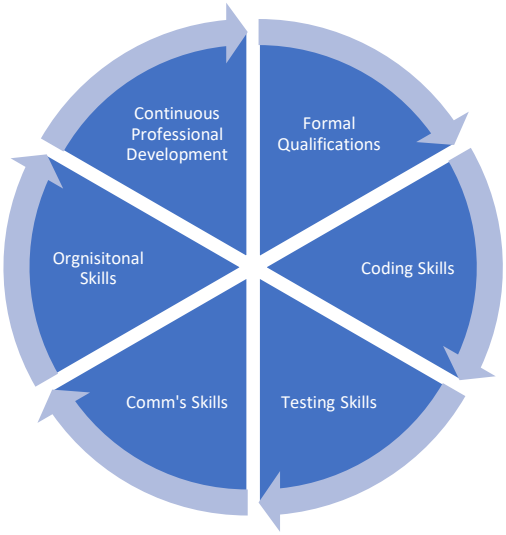
6 skills to become a software engineer

A bit like a magician who turns a dream into a reality, software engineers have the ability to transform simple thoughts into tangible products.

Responsible for building, developing, launching and maintaining systems, applications and platforms; software engineers are skilled enough to make the impossible, possible - a trait that is hugely attractive. According to a report from Glassdoor, nearly a fifth (19%) of all Generation Z (those born after 1997) job applications are for software engineer roles.

Given that we live in the modern world where our lives evolve around technology and smart devices, this influx of candidates will be welcomed with open arms in an industry that has been plagued in recent years by vast skills shortages.

If you are looking to further your career in the world of software engineering, you need to first master these key skills to make your application stand out:



1. Formal qualifications

Building a career as a software engineer has a minimum entry-level education, which typically involves a bachelor's degree. The most common of these are awarded in computer software engineering or within the fields of computer science or mathematics.

Once you enter the world of software engineering, there are several career paths open to you, the most popular career paths being:

- Blockchain engineer
- Security engineer
- Embedded engineer
- Data engineer
- Back end engineer

After deciding what area of software engineering you want to carve your career in, you should look for formal certifications in order to demonstrate you have attained a certain level of competence and make yourself a more desirable candidate.

Why choose to certify with BCS? Simple, they offer over 70 certifications in 12 core subject areas, including:

- Software testing: learn how to adapt and contribute to fast-changing environments within an agile business.
- Solution development and architecture: support your career progression with an international benchmark of skills and experience.
- User experience: acquire suitable knowledge of the core concepts, common tools, techniques and methods.

BCS certification offers formats to suit your preferred learning style, including self-study and classroom training.

Discover more about the portfolio of qualifications from the BCS, many of which are provided by TSG Training as an accredited provider of the BCS.

2. Coding skills

You can't really be a software engineer without knowing how to programme - it's a prerequisite of the job. With so many programming languages in existence, you might feel worried about whether you'll ever be able to learn them all.

Don't.

While it is essential that you familiarise yourself with different programming languages and operating systems, you should choose one to master and a further 2-3 to be fluent in. In a survey from HackerRank, the most common programming language is JavaScript, cited by 73% of developers. While the 4 most popular languages they wish to learn are Go, Kotlin, Python and TypeScript.

The other important consideration is knowing how to code for mobile. In the digital world, smartphones and devices seem to have become an extension of our bodies - we run our lives on those little shiny black boxes. Sharpening those mobile skills ensures you're futureproofing your career options now, rather than being forced to play catch up later.

3. Testing skills

The biggest bug in production is deploying untested or broken code or systems that do not met requirements or underpin the business in the manner intended. Therefore, one of the greatest skills you can possess is the ability to test and debug your own code. There are currently 10 methods of product testing and simply mastering 3 of them will have a huge impact on your reputation and employability. However, testing code is but one small part of a software testing engineers job. The absolute best value of testing is not from bug detection, but from bug prevention. As a software testing engineer, a costly mistake you could make is not testing acceptance criteria, requirement and specifications, before things are signed off and built. After all, why build things that are wrong when with a little effort you could prove that development is on the right footing and track to deliver in line with business need?

Testing your software often requires you to think logically, because the smallest of errors can lead to the biggest problems. By structuring your thinking, you can follow the process through, step-by-step to unpick what you have done in order to find the problem.

If you are aiming to be the best software engineer, you need an edge - and that edge is curiosity. Curiosity is what creates new innovations and enables people to continuously improve. By questioning, experimenting and testing your ideas, you are more likely to hit upon something truly spectacular. A real good place to imbue these skills is through the industry acknowledged software testing engineer development programme from TSG Training.

4. Communication skills

Forget the stereotypical image of a geek hammering away on a keyboard, quietly in the corner. As a software engineer, your job is far more than just writing code. To achieve the best results, you need to work well as part of the team - and that means clearly communicating with your colleagues.

Being able to clearly express your ideas means that others may be able to spot how to improve them for a better end result. And if you're up against a challenging bug, asking your team for help will enable you to problem solve in new and interesting ways.

Once the project's finished, it's all about that user documentation. Yes, it sometimes feels like a chore, but it needs to be done. The no.1 pet peeve for many organisations is badly written documentation. Master the skill of the written word and you'll stand head and shoulders above your peers, as well as helping to create a better end user experience.

5. Organisational skills

Planning is an essential skill for a software engineer. The ability to understand the requirements and project scope to then prioritise the key tasks, set deadlines and maintain high levels of performance are necessary if you're to release a quality product on time.

Furthermore, attention to detail is important, particularly when it comes to fixing issues since you'll have to wade through reams of code to identify the tiniest of glitches. And then patience when dealing with your customer - either internal or external - when they want to make a change, there's a new 'priority' and 'ghost' bugs appear.

Having the ability to organise your workload and manage expectations so that people know when you're available and when you'll be focusing on deep work, is the key to avoid feelings of frustration and complete overwhelm when tackling the task at hand.

6. Continuous professional development

The technology landscape moves fast - for example, in recent months, there's been huge developments in encryption and cryptography, blockchain and artificial intelligence. A good software engineer will keep abreast of the technological changes, seeking opportunities to learn more and continuously develop their skillset.

Just like a web designer would critique different websites and an English scholar would read endless literature, anyone studying software engineering should study good source code to identify the techniques for improving their own skillset.

In addition, seeking out opportunities to learn from your peers, through research reports, industry events, local meetups and articles are perfect ways to hone your craft.

As a BCS member, you gain access to a CPD tool to track and monitor your career development so you're always aware of the next step and what you need to achieve it. And, through SFIA***plus***, you can see the available courses that will help you secure those new skills.

SFIA is the industry leading 'Skills Framework for the Information Age'. All BCS courses align to the framework, which means your new qualification will be recognised across 200 countries worldwide. Because

BCS holds a unique position in the tech community, able to offer critical insight and impartial guidance, they have developed the framework into SFIAplus. The 'plus' meaning that each skill level is supplemented with 6 additional task definitions and 8 additional skills resources (all of which are supported by TSG Training)

Discover more about SFIA***plus*** from the BCS.