skills. Attend mock interviews, get your career documents reviewed, and receive 1:1 career coaching that will take your job search to the next level.

up to 6
months

*Only available to students with a US work permit.



Apiary Projects (Optional)

Gain confidence in solving work tasks by completing a project for a real company, providing them with a website or an app. Learn to communicate with clients, meet their expectations, exchange peer reviews with colleagues, and present results to a company. Apiary projects become available for participants after Sprint 10. They are also available after graduation.

4 to 5 weeks,
30+ hours