

ESCP
BUSINESS SCHOOL

SOFTWARE ENGINEERING ONLINE BOOTCAMP

Bootcamp Syllabus

In partnership with
HyperionDev

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OVERVIEW

If the idea of analysing 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 uses principles applicable 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 analyses these requirements and then designs, implements, deploys, and maintains the software system.

No prior knowledge of coding is required when taking this bootcamp, as we help you progress from beginner to aspiring professional. Right from the start of the bootcamp, you're taught how to think like a programmer by developing algorithms to solve various problems.

GOING BEYOND SOFTWARE DEVELOPMENT

You'll learn how to write code that can interact with databases that uses established architectural patterns and algorithms to create useful software that solves real-world problems. You'll be challenged to test, debug, handle errors, deploy and maintain software.

Throughout the bootcamp, you will be guided to develop the skills required to think beyond mere software development and deployment. You'll learn about the importance of developing software using agile principles and how to communicate with technical and non-technical stakeholders. You'll also learn to apply best practice principles during the software development lifecycle, building a portfolio to showcase your new skills as you learn.



THE PROCESS

1. Log onto your personalised dashboard
2. Complete coding exercises online
3. A 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 HyperionDev Support



CODE REVIEW IN PARTNERSHIP WITH HYPERIONDEV

Bootcamp code reviewers are expertly trained to integrate code review into the bootcamp learning experience for participants. The on-demand code review method helps participants become fluent in their selected area of study much faster.

OUR 1-ON-1 CODE REVIEW APPROACH WORKS

Code review enables you to learn to code the right way by becoming proficient in the deeper aspects of software development that are a prerequisite for a career in coding. We help you set the foundation for a lucrative career in tech.

HERE'S 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 THE INDUSTRY STANDARDS FROM DAY ONE

Developers in the real world have their work assessed by a senior developer through the technique of code review. We're the only bootcamp in the world that exposes our bootcamp participants to this technique from day one, giving you an advantage in the job market.

GET UNSTUCK WITH ON-DEMAND TECHNICAL HELP

Our mentors will ensure you move at a steady pace by helping you to debug your programs. This will help you to keep moving forward so that you stay on track.

WE OFFER A UNIQUE, PROVEN, AND PERSONALISED APPROACH TO CODE REVIEW

INDUSTRY EXPERTS TAILORED TO YOUR GOALS

You'll work with experienced code reviewers who will guide you through 1-on-1 calls and email support.

JOIN A COMMUNITY OF CAREER CHANGERS

Learn as part of a cohort of bootcamp participants all working towards ultimate career fulfilment. Join online group tutorials, community chats, and peer coaching.

FREE OF FEAR OF FAILURE

Human-led code review builds trust with your mentors and lets you progress at your own pace. Establish a safe space to discuss any roadblocks without fear of failure.

WHY CHOOSE SOFTWARE ENGINEERING AS A CAREER?

Software engineering is a creative career that allows you to work with code and people, as well as hardware and other computer systems. This career places you at the heart of the digital economy, with endless scope for growth. Software engineers hold valuable skills that enable them to earn good salaries. In fact, according to Glassdoor, the average salary for a Software Engineer in the EU is €44,428.

If you're looking for a career that is both rewarding and lucrative, Software Engineering delivers on both. However, those who develop Software Engineering skills can also choose to pursue other career paths, some of which we'll delve into.



POST-BOOTCAMP SUPPORT

We're with you every step of your journey, and our support doesn't end when you complete the bootcamp. Our career services are developed to help you stand out from the crowd, and grab the attention of top employers.

Technical CV and portfolio

Receive technical assistance in getting your CV industry-ready according to accepted best-practice format.

Bootcamp certificate

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

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.

Join our hiring network

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

According to Glassdoor, a Back-end Developer in the EU can earn an average salary of €47,758 per year.

DevOps Engineer

A DevOps Engineer combines an understanding of both engineering and coding. They create and implement systems software to analyse 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 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.

According to Glassdoor, a DevOps Engineer in the EU can earn an average salary of €37,479 per year.

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 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.

According to Glassdoor, a Junior Software Engineer in the EU can earn an average salary of €33,997 per year.

Software Designer

Software Design Engineers are tasked with identifying software problems and designing 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 include:

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

According to Glassdoor, a Software Designer in the EU can earn an average salary of €45,030 per year.

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 include:

- Liaising closely with external or internal clients.
- Analysing 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.

According to Glassdoor, a Systems Analyst in the EU can earn an average salary of €41,615 per year.

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 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.

According to Glassdoor, a Software Tester in the EU can earn an average salary of €35,724 per year.

STRUCTURE OF THE BOOTCAMP

Our online coding bootcamp helps you progress from a complete novice to perfecting 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 learn 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 CV review, to equip you with not only technical skills but also the professional career development tools to succeed in your job search. We introduce the bootcamp participants to the industry through various networking events, career expos and job opportunities with our hiring partners. Most of our 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 are tasks introducing and practising new concepts, and some are capstone projects, intended to challenge you to bring together the skills you've learned over a number of weeks to create a more complex program that you can use to showcase 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, one of the best programming languages to learn, as it's used throughout the industry to create various web and data-driven applications.
- Demonstrate familiarity with the Python syntax and libraries that are 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, utilising inheritance to reduce code duplication and improve code organisation.
- 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 analysing 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.

Remember, with HyperionDev, you're never alone. You can contact a mentor for support whenever you need help with a task. The code that you submit for each task is reviewed by an expert who provides feedback to help you improve the efficiency and quality of your code.

We hope to see you online soon to embark on your personal learning journey as a budding software engineer!

ESCP Business School is partnering with online education provider HyperionDev to offer a portfolio of high-impact outcomes-oriented online learning programmes. These programmes are provided by HyperionDev and quality assured by ESCP to leverage their thought leadership in technical practice developed over decades of expertise.