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TEACHERS AND LECTURERS

Software & Development careers: a guide for teachers and lecturers

The Eight Domains of Software Application Development Capability

Figures checked from 11 July 2026. Built from the TechSkills Career Matrix.

About this guide

This guide is for teachers and lecturers who advise students on careers in Software & Development.

It is built from the TechSkills Career Matrix and Career Planner. Every pay, hiring and funding figure shows its source and the date it was checked. Where our data has a gap, the guide says so.

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Produced by	TechSkills, techskills.org

Software & Development at a glance

No.	Area of work	What it covers	Example roles	Pay range
01	Experience Engineering	This domain focuses on the design and development of applications that users directly interact with, from websites to enterprise platforms.	Frontend Developer, Backend Developer, Full Stack Developer, Web Architect	£30,000 to £105,000+
02	Ubiquitous Computing	Focused on mobile, wearable, and cross-platform solutions that extend digital services into everyday life.	iOS Developer, Android Developer, Mobile Specialist, App Architect	£42,500 to £110,000+
03	Deep Tech Engineering	Working close to hardware, operating systems, and connected devices.	Embedded Engineer, Systems Developer, Firmware Engineer, IoT Architect	£45,000 to £135,000+
04	Platform, Cloud & Cyber Resilience	Ensuring software can be deployed, protected, and maintained at national and global scale.	DevOps Engineer, Cloud Architect, Security Engineer, Site Reliability Engineer	£42,500 to £135,000+
05	Technical Strategy & Leadership	Transforming technical capability into business value.	Chief Technology Officer, Engineering Manager, Technical Lead, Solutions Architect	£80,000 to £180,000+
06	Frontier & Emerging Technologies	Advancing the boundaries of software through AI, sustainability, automation, and decentralised systems.	AI Tools Engineer, Green Tech Developer, Web3 Developer, Automation Lead	£45,000 to £130,000+
07	Quality Engineering & Testing	Designing test strategies, automation frameworks, and quality gates that catch issues before users do.	QA Engineer, Test Automation Engineer, SDET, Quality Lead	£36,250 to £90,000+
08	Software Architecture & Systems Design	Making the structural decisions, how services communicate, how data flows, how systems scale, that determine whether software survives contact with millions of users.	Software Architect, Principal Engineer, Systems Designer, API Architect	£45,000 to £140,000+

Pay ranges come from job advert data. The source for each range is shown with the area of work in the next section.

The areas of work, one by one

01 Experience Engineering

What it is	This domain focuses on the design and development of applications that users directly interact with, from websites to enterprise platforms.
Example roles	Frontend Developer, Backend Developer, Full Stack Developer, Web Architect
Skills used	Modern JavaScript ecosystems; API architecture; Performance optimisation; Accessibility; Secure design
Who it suits	Individuals motivated by tangible outcomes and user impact.
Example of the work	Enables organisations to deliver digital services, customer experiences, and operational platforms.
What shows someone can do it	Ability to ship production-grade software; Collaborate across disciplines; Maintain systems at scale
Sectors that hire	Retail & E-commerce, Financial Services, Media & Entertainment, Travel & Hospitality, Technology & Software
Pay	£30,000 to £105,000+. Source: junior Frontend Developer to senior Full Stack Developer/Architect roles, IT Jobs Watch UK.

Apprenticeship route: Software Developer, Apprenticeship Route

What it is	Build production software for a real employer from day one, with structured off the job training and workplace mentoring, instead of starting with a university lecture theatre.
Example roles	Software Developer Apprentice, Junior Developer, Associate Software Engineer
What suits this route	Comfortable learning on the job with structured mentoring rather than lecture based study; Wants to earn a wage and avoid student debt while training; Can meet real employer entry requirements, typically GCSEs or A levels rather than a completed degree
Pay	£21,000 to £58,000. Source: Software Engineer Apprentice to mid-career Associate Software Engineer, Glassdoor/Payscale UK.

Standard	Reference	Level	Typical length	Checked
Software Developer	ST0116	Level 4	24 months	30 July 2026
Digital and Technology Solutions Professional (integrated degree)	ST0119	Level 6	48 months	29 July 2026

02 Ubiquitous Computing

What it is	Focused on mobile, wearable, and cross-platform solutions that extend digital services into everyday life.
Example roles	iOS Developer, Android Developer, Mobile Specialist, App Architect
Skills used	Native and cross-platform development; Mobile security; Offline-first design; Device integration
Example of the work	Drives consumer engagement, productivity, and accessibility through always-available applications.
What shows someone can do it	Ability to deliver reliable, performant apps across diverse devices and environments.
Sectors that hire	Retail & E-commerce, Healthcare & Life Sciences, Financial Services, Transport & Logistics, Technology & Software
Pay	£42,500 to £110,000+. Source: junior Android Developer to senior iOS Developer/App Architect roles, IT Jobs Watch & Glassdoor UK.

03 Deep Tech Engineering

What it is	Working close to hardware, operating systems, and connected devices.
Example roles	Embedded Engineer, Systems Developer, Firmware Engineer, IoT Architect
Skills used	Low-level programming; Real-time systems; Hardware integration; Safety-critical development
Example of the work	Supports manufacturing, transport, healthcare, energy, and national infrastructure.
What shows someone can do it	Precision, reliability, and the ability to operate in high-stakes environments.
Sectors that hire	Manufacturing & Engineering, Automotive, Healthcare & Life Sciences, Energy & Utilities, Aerospace & Defence
Pay	£45,000 to £135,000+. Source: graduate Embedded Software Engineer to senior IoT Solution Architect, IT Jobs Watch & Glassdoor UK.

04 Platform, Cloud & Cyber Resilience

What it is	Ensuring software can be deployed, protected, and maintained at national and global scale.
Example roles	DevOps Engineer, Cloud Architect, Security Engineer, Site Reliability Engineer
Skills used	Cloud infrastructure; Automation; Cybersecurity; Observability; Incident response
Example of the work	Enables digital transformation while safeguarding data, services, and trust.
What shows someone can do it	Operational ownership, risk awareness, and resilience engineering mindset.

Sectors that hire	Financial Services, Government & Public Sector, Telecommunications, Retail & E-commerce, Energy & Utilities
Pay	£42,500 to £135,000+. Source: junior DevOps Engineer to senior Site Reliability Engineer/Cloud Architect, IT Jobs Watch & Glassdoor UK.

05 Technical Strategy & Leadership

What it is	Transforming technical capability into business value.
Example roles	Chief Technology Officer, Engineering Manager, Technical Lead, Solutions Architect
Skills used	Leadership; Systems thinking; Governance; Stakeholder alignment; Delivery oversight
Example of the work	Shapes innovation, productivity, and competitiveness across the economy.
What shows someone can do it	Ability to make high-impact decisions under uncertainty.
Sectors that hire	Financial Services, Professional & Consulting Services, Technology & Software, Government & Public Sector, Manufacturing & Engineering
Pay	£80,000 to £180,000+. Source: Technical Lead median to CTO 90th-percentile, IT Jobs Watch UK.

06 Frontier & Emerging Technologies

What it is	Advancing the boundaries of software through AI, sustainability, automation, and decentralised systems.
Example roles	AI Tools Engineer, Green Tech Developer, Web3 Developer, Automation Lead
Skills used	AI integration; Sustainable computing; Advanced automation; Distributed systems
Example of the work	Positions the UK as a global leader in future technologies.
What shows someone can do it	Adaptability, experimentation, and continuous learning.
Sectors that hire	Technology & Software, Financial Services, Energy & Utilities, Media & Entertainment, Government & Public Sector
Pay	£45,000 to £130,000+. Source: Green Tech/Sustainability Engineer entry to senior Blockchain Developer/AI Engineer, Indeed, IT Jobs Watch & Glassdoor UK.

07 Quality Engineering & Testing

What it is	Designing test strategies, automation frameworks, and quality gates that catch issues before users do.
Example roles	QA Engineer, Test Automation Engineer, SDET, Quality Lead
Skills used	Test automation frameworks; CI/CD quality gates; Performance and load testing; Exploratory testing; Bug triage

Who it suits	Meticulous thinkers who take pride in things working properly the first time.
Example of the work	Protects revenue, reputation, and user trust by preventing defects reaching production.
What shows someone can do it	Rigour, attention to detail, and the ability to think like both a user and an adversary.
Sectors that hire	Financial Services, Retail & E-commerce, Healthcare & Life Sciences, Technology & Software, Automotive
Pay	£36,250 to £90,000+. Source: junior QA Engineer to Senior QA Manager/Quality Lead, IT Jobs Watch UK.

08 Software Architecture & Systems Design

What it is	Making the structural decisions, how services communicate, how data flows, how systems scale, that determine whether software survives contact with millions of users.
Example roles	Software Architect, Principal Engineer, Systems Designer, API Architect
Skills used	System design; Distributed systems; API and integration design; Scalability planning; Technical documentation
Who it suits	Senior engineers who think in systems, not just code.
Example of the work	Prevents costly rebuilds by getting foundational technical decisions right early.
What shows someone can do it	Ability to balance trade-offs between speed, cost, and long-term maintainability.
Sectors that hire	Technology & Software, Financial Services, Telecommunications, Retail & E-commerce, Government & Public Sector
Pay	£45,000 to £140,000+. Source: Systems Designer to senior Software Architect/Principal Engineer, IT Jobs Watch & Glassdoor UK.

Routes into the field

Route	What it is	Cost and pay
Apprenticeships	Earn while they train through structured learning that combines workplace experience with recognised development.	their employer (or the government, via the apprenticeship levy and co-investment) pays for all their training and assessment costs directly to the provider, they are never billed for tuition, and they don't take out a loan for it. Apprentices are paid at least the apprentice minimum wage of £8.00 an hour.
Degrees	Build strong technical foundations through longer-form study with opportunities to specialise and progress academically.	Covers their tuition fees in full, paid directly to their university or college, not means-tested, so every eligible student can borrow the same amount regardless of household income. Repayments under Plan 5 are 9% of income above £25,000 a year, and the loan is written off after 40 years.
Bootcamps & Intensive Training	We don't currently have any Tech Industry Gold accredited bootcamp providers - accelerate their move into tech via the government's own Skills Bootcamps programme instead: free, flexible courses up to 16 weeks, built around employability.	Free to the learner. Up to 16 weeks. Available across England.
Flexible Learning (Apprenticeship Units)	Build relevant tech skills through shorter, flexible learning without committing to a full programme from the start.	Shorter, flexible training. Focused, in-demand skills. Aligned to employer needs. Can build toward larger qualifications.

Apprenticeships: Explore Apprenticeships

Degrees: Find Degrees

Bootcamps & Intensive Training: Find a Skills Bootcamp (gov.uk)

Flexible Learning (Apprenticeship Units): Explore Flexible Learning

Who pays for an apprenticeship	Employers with an annual pay bill over £3 million pay into the apprenticeship levy, topped up by government, to fund training. Smaller employers get most of the cost covered through government co-investment, and from the 2026/27 funding year, training for under-25s at these smaller, non-levy-paying employers is fully funded.
Apprentice minimum wage	£8.00 an hour: the National Minimum Wage apprentice rate, which applies if they're under 19, or 19+ and in the first year of their apprenticeship (from 1 April 2026). Once they're 19+ and past their first year, they move to the normal age-based National Minimum Wage (up to £12.71/hour for ages 21+ from April 2026), many employers pay well above the legal minimum.

Funding sources: gov.uk: Apprenticeship funding rules and assessment plan guidance, 2026 to 2027 (checked 20 July 2026); gov.uk: Student finance for undergraduates, gov.uk: Repaying your student loan; gov.uk: How interest is calculated, Plan 5 (checked 20 July 2026). Rates change each year, so confirm current figures on gov.uk before quoting them.

Apprenticeship standards in this career family

Reference	Standard	Level	Typical length
ST0116	Software Developer	Level 4	24 months
ST0119	Digital and Technology Solutions Professional (integrated degree)	Level 6	48 months

ST0116 Software Developer The core UK apprenticeship standard for professional software development. Run by employers including IBM, across 15 pathways from Level 3 to 6.

ST0119 Digital and Technology Solutions Professional (integrated degree) A Level 6 honours degree apprenticeship with a software engineering pathway. BT runs its own version of this route as a four year, fully employer funded honours degree.

Pay and hiring

Level	Median pay	25th to 75th percentile	Salaries in sample	Source	Period
Junior	£32,000	£30,000 to £35,000	32	IT Jobs Watch: Junior Software Developer (UK)	6 months to 11 Jul 2026
Mid-level	£60,000	£48,750 to £70,000	Not given	IT Jobs Watch: Software Developer (UK)	6 months to 11 Jul 2026
Senior	£65,000	£60,000 to £74,475	352	IT Jobs Watch: Senior Software Developer (UK)	6 months to 11 Jul 2026

A small sample makes a figure indicative only. The hiring note below says where that applies.

Hiring	Demand for software developers in the UK remains healthy, but employers are becoming more selective, hiring commentary through 2026 describes a market that prioritises strong technical fundamentals and cloud experience over breadth alone. The junior-level figures above are based on a small sample (32 postings), so treat that specific band as indicative rather than precise.
Remote working	38.73% of UK coding and software development job postings were listed as hybrid or flexible (Jan-Apr 2026 data).
Fastest growing skill	Python usage among professional developers grew 7 percentage points year-on-year in the 2025 Stack Overflow Developer Survey, the largest jump of any major language.

Skills and certifications

Skills employers ask for

Skill	Importance	Demand	Time to learn	Route
Git & Version Control	Critical	Very High	1-2 weeks	All routes
JavaScript	Critical	Very High, in 66% of postings	4-6 weeks	All routes
Python	High	High, in 13% of postings	4-6 weeks	All routes
SQL (Structured Query Language) & Relational Databases	High	High, in 12% of postings	2-3 weeks	All routes
C# & .NET	High	Very High, in 30% of postings	6-8 weeks	All routes
Cloud Fundamentals (Azure or AWS)	High	High, in 20% of postings	3-4 weeks	All routes
Automated Testing	Medium	High	2-3 weeks	All routes
Agile Ways of Working	Medium	Medium, in 17% of postings	1 week	All routes

Git & Version Control: Git and GitHub for Beginners freeCodeCamp

Git & Version Control: Git documentation Git

JavaScript: JavaScript MDN Web Docs

JavaScript: JavaScript Algorithms and Data Structures freeCodeCamp

Python: Python documentation Python.org

Python: CS50's Introduction to Programming with Python Harvard (edX)

SQL (Structured Query Language) & Relational Databases: PostgreSQL documentation PostgreSQL

SQL (Structured Query Language) & Relational Databases: SQL Khan Academy

C# & .NET: C# learning path Microsoft Learn

C# & .NET: .NET documentation Microsoft Learn

Cloud Fundamentals (Azure or AWS): Azure Fundamentals learning path Microsoft Learn

Cloud Fundamentals (Azure or AWS): AWS Cloud Practitioner Essentials AWS Skill Builder

Automated Testing: Testing your code MDN Web Docs

Agile Ways of Working: Agile Software Development Coursera (audit)

Git & Version Control: Cited as a baseline requirement across UK junior developer hiring guidance, though rarely broken out as its own keyword-percentage in job-ad analyses since it's assumed rather than explicitly tested for. JavaScript: Share of professional developers who use JavaScript (global, not UK-specific). Python: Share of UK Software Developer job postings mentioning Python. SQL (Structured Query Language) & Relational Databases: Share of UK Software Developer job postings mentioning SQL Server specifically; broader SQL/database skills are cited even more widely in junior-role skills guidance. C# & .NET: C# appears in 29.61% of UK Software Developer postings, .NET in 23.80% (6 months to 11 Jul 2026). Cloud Fundamentals (Azure or AWS): Azure appears in 19.50% of UK Software Developer postings, AWS in 14.41% (6 months to 11 Jul 2026). Automated Testing: Consistently cited across UK junior-developer skills guidance as an expected competency, though not broken out as a standalone percentage in job-ad keyword analyses. Agile Ways of Working: Share of UK Software Developer job postings mentioning Agile.

Certifications

Certification	Provider	Cost	Time	Level	Recognised	Best stage
Microsoft Certified: Azure Fundamentals (AZ-900)	Microsoft	£77 (exam fee, correct at time of writing, check learn.microsoft.com for current pricing)	2-4 weeks part-time	Beginner	High	Before you apply
AWS Certified Cloud Practitioner	Amazon Web Services	$100 / approx. £80 (exam fee, correct at time of writing, check aws.amazon.com/certification for current pricing)	2-4 weeks part-time	Beginner	High	Before you apply

For teachers and lecturers

Area of work	Who it suits	Example roles	Apprenticeship standards
Experience Engineering	Individuals motivated by tangible outcomes and user impact.	Frontend Developer, Backend Developer, Full Stack Developer, Web Architect	ST0116 Level 4, ST0119 Level 6
Ubiquitous Computing	Not given	iOS Developer, Android Developer, Mobile Specialist, App Architect	None listed in the Matrix yet
Deep Tech Engineering	Not given	Embedded Engineer, Systems Developer, Firmware Engineer, IoT Architect	None listed in the Matrix yet
Platform, Cloud & Cyber Resilience	Not given	DevOps Engineer, Cloud Architect, Security Engineer, Site Reliability Engineer	None listed in the Matrix yet
Technical Strategy & Leadership	Not given	Chief Technology Officer, Engineering Manager, Technical Lead, Solutions Architect	None listed in the Matrix yet
Frontier & Emerging Technologies	Not given	AI Tools Engineer, Green Tech Developer, Web3 Developer, Automation Lead	None listed in the Matrix yet
Quality Engineering & Testing	Meticulous thinkers who take pride in things working properly the first time.	QA Engineer, Test Automation Engineer, SDET, Quality Lead	None listed in the Matrix yet
Software Architecture & Systems Design	Senior engineers who think in systems, not just code.	Software Architect, Principal Engineer, Systems Designer, API Architect	None listed in the Matrix yet

The Who it suits column comes from the Career Matrix. It is a starting point for a conversation, not an assessment.

Notes on your students

Activities for lessons and clubs

Activity	What students do	Level	Time	Skills shown
Browser To-Do List	A single-page to-do list app built in vanilla JavaScript, HTML and CSS, with add/edit/delete/complete and data saved to the browser's local storage.	Beginner	8-12 hours	JavaScript, Git & Version Control
REST API with Authentication	A backend API (Application Programming Interface, the set of rules that lets one piece of software request data or actions from another) built in the REST style (a common, widely-used pattern for structuring APIs), using Node/Express, Python/Flask, or C#/ASP.NET Core, with CRUD (Create, Read, Update, Delete, the four basic operations for working with stored data) endpoints for a resource of your choice, protected by token-based authentication such as JWT (JSON Web Token, a common format for securely proving who a user is between systems).	Intermediate	15-20 hours	SQL & Relational Databases, Automated Testing, C# & .NET
React Application Consuming a Public API	A React front-end that fetches and displays real data from a public API (Application Programming Interface, a way for one piece of software to request data from another, in this case a service that publishes free, publicly-available data, e.g. weather, film, or open government data), with search/filter functionality.	Intermediate	12-18 hours	JavaScript
Full-Stack CRUD (Create, Read, Update, Delete, the four basic operations for working with stored data) Application	A complete application combining a React (or similar) front end, a REST-style API back end, and a real SQL (Structured Query Language) database, e.g. a bookings system, budget tracker, or small inventory manager.	Advanced	25-35 hours	JavaScript, SQL & Relational Databases, Cloud Fundamentals (Azure or AWS)
CI/CD (Continuous Integration/Continuous Deployment, automatically testing and releasing code changes) Pipeline for a Personal Project	Set up an automated pipeline (e.g. GitHub Actions) that runs your test suite and deploys one of your existing projects to a cloud platform on every push to main.	Intermediate	8-12 hours	Cloud Fundamentals (Azure or AWS), Automated Testing, Agile Ways of Working
Employer Feature Build with Mentor Sign-Off	Take a real feature, change or bug fix from your employer's backlog, interpret the requirement and estimate the effort involved, choose an appropriate coding approach, then build it to your team's coding standards with unit tests covering the new logic. Submit the work through your team's normal change control process and get it reviewed and signed off by your workplace mentor before it ships.	Intermediate	10-15 hours across a sprint or project cycle	Automated Testing, Git & Version Control, Agile Ways of Working

Activity	What students do	Level	Time	Skills shown
Stakeholder Requirement and Solution Document	For a real feature or change requested within your employer's organisation, write up the customer's requirement as clear functional and non-functional technical requirements, note any security implications of your proposed approach, and produce a short document explaining the solution in plain terms to a non-technical stakeholder. Get the document reviewed and signed off by your mentor.	Beginner	4-8 hours	Agile Ways of Working

These are the portfolio projects used in the TechSkills Career Planner. Each is meant to produce work a learner can show an employer.

Where to find out more

National Careers Service Careers advice, job profiles, information and resources. (Department for Education. Checked 1 November 2026.)

Find an apprenticeship Register a profile, search vacancies and apply for an apprenticeship. Applicants must be 16 or over. (GOV.UK. Checked 1 November 2026.)

Skills Bootcamps For people updating their skills to progress in their current job or move into a different role. (JobHelp, GOV.UK. Checked 1 November 2026.)

Skills England: apprenticeship search Skills England's apprenticeship search. (Skills England. Checked 1 November 2026.)

General notes

Sources and checking

The figures in this guide were checked on dates from 11 July 2026 to 1 November 2026. Each source below shows its own date.

Skills England: ST0116 Software Developer Checked 30 July 2026

Skills England: ST0119 Digital and Technology Solutions Professional (integrated degree) Checked 29 July 2026

National Careers Service, Department for Education Checked 1 November 2026

Find an apprenticeship, GOV.UK Checked 1 November 2026

Skills Bootcamps, JobHelp, GOV.UK Checked 1 November 2026

Skills England: apprenticeship search, Skills England Checked 1 November 2026

- gov.uk: Apprenticeship funding rules and assessment plan guidance, 2026 to 2027 (checked 20 July 2026)
- gov.uk: National Minimum Wage and National Living Wage rates (checked 20 July 2026)
- gov.uk: Student finance for undergraduates (checked 20 July 2026)
- gov.uk: Repaying your student loan; gov.uk: How interest is calculated, Plan 5 (checked 20 July 2026)
- ONS ASHE Table 14, 2024 (revised) (checked 11 July 2026)
- IT Jobs Watch: Software Developer / Junior Software Developer / Senior Software Developer (UK) (checked 11 July 2026)
- Harvey Nash: Software 2026 UK Hiring Outlook (checked 11 July 2026)
- Coding and Software Development Job Market Report (UK), Learning People / Adzuna, Jun 2026 (checked 11 July 2026)
- Stack Overflow Developer Survey 2025 (Technology) (checked 11 July 2026)
- Adaface: Skills required for Junior Software Developer (checked 11 July 2026)
- SynergisticIT: Top skills hiring managers seek in new developers (checked 11 July 2026)
- IT Jobs Watch: Software Developer skills (UK), 6 months to 11 Jul 2026 (checked 11 July 2026)
- Microsoft Learn certification catalogue (checked 11 July 2026)
- AWS certification documentation (checked 11 July 2026)
- David A Good: 'You're an entry-level developer. Is getting an AWS certification worth it?' (checked 11 July 2026)