

Software Engineering Bootcamp

Bootcamp Brochure



In partnership with
HyperionDev

Contents page

Overview	1
The process	2
Code review in partnership with HyperionDev	3
Why choose software engineering as a career?	4
Post-bootcamp support	5
Potential career paths	6
Structure of the bootcamp	9
What to expect from the Software Engineering Syllabus	10



Overview

If the idea of analyzing a situation and seeing how it can be improved using software excites you, then software engineering may be the career for you. Software engineering involves more than just coding. The discipline applies principles to a broad range of large-scale software systems. Ultimately, you'll be able to construct software solutions to solve specific business problems.

The engineering process involves working with stakeholders to understand the requirements and

limitations of a software system. The software engineer analyzes these requirements and then designs, implements, deploys and maintains the software system.

No prior coding knowledge is required for this bootcamp, as we help you progress from beginner to aspiring professional. From day one, you'll learn to think like a programmer by developing algorithms to solve various problems.

Beyond software engineering

You'll write code that interacts with databases, follows established architectural patterns and algorithms and creates useful software that solves real-world problems. You'll also be challenged to test, debug, handle errors, deploy and maintain software.

Throughout the bootcamp, you will develop the skills to think beyond software development and deployment. Agile principles will guide your approach, helping you communicate effectively with technical and non-technical stakeholders. You'll apply best practices throughout the software development lifecycle, building a portfolio to showcase your new skills.



The process

1

Log onto your personalized dashboard

2

Complete coding exercises online

3

Your Mentor reviews your work

4

Perfect your coding over 3-6 months

5

Receive a certificate of completion

6

Begin your new career in tech with our post-bootcamp support



Code review in partnership with HyperionDev

Bootcamp code reviewers and mentors are expertly trained to integrate code review into the learning experience. This on-demand approach helps participants become fluent in their chosen area of study faster.

Our one-on-one code review approach works

Code review helps you learn to code the right way by mastering the deeper aspects of software development that are essential for a career in tech. We help you build a strong foundation for a successful career in coding.

Why learning through code review is smarter

Don't make the same mistakes as computers

Automated code checking is like spell check for computer programs. But you can't write a world-class essay with just good spelling – you need the right tone, facts, grammar, and style. Only human-led code review can help you learn aspects of coding that are analogous to tone and style that will make you truly fluent as a developer – automated graders just can't help you learn this!

Be exposed to industry standards from day one

In the tech industry, developers have their work assessed through code review by senior developers. We are the only bootcamp that introduces this technique from day one, giving you a competitive edge in the job market.

Get unstuck with on- demand technical help

Our code reviewers help you debug your programs, ensuring you maintain steady progress and stay on track.

A unique, proven and personalized approach to code review

A safe space to learn and grow

Human-led code review fosters trust with your mentors and allows you to learn at your own pace. It provides a supportive environment to discuss challenges without fear of failure.

Join a community of career changers

Learn alongside a cohort of bootcamp participants who are also pursuing career fulfillment. Engage in online group tutorials, community chats and peer coaching.

Industry experts with expertise tailored to your goals

You'll work with experienced code reviewers and mentors who provide guidance through one-on-one calls and email support.

Why choose software engineering as a career?

Software engineering is a creative career that lets you work with code, people as well as hardware and other computer systems. This field places you at the heart of the digital economy with endless opportunities for growth. Software engineers develop valuable skills that open doors to high-paying jobs.

If you want a career that is both rewarding and lucrative, software engineering delivers. However, those who gain software engineering skills can also explore other career paths, some of which we'll cover.



How we help you get hired

We're with you every step of the way, and our support doesn't end when you graduate. Our career services are designed to help you stand out from the competition and get noticed by top employers.

Technical résumé and portfolio

Receive technical assistance in getting your résumé and tech portfolio industry-ready by applying accepted best-practice formats.

Interview preparation

Know what to expect when getting ready for that big interview with expert interview preparation guidance from professionals who have been where you are.

Bootcamp certificate

Walk away with a newly minted certificate as evidence of your skills and expertise in software engineering.

Join our hiring network

We work with select hiring partners and aim to help you prepare for and land your first tech job opportunity after completing your bootcamp.



Potential career paths

Back-end Developer

A back-end developer builds, updates and maintains the server-side infrastructure, or "back end," of a website or application. They make sure that the assets on the user end are functional and that data is efficiently and securely stored.

Responsibilities of a back-end developer include:

- Building and maintaining web applications.
- Assessing the efficiency and speed of current applications.
- Writing high-quality code.
- Managing hosting environments.
- QA testing.
- Troubleshooting and debugging.

DevOps Engineer

A devOps engineer combines an understanding of both engineering and coding. They create and implement systems software to analyze data to improve existing systems, while working with various departments to create and develop new systems within a company. DevOps engineers work to balance various aspects of a project, including complex issues such as programming and network building.

Responsibilities of an engineer include:

- Implementing, maintaining, monitoring and supporting the IT infrastructure.
- Writing scripts for service quality analysis, monitoring and operation.
- Designing procedures for system troubleshooting and maintenance.
- Investigating and resolving technical issues by deploying updates/ fixes.
- Implementing automation tools and frameworks for automatic code deployment (CI/CD).
- Quality control and management of the code base.



Junior Software Engineer

Junior software developers are entry-level software developers who assist the development team with all aspects of software design and coding. Their primary role is to learn the codebase, attend design meetings, write basic code, fix bugs and assist the development manager in all design-related tasks.

Responsibilities of a junior software engineer include:

- Assisting the development manager with all aspects of software design and coding.
- Attending and contributing to company development meetings.
- Learning the codebase and improving their coding skills.
- Writing and maintaining code.
- Working on minor bug fixes.
- Monitoring the technical performance of internal systems.
- Responding to requests from the development team.
- Gathering information from consumers about program functionality.
- Writing reports.
- Conducting development tests.

Software Designer

Software design engineers identify software problems and design programs to find solutions. They can either create a new product or iterations of existing software products to improve them. They gather data about the process and incorporate existing software solutions while determining and implementing the resultant software's parameters and limits.

Responsibilities of a software designer include:

- Designing, coding, verifying, testing, documenting, amending and refactoring complex programs and integration software services.
- Taking responsibility for understanding client requirements, collecting data, delivering analysis and resolving problems.
- Designing software components and modules using appropriate modeling techniques following established software design standards, patterns and methodology.
- Recommending designs that take into account the target environment, performance security requirements and existing systems.

Systems Analyst

As a systems analyst, you'll use computers and related systems to design new IT solutions, modify, enhance, or adapt existing systems and integrate new features or improvements in order to improve business efficiency and productivity.

Responsibilities of a systems analyst include:

- Liaising closely with external or internal clients.
- Analyzing clients' existing IT systems and business models.
- Mapping and documenting interfaces between legacy and new systems.
- Understanding software development lifecycles.
- Translating client requirements into highly specified project briefs.
- Identifying options for potential solutions and assessing them for technical and business suitability.
- Conducting requirements analysis and preparing specific proposals for modified or replacement systems.
- Developing solutions and related products.

Software Tester

As a software tester, you'll be involved in the quality assurance stage of software development and deployment. You'll conduct automated and manual tests to ensure the software created by developers is fit for purpose and any bugs or issues are removed from a product before it gets deployed to everyday users.

Responsibilities of a software tester include:

- Working with software developers and project support teams.
- Identifying business requirements.
- Planning projects.
- Monitoring applications and software systems.
- Carrying out stress testing, performance testing, functional testing and scalability testing.
- Writing and executing test scripts.
- Running manual and automated tests.
- Testing in different environments including web and mobile.
- Writing bug reports.
- Assessing code.

Structure of the bootcamp

Our online coding bootcamp helps you progress from a complete novice to master the fundamentals of software engineering, providing a launch point for an exciting and rewarding new career in tech. Our mentors, student success team and career services team will walk with you on your journey as you advance from a beginner to an aspiring professional and navigate applications and interviews to land the successful career you deserve.

Your learning journey will include:

- **Bootcamp prep (before you start)** – Learn about the software development sector and how HyperionDev supports you in achieving your development goals. Start programming with Python to attain a clearer idea of whether a career in the software development industry is really for you.
- **Introduction to programming (beginner level)** – Get to grips with the fundamentals of programming and the Python programming language. You also learn the basic concepts and master the fundamental skills needed to code in Python.
- **Introduction to software engineering (intermediate level)** – Understand how industry professionals develop software by exploring the best practices they use. You'll also be challenged to work on your programming skills, enabling you to deliver the most effective solutions for clients.
- **Advanced software engineering (advanced level)** – Take on the more advanced software engineering concepts and explore methodologies like agile development and the various types of system architecture, among other concepts.
- **Career readiness and employability (post-bootcamp)** – Once you have completed your bootcamp, we provide career support and guidance, including interview preparation and resume review, to equip you with not only technical skills but also the professional career development tools to succeed in your job search. We introduce our bootcamp participants to the industry through various networking events, career expos and job opportunities with our hiring partners. Most bootcamp participants get hired within six months of completing the bootcamp with our support and mentorship.



What to expect from the software engineering syllabus

During your bootcamp, you will progress through a series of learning tasks. Each task includes a lesson and one or more practical activities. Some tasks introduce and practice new concepts, while others are capstone projects designed to challenge you to combine the skills you've learned over several weeks to create a more complex program that showcases your learning.

By the end of your bootcamp, you should be able to:

- Design solutions to problems and express them using pseudo-code and algorithms.
- Write useful industry-standard code using Python. It's one of the best programming languages to learn, and it's used throughout the industry to create various web and data-driven applications.
- Demonstrate familiarity with the Python syntax and libraries foundational to software engineering.
- Apply fundamental concepts such as variables, control flow and data structures like lists and dictionaries to create procedural programs.
- Apply object-oriented programming (OOP) principles to design and implement classes that model real-world objects and scenarios, utilizing inheritance to reduce code duplication and improve code organization.
- Design, plan, build, debug, test and complete coding projects.
- Perform version control using tools like Git to manage software projects collaboratively, ensuring code quality and maintainability and analyzing system architecture in real-world domains.
- Create and populate a technical portfolio to showcase your skills to potential employers.
- Get ready to apply for tech roles with the support of our careers team, which guides and prepares you for your tech career.

With Arizona State University and HyperionDev, you're never alone. Reach out to a code reviewer or mentor whenever you need help. Every piece of code you submit is reviewed by an expert who provides feedback to enhance efficiency and quality.

We look forward to supporting you on your journey to becoming a software engineering expert!

Arizona State University is partnering with online education provider HyperionDev to offer a portfolio of high-impact outcomes-oriented online learning programs. Please note that course contents shown here are subject to change without prior notice. These programs are provided by HyperionDev and quality assured by Arizona State University to leverage their thought leadership in technical practice developed over decades of expertise.