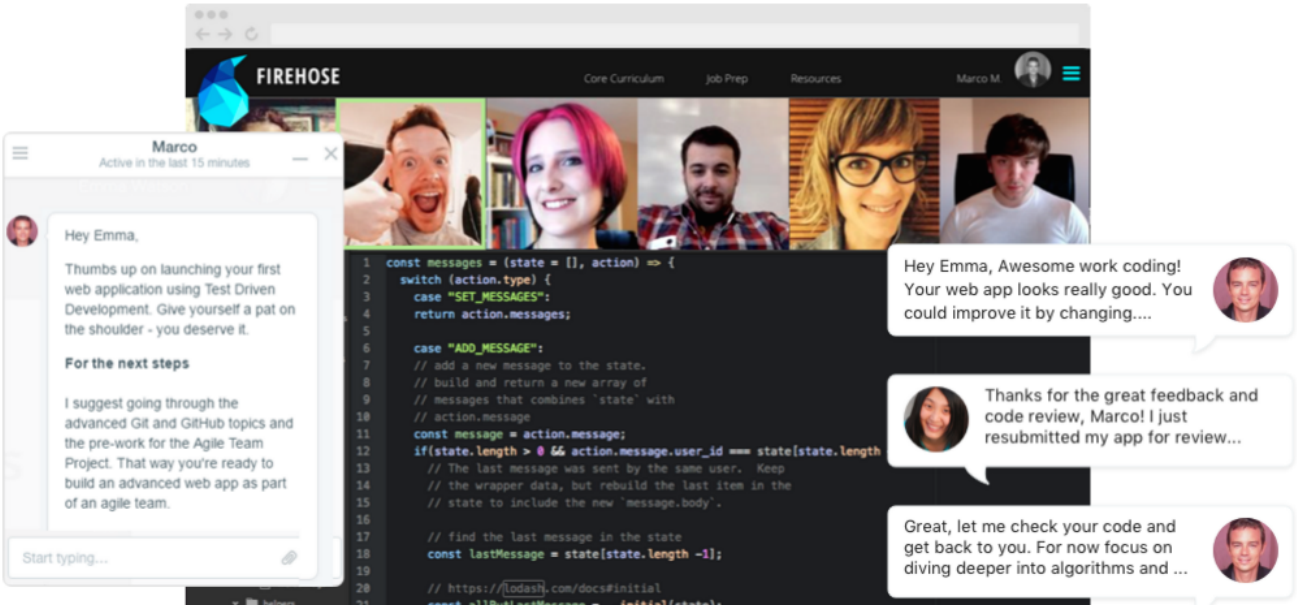
THE FIREHOSE ONLINE SOFTWARE ENGINEERING PROGRAM



1. OVERVIEW

The Firehose online program prepares you for a career in software engineering by giving you the technical skills and practical experience to land a software engineering job and be a high-impact employee from day one.

Our entire curriculum is built to make you think, build applications, and solve problems like a professional software engineer.

Everything is based on three cornerstones:

WEB APPLICATION DEVELOPMENT

You'll start out learning the fundamentals of programming, website design and markup languages. Through this ramp up, you'll dive into web application development by building multiple and increasingly complex web apps, using the same tools as professional web developers for version control, deployment, and feature improvements. Rather than learning individual programming topics in isolation, our curriculum teaches you by doing. Each web application builds upon what you've learned previously and expands your knowledge. It starts with helping you understand the Model-View-Controller Architecture and framework, through database relationships and API (Application Programming Interfaces) integrations, and expands all the way to Object-Oriented Programming and Test Driven Development.

ALGORITHMS AND DATA STRUCTURES

Our algorithms and data structures cornerstone lays the crucial foundation for you to reach far beyond standard web applications by designing and integrating the power of algorithms and advanced logic into your apps. In addition to building complex applications, you'll master practical computer science topics and overcome one of biggest hurdles to entering a software engineering career: the technical interview.

AGILE TEAM PROJECT

The best web applications in the world are built by amazing teams. Those engineering teams follow a software engineering workflow based on agile principles. Individual developers collaborate on features, give and receive consistent code reviews, and communicate in detail about best code implementation practices. You'll gain identical real-world experience by operating as part of an agile software engineering team, building an advanced web application that combines algorithms, user features, and advanced logic.

2. WHY RUBY AND JAVASCRIPT?

WHY RUBY?

Readability

The Ruby language was designed with one main principle in mind: developer happiness. It's a programming language that was designed to be easy to read, fast to learn, and simple for developers to use to solve complex problems. The learning curve to master Ruby is less steep in comparison to other programming languages, and after just a short period, you will be able to write and execute Ruby programs and solve complex algorithm challenges. In addition, mastering Ruby first provides you with an ideal springboard to learn another programming language at an accelerated pace... like JavaScript.

Open Source

The open source Ruby community is massive, very active, and welcoming to people of all skill levels. When your programming craft is backed by an active, worldwide community, it means you have ample opportunities to find and work on interesting projects with awesome people.

IN-DEMAND SOFTWARE ENGINEERS KNOW MORE THAN ONE PROGRAMMING LANGUAGE.

WHY JAVASCRIPT?

Future Proof

Today's user interfaces depend heavily on JavaScript to create a smooth user experience. JavaScript skills are an essential software engineering skill for today and tomorrow. While JavaScript is a powerful and efficient programming language, it's notoriously difficult to learn as a first programming language. Instead, it's perfect for your second language.

Being In-Demand

In-demand software engineers know multiple programming languages; they're polyglot programmers. When you have experience with more than one programming language, you enable yourself to choose the right tool for the job rather than use the same tool for every job. Having the ability to draw on this flexibility and experience is exactly what will make you in demand.

3. LEARNING WITH FIREHOSE

Software engineering is best learned by doing. That's why Firehose puts you on a structured path that's engineered to "make things click" and surrounds you with a supportive, worldwide community of students.

REAL PROJECTS

Marketable software engineering experience is gained by building real projects. At Firehose, we teach you how to become a software engineer through building and launching fully-functional web applications from day one. This means you'll learn Model-View-Controller architecture by building your own quote generating app, geolocation mapping and automated email notifications are woven into your Yelp clone to teach you API integration with Google Maps and Sendgrid, and you'll understand payment processing through building a two-sided marketplace.

AGILE TEAM EXPERIENCE

The best products are built by amazing teams. At Firehose, you will spend 8 weeks gaining crucial experience building an advanced web application like it is done in the real world: as part of an agile team. You will gain a true understanding of what agile means, know how to review and learn from others' code, improve your software test-writing and troubleshooting skills, and– most importantly– be able to demonstrate that you are a high-impact employee from day one.

WORLD-CLASS MENTORS

There is no substitute to learning under the wing of a personal mentor. We accelerate your learning by matching you with a hand-picked, senior software engineer. Our mentors come from companies like Shopify, PayPal, BBC, Product Hunt and leading startup accelerators like Y Combinator and Techstars. Each mentor is an expert in their craft and an experienced educator who will meet with you in 1-on-1 mentor sessions to support you and challenge you to reach and surpass your goals.

EXPERT SUPPORT

When you're stuck, you get help. Our team is here to support you and make sure that every minute you invest counts toward reaching your goals. We give you a structured path and all the help you need so that you're never held back.

FLEXIBLE CURRICULUM

We designed our curriculum to be flexible. You can access our curriculum around the clock and schedule your mentorship sessions flexibly around your schedule. We have dedicated staff available to help and support you and review your code for over 13 hours each day, and our live office hours brings the Firehose community together in one virtual room every week.

4. CURRICULUM OVERVIEW

1: THE INTRO TO SOFTWARE ENGINEERING

Before you start the Firehose Software Engineering Program, you'll need to complete a 20-hour intro course to learn Ruby and HTML/CSS. During our intro course, we teach you the fundamentals of the Ruby programming language (methods, functions, loops, and iterations) and help you build a web page that's live on the internet. Ready? Start here.

Through the intro course, you'll submit programming solutions and receive consistent code reviews by one of our mentors.

2: THE FIREHOSE SOFTWARE ENGINEERING PROGRAM

HIGHLIGHTS FROM THE FULL PROGRAM

- 900+ hours of curriculum covering the entire software engineering stack
- 36 job readiness lessons
- 28 algorithm and coding challenges
- Regular 1-on-1 mentor sessions
- 5+ launched and code reviewed projects
- 8 weeks of agile team project sessions

The Firehose Software Engineering Program covers 8 high-level topics.

TOPIC 1: RUBY

You will begin by learning the fundamentals of Ruby– including variables, iterations, loops, conditionals, arrays, hashes, and data structures– then move on to object-oriented programming and classical inheritance. Through the course, you'll learn how to write complex logic with Ruby and incorporate it directly into web applications.

By tackling increasingly difficult problems, you'll always be working in the zone where learning happens at an accelerated pace. You will get comfortable debugging your code, solving error messages on your own, and giving code reviews to other students.

TOPIC 2: [RUBY ON] RAILS

You will learn how to use Ruby on Rails– a powerful web framework– by building complex web applications and understanding patterns that are common across multiple programming languages and frameworks. This includes topics like: Model-View-Controller architecture, t applications, database design, and modification using migrations.

You'll learn how the various components of the web application fit together and interact with each other, including ActiveRecord, ActionController, and templating views.

TOPIC 3: JAVASCRIPT

You will build dynamic web applications using industry-standard tools that'll allow you to rapidly add dynamic content and build a fluid user interface. You'll begin with jQuery and implement a drag-and-drop user interface into a two-sided marketplace application. Next, you'll learn advanced JavaScript features, like callbacks and performing ajax HTTP requests within a web browser.

TOPIC 4: AGILE TEAM WORK

You'll learn how to work as part of an agile software development team and gain crucial insight into how web applications are built in the real world. Under the wing of a senior software engineer, you will join weekly agile team meetings for code reviews, sprint planning, and feature assignments. You will pair program with other students, understand continuous integration and deployment, use GitHub as it is used in the real world, and receive consistent feedback on your code like you would on any professional software engineering team.

Together with your agile team, you will build a chess game inside of a Rails application, integrate advanced logic and algorithms, and gain the crucial agile team working experience to become a capable and high-impact developer.

TOPIC 5: TEST-DRIVEN DEVELOPMENT

You will learn how to use Test-Driven Development and use RSpec to write automated software tests while keeping the red-green-code-refactor cycle tight. You'll use standard testing tools like FactoryGirl for database population and CodeShip to ensure your tests continue to pass as you add new features.

TOPIC 6: ALGORITHMS AND COMPUTER SCIENCE FUNDAMENTALS

You will begin by tackling standard coding challenges and slowly work yourself toward building and coding complex algorithms. You'll work with complex data structures, solidify your object-oriented programming skills, and learn multidimensional arrays, linked lists, trees, and stacks and queues. You'll also implement sorting algorithms as well as depth-first and breadth-first searches.

Your advanced programming skills will lay the critical foundation for your software engineering career, give you rigorous preparation for any technical interview, and set you up to build an advanced web application in your agile team project.

TOPIC 7: HTML, CSS, AND RESPONSIVE DESIGN

You will use HTML and CSS to build web applications that are beautiful and well-designed. Using front-end libraries like Twitter Bootstrap, you'll design and code applications that are responsive and mobile-first by incorporating media queries to the different viewport widths.

Finally, you will learn how to use the Rails asset pipeline and switch from regular CSS to SASS - a supercharged version of CSS.

TOPIC 8: VERSION CONTROL THROUGH GIT AND GITHUB

You'll learn how experienced developers work on multiple features and collaborate with teams using version control through git and GitHub.

You will work with branches, merge code, and resolve merge conflicts. You'll also learn how developers propose codebase changes through pull requests and run their test suite automatically.

The Firehose Online Software Engineering Program combines expert 1-on-1 mentor training with a customized curriculum and a worldwide student support community.

GET 2 WEEKS FREE

Learn more at **thefirehoseproject.com** and reach us at ***questions@thefirehoseproject.com.*** We're happy to help.

START CODING FOR FREE TODAY