SOFTWARE ENGINEERING BOOTCAMP

GA GENERAL ASSEMBLY

OVERVIEW

General Assembly's Software Engineering Bootcamp (SEB) is a transformative course that prepares students to break into tech careers.

Designed to get you hired, this software engineering bootcamp features innovative instruction, career coaching, and professional connections to top employers. Join us on a part-time or full-time schedule in our remote classroom.

As a graduate, you'll leave with a solid base of fundamental programming and computer science knowledge, as well as experience with the languages, frameworks, and libraries employers demand.

Throughout this expert-designed program, you'll:

- Explore programming and computer science fundamentals, as well as software engineering best practices.
- Create a front-end web application with modern JavaScript frameworks such as Angular or React.
- Develop and deploy full-stack applications with in-demand technologies such as Mongoose, Python with Django, and Express with Node.js.
- Build secure full-stack applications by leveraging common design and architectural patterns like model–view–controller (MVC) and Representational State Transfer (REST).
- Practice version control and collaborative software development with Git and GitHub.
- Safely model and store data in SQL and NoSQL databases.
- Consume and integrate third-party application programming interfaces (APIs) in an application.
- Prepare for the world of work, compiling a professional-grade portfolio of solo and group projects.

PREREQUISITES

This is a beginner-friendly program with no prerequisites, although many students have engaged in self-learning previously or have worked at tech startups or in tech-adjacent roles. Whether you're new to the field or you're looking to formalize your practice, our curriculum helps you gain fluency in the languages, frameworks, and libraries that modern employers demand and put them to work.

Our Admissions team can discuss your background and learning goals to advise if SEB is a good fit for you.

WHAT TO EXPECT

Pre-Course Learning Paths

Set yourself up for success with up to 14 hours of preparatory lessons covering essential programming concepts in HTML, CSS, and JavaScript. Designed to help you make the most of the course, Software Engineering Fundamentals is a self-paced online learning path you'll complete before day one of class.

The In-Class Experience

Engage in project-based learning that's designed to inspire a lifetime of discovery. As an SEB student, you'll:

- Explore new concepts and tools through expert-led lectures and discussions.
- Complete coding exercises to reinforce newly learned skills.
- Dive deeper into topics and techniques via independent, pair, and group programming labs.
- Receive individualized feedback and support from your expert instructional team.
- Apply what you've learned to homework assignments and unit projects, building out a professional portfolio to show off job-ready skills to potential employers and collaborators.

Career Services

As a bootcamp student, you'll have the opportunity to meet with a group of career coaches who will provide you feedback on your job search materials, advise you on how to best prepare for interviews, and share resources to support you on your job search journey.

Throughout on-demand content, live career webinars, and group coaching sessions, you'll:

- Get an inside look at what it takes to have a successful job search journey in your industry.
- Cultivate a competitive candidate mindset, learning how to assess your skill set against job descriptions, track progress, and identify areas of refinement.
- Develop your professional brand: polish your online and in-person presence, job search materials, and build confidence to set yourself apart in interviews.
- Leverage LHH's Proprietary Job Resource Platform: Career Resources Network (CRN)*
- Tap into an exclusive global network of experts, influencers, and peers, plus learn strategies for leveraging your existing connections, in person and online.
- Become an active contributor to the GA student and alumni community.

After graduation, you'll also gain access to additional career resources to help fuel a lifetime of learning. Graduates of our bootcamp courses have access to LHH's Career Resources Network (CRN) to support their job search post-course. CRN is your ultimate career resource hub. It's packed with job opportunities, workshops, and learning tools. It connects you to career, industry, and company information, networking opportunities, live events, and new job leads. CRN delivers comprehensive content using the latest e-learning, streaming media, and podcast technologies. It's your one-stop shop to power your career search and stay organized. Additionally, graduates can dive into new topics or continue honing their skills with discounts on tools, passes, packages to premier events, and more.* You can also apply tuition discounts to future GA courses, classes, and workshops on campus and online.

* not available in Singapore

ENHANCED DIGITAL-FIRST LEARNING

Live Instruction
- Daily Standup - students begin the day live online, with their entire cohort and instructional team going over concepts, triaging, reviewing work for the day, and answering questions. This structure mirrors on the job daily cadence.
- After standup, students are prepped for their Supported Practice session.

Supported Practice
- Time-bound daily session(s) in which students watch interactive video lessons and practice developing software solutions to problems. Students can work at their own pace, but need to complete the daily material within the practice session.
- Video Instruction: Lessons recorded by our top instructors can be watched, paused, referenced, and rewatched (40-60% of content delivery). This approach gives students flexibility in how they go through essential learning material.
- Workplace Based Problems: Focused on real workplace issues, problems provide immediate context for students to apply new knowledge and skills.

Just In Time Support
- During Supported Practice, you'll always have access to your instructors to support you when you have questions on lessons, problems, or projects — just when you need it most.
- This support mimics the outreach a jr. developer would encounter in the workplace when they have tried to triage on their own and need additional guidance, clarity, or thought partnership.

Independent Work
- After a day of lessons, practice problems, and collaboration, students are ready to begin their independent work (aka homework) — reinforcing the key concepts and applying their learned skills of the day.
- Night Teaching Associates are available after normal course hours to provide students with Just In Time Support when working through homework.

WHAT YOU'LL LEARN

Pre-Work | **Software Engineering Fundamentals**

Learn online, and get familiar with fundamental principles and techniques at the core of programming through our self-paced, pre-course learning path.
- Start coding with HTML, CSS, and JavaScript.
- Leverage Git and GitHub to manage work.
- Practice working with a UNIX command line.
- Apply troubleshooting and debugging techniques.

Project: Test your knowledge of key JavaScript concepts, including variables, objects, and functions, building an in-browser game from scratch.

Unit 1 | **Front-End Development**

Discover what it takes to build the web you want to see through hands-on training in the essentials of front-end development. Explore core programming concepts that are applicable in any language, and find out what day-to-day life as a professional engineer is like.
- Get acquainted with common developer tools (e.g., Chrome Developer Tools, text editors, code linters).
- Learn to navigate a computer file structure and configure development environments via a UNIX/Linux command line.
- Solidify your knowledge of how HTML, CSS, and JavaScript are leveraged in software engineering (i.e., web typography, Document Object Model (DOM) manipulation, responsive design).
- Dive into fundamental programming concepts (functions, control flow, variables, scope, etc.) using JavaScript.
- Start using Git and GitHub for version control.
- Learn and implement rigorous debugging strategies.
- Start thinking algorithmically and breaking big problems into smaller parts.
- Gain an introduction to project design, project planning, and project management techniques engineers use on the job, including wireframes and user stories.

Project: Work individually to build a front-end web application that users can see and interact with, leveraging tools like JavaScript, responsive design, APIs, and more.

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| Unit 2 | **Full-Stack Development** | Learn to build full-stack web applications, deepening your knowledge of client-facing and server-side development. Expand your repertoire of programming libraries/frameworks and start coding collaboratively. You'll explore many topics, such as: |

- Build web forms that collect user data for storage in a MongoDB database.
- Get acquainted with front-end templating and CSS libraries like Bootstrap.
- Engage in pair programming to understand collaboration and documentation best practices.
- Get familiar with key computer science concepts to become a more efficient programmer and perform confidently in technical interviews.
- Start writing recursive algorithms, as well as algorithms to solve computational problems such as sorting. Analyze algorithmic complexity using Big O Notation.
- Incorporate authentication capabilities into sites and applications (i.e., user logins, encrypted passwords, etc.).
- Gain an introduction to testing and test-driven development.

Project: Program a full-stack application that stores data in a MongoDB database and deploy it via a continuous integration/continuous deployment system (e.g. Heroku).

| Unit 3 | **Front-End Frameworks and APIs** | Gain expertise with the modern software engineering tools and frameworks you'll use on the job as a software engineer. Get creative with a group project, while building a full-stack application. Build on your foundation with topics like: |

- Discover the capabilities that separate software engineers from coders, including the ability to plan, write, test, deploy, and launch a full-stack app using cutting-edge, next-gen technology.
- Deploy robust, modern front-end frameworks (e.g., React, Angular, or Ember) on which powerhouse platforms like Amazon and Facebook are built.
- Continue to hone your computer science knowledge by further exploring data structures.
- Incorporate new patterns into front-end architecture, including custom behaviors, client-side models and data binding, form validation, state management, and AJAX (Asynchronous JavaScript and XML).
- Discover how to integrate third-party APIs into websites and applications (e.g., Stripe).

Unit 3   **Front-End Frameworks and APIs (Cont.)**

- Allow user login via token-based authentication and external accounts (i.e., social media, oAuth).
- Leverage the package *managers and build tools regularly used by professional engineers.*
- Continue to explore data structures and get acquainted with design patterns.
- Prepare for job interviews and engage in mock interviews and additional white-boarding practice.

Project: Build and deploy a full-stack application using a modern front-end framework (i.e. React).

Unit 4   **Exploring Different Technologies**

Solidify your understanding (and increase your employability) by learning a second tech stack. You'll expand your skillset with topics like:

- Through pair programming and group collaboration, you'll gain hands-on experience executing a real-world workflow.
- Dive deeper into algorithms and data structures.
- Get acquainted with more back-end libraries, frameworks, and tools.
- Organize effective team workflows with Git and GitHub, refining technical and interpersonal collaboration skills.
- Explore advanced debugging, testing, and documentation techniques.
- Learn to use data structures, including linked lists, stacks and queues, sets, and trees.

Project: Apply what you've learned throughout the course to collaboratively build and deploy a full-stack application that fulfills provided specs. The final result should integrate functionality from a third-party API.

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FREQUENTLY ASKED QUESTIONS

Why is this software engineering bootcamp relevant today?

All companies — not just Silicon Valley giants — are evolving into tech companies, and demand is growing steadily for software engineers who can creatively solve problems and implement robust, sustainable solutions. In fact, Harvey Nash and KPMG found that 67% of the tech leaders they surveyed reported an inability to acquire the talent they need. Regardless of your professional background, there's ample opportunity to carve a fulfilling — and future-proof — career path.

Will I earn a certificate?

Yes! Upon passing this course, you'll receive a signed certificate of completion. Thousands of GA alumni use their course certificate to demonstrate skills to potential employers — including our 19K+ hiring partners — along with their LinkedIn networks. GA's tech programs are well-regarded by many top employers, who contribute to our curriculum and partner with us to train their own teams.

What are the professional backgrounds of software engineering students?

SEB students come from all walks of life but share one common mission: They are passionate about launching a career in tech by gaining an in-demand, technical skill set. We see career-changers from diverse professional backgrounds, including sales, marketing, project management, finance, and many more. Most are aiming to secure jobs as software engineers or web developers, while others may be looking to combine past experience with a new skill set to enter more specialized roles.

What does my tuition cover?

Here are just some of the benefits Bootcamp students can expect at GA:

- Live instruction in the skills you need to enter the workforce as a junior full-stack web developer.
- Self-paced pre-work to explore software engineering fundamentals helps you hit the ground running on day one of class.
- Robust coursework, including expert-vetted lesson decks, project toolkits, and more. Refresh and refine your knowledge throughout your professional journey as needed.
- A professional-grade portfolio of projects taken from concept to completion — each mirroring real problems that engineers face — that allows you to showcase the breadth of your technical skills to employers.
- Individual feedback and guidance from instructors and TAs during office hours. Stay motivated and make the most of your experience with the help of GA's dedicated team.
- Dedicated career services to help you navigate your personal job search experience, from technical challenges, to salary negotiation, and more.
- Technical interview prep, including resume reviews, mock interviews, and whiteboarding practice.
- Exclusive access to alumni discounts, networking events, and career workshops.
- A GA course certificate to showcase your new skill set on LinkedIn.
- Connections with a professional network of instructors and peers that lasts well beyond the course. The global GA community can help you navigate and succeed in the field.

What projects will I work on during this course?

For your capstone project, you'll mimic a team-client interaction, collaborating to build and deploy a full-stack application that fulfills provided specs. The final result will integrate functionality from a third-party API.

Throughout this Bootcamp, you'll also compile a portfolio of solo and group projects designed to reinforce what you've learned in each unit. Gain hands-on experience building and deploying front-end and full-stack applications with a variety of languages and frameworks.

How does this program relate to GA's other coding courses?

Software Engineering Bootcamp is for learners who are committed to making a career change. Front-End Web Development offers a popular "starter" option for those who are curious about careers in tech or want to work more effectively with technical stakeholders. JavaScript Development offers a further deep dive into the world's most popular programming language.

What does Career Services support look like for remote students and on-campus students?

We deliver Career Services for on-campus and remote learning students with the same philosophy, commitment, and expectations. All Career Services activities, programming, and support is asynchronous and done remotely.

- Get an inside look at the industry through on-demand career content, expert panel discussions, guest speakers, career webinars, and more.
- During the course, you'll have access to asynchronous career content via our learning management system to support your learning before and after class time. Additionally, you'll have the opportunity to participate in live remote career webinars and group coaching sessions to learn both with your peers and industry experts.
- You'll have the opportunity to book time remotely 1-on-1 with any of our career coaches to understand the job market and cover topics like resume review, LinkedIn development, interview practice, salary negotiation, and other career-related topics.

Our Admissions team can provide more details on the career support you'll receive on the path to landing a software engineering role.

Students have access to Career Services support throughout their GA journey.

Active Students:

- GA Career Services Support
- Access to LHH CRN resources upon graduating from the bootcamp

Graduates:

- GA Career Services support (ends at six months post-graduation date)
- Two months of LHH premium access starting at the graduation date
- Unlimited lifetime access to the LHH CRN

TAKE THE NEXT STEP

Have questions about our Software Engineering Bootcamp course? Our Admissions team is here to help and can advise on if this program is right for you and your learning goals. You can also:

- Attend an info session online or at your local campus.
- Explore your financing options.
- Apply to enroll in the course.*

* Course modality options vary by location, pending market availability. Please contact our Admissions team to discuss what version is available in your location.