

# BHASVIC

## **Guide to Higher Education & Employability 23-24**

**Computer games design,  
Computer science,  
Information systems,  
Software engineering**

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## What to ask on any Computing-related open day

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Interested in studying computer science at university? Print out our list of questions when you're on an open day to help you get all the information you need about the course.

### About the course

- Are my teachers also practitioners?
- How much of this course is based on theory?
- How much of the course is practical application?

### Facilities and equipment

- What books/equipment is necessary for me to buy?
- How much time will I need to spend in the library/labs each week?

### Placements and work experience

- Are there any industrial placements?
- Do I have to organise my own or will I have help?
- Is there a chance for me to study abroad?

### Assessment

- What is the split between exam/ coursework/ group works/ presentations?
- Do I need to complete a dissertation/ research based project?
- What is the weighting for each part/year of the course?

### Computer science graduate prospects

- How would you increase your experiences of software and technology through university? Can you do an intercalated year of computer science?
- Does the uni have contacts in industry?
- Will companies take on interns from this course?

## Computer games design and programming

If you love gaming why not turn this passion into a career in the dynamic interactive media industry? Most computer games courses give you the opportunity to gain design, technical and business skills, with modules in computer animation and 3D modelling, game analysis and testing and game production. Some courses focus more on games design and need creative thinkers; others focus on programming and the technical side, and would suit computer literate students with ability in maths.

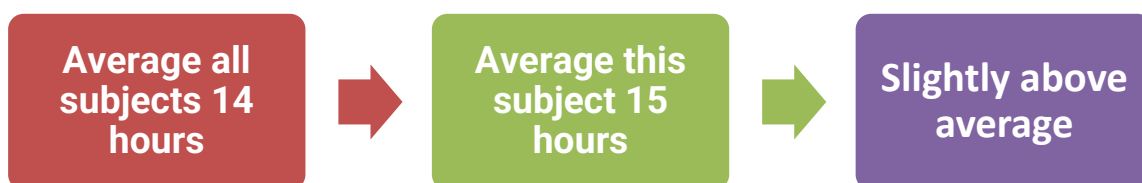
- BSC
- VOCATIONAL
- COMMUNICATION SKILLS
- BA
- COURSEWORK-INTENSIVE
- COMPUTER-LITERATE
- TECHNICAL
- INTERACTIVE MEDIA
- DIGITAL GAMES
- ANIMATION

### Example course modules

- Computer systems
- Digital graphics
- 3D modelling
- Drawing concept art for computer games
- Stop motion animation
- Multimedia design
- Developing computer games
- Object-orientated design for computer games
- Website production
- 2D animation production

### Teaching hours / week

The time you'll spend in lectures and seminars each week will vary from university to university, so use this as a guide.



### League tables for this subject

[The Guardian](#) [The Complete University Guide](#) [The Times](#)

### What students say about computer games design and programming

The content, my course being a games one, is programming-heavy, with some maths skills required. The majority of the work is practical programming, but there are some exams for certain subjects. My games course has access

to one of the few labs with development units for the PlayStation 3, and there are many standard computer labs we can use too.

*3rd year, Sheffield Hallam University*

I'm a programming student, so my classes are about 20% lectures and 80% practical work. Most of my work is done in the computer labs, and is mostly practical with a bit of writing needed. For my main class, it's very teamwork-orientated.

*2nd year, Glasgow Caledonian University*

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### **A-levels (or equivalent) usually required**

- Maths (sometimes)

### **Useful to have**

- Visual Arts
- Physics
- Computing
- ICT

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### **Application checklist**

Here's a guide to what to expect from the application process - also check individual university entry requirements, as these may differ.

- January application
- Personal statement

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### **Transferable skills**

Teamwork, IT & Technology, Problem solving, Social Skills, Organisation, Numeracy, Communication, Attention to detail, Creative thinking, Analytics, Project Management

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### **Career prospects**

This is a newly-classified subject area for this kind of data, so we don't currently have very much information to display or analyse yet. Gaming is a growing industry, and over time we can expect more students to study gaming-related degrees – and there could be new opportunities that open up for graduates in these subjects as the economy develops over the next few years.

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### **Sources & Links**

[Games Design Subject Guide | Why Study Games Design At Uni? | UCAS](#)

## Computer science courses

Would you like to play a part in the exciting and rapid changes in communication systems that impact on our daily lives? Do cutting-edge technologies such as 3D graphics, virtual reality and artificial intelligence appeal? You'll learn how computer programmes work, how users interact with them and design new systems using programming languages. Computer science graduates are in demand and you could work for a global technology company or areas such as finance, media or business.

Example degrees: Computer science, Software engineering, Computer networks, Artificial intelligence, Cyber security, Games development

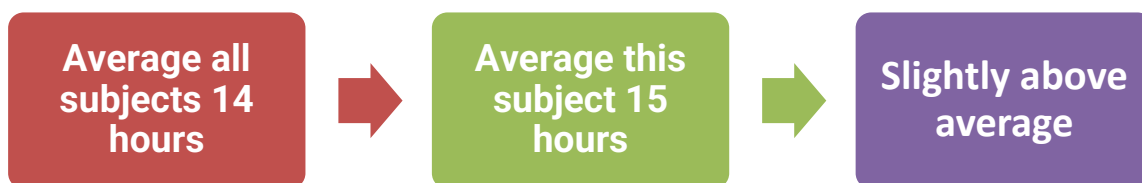
- MATHS
- BSC
- VOCATIONAL
- PRACTICAL PLACEMENTS
- TIME IN LABS
- PROBLEM-BASED LEARNING
- MATHEMATICAL NUMBER-CRUNCHING
- SCIENCE
- COMPUTER-LITERATE
- HIGHLY-TECHNICAL

### Example course modules

- Organisational behaviour in practice
- Principles of programming
- Data management
- Mathematics for computer science
- Languages and computability
- Fundamentals of design
- PC technology
- Image processing
- Software systems development
- Human computer interaction

### Teaching hours / week

The time you'll spend in lectures and seminars each week will vary from university to university, so use this as a guide.



### League tables for this subject

[The Guardian](#) [The Complete University Guide](#) [The Times](#)

## What students say about computer science

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On my computer science course, we have three types of teaching: labs, lectures and example classes. Labs are marked and you have demonstrators in each lab session to help you with the practical work. We have one or two lectures per week per course unit. In example classes, you have to do by yourself some similar examples to the ones explained in the lectures. The course is very interesting.

*2nd year, University of Manchester*

I'm doing computer science. If you haven't done programming before then it is quite challenging to start off with, but you get lots of help and support and it starts very basically. If you have done programming before then the first semester of programming will likely be quite easy. Programming is quite fun and you make a few programs of increasing complexity through the first year. Software engineering is about getting you familiar with how software is developed in industry. A lot of the first year maths is A-level maths, but there are a few extra things you have to learn.

*1st year, University of Bath*

On average I have four lectures per week - each of three hours - with additional hours (two-four extra hours) for practicals (lab sessions on programming, small group tutorials for a module). The content of my course consists of programming, some theory and some maths/logic modules. As someone who likes maths and found a likeness for programming in the first semester of my course, I find the content really interesting.

*2nd year, King's College London, University of London*

### A-levels (or equivalent) usually required

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- Maths (sometimes)

#### Useful to have

- Computing
- Further maths
- Physics
- Philosophy
- ICT

### Application checklist

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Here's a guide to what to expect from the application process - also check individual university entry requirements, as these may differ.

- January application
- Personal statement

### Employability

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Most businesses rely on computers to function effectively and there are opportunities within the IT departments of major organisations in many sectors. It's also possible to set up your own business providing IT services such as web design and consultancy. 2/5 of graduates in employment in the UK six months after graduation are working as programmers and software development professionals. Six of

the top ten jobs held by graduates are related to computer sciences and include web design and IT operations technician. The UK is very short of programmers and Cyber Security specialists.

## **What employers like about this subject**

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Some of the most popular degrees in the country are focused on computer science so there are a lot of options on offer depending on what you want to study. Subject-specific skills you can learn include different programming languages; construction and maintenance of computer hardware and computer modelling and analysis. In a highly digitised world, there are few employers who don't value computing specialists. Last year, some of the industries that employed the most computer scientists - apart from the many branches of the IT industry itself – included electronics, oil and gas, and printing and publishing.

## **Transferable skills**

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Teamwork, IT & Technology, Problem solving, Social Skills, Organisation, Numeracy, Communication, Attention to detail, Creative thinking, Analytics, Project Management

## **Example careers**

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- Applications developer
- Forensic computer analyst
- Systems analyst
- Computational linguist
- Data scientist
- Network engineer
- Bioanalysis
- Software developer
- Web designer
- IT support technician

## **Other real-life job examples**

- Management consultant
- IT manager
- Graphic designer

## **Local market information**

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### **Working in the Cyber Sector – a look at KPMG**

For anyone interested in a career in Cyber, the KPMG website is worth a visit. In addition to their current vacancies in Risk Consulting there are some videos on the diverse projects within the industry and the advancement of women at KPMG. The KPMG apprenticeship programme is also open.



## Information systems courses

Businesses, organisations and individuals across a spectrum of sectors and fields rely on complex computer systems to carry out their day-to-day needs and tasks. As these demands become more ambitious, there is a growing need for individuals to interpret these systems, understanding what a business needs and translating these into applicable systems. With a qualification in information systems, you'll gain an in-depth knowledge of how to build such large-scale information systems to prepare you for a career where you can transition across multiple areas.

- BSC
- PRACTICAL PLACEMENTS
- TIME IN LABS
- PROBLEM-BASED LEARNING
- COMPUTER-LITERATE
- HIGHLY-TECHNICAL
- PRACTICAL

### Example course modules

- Computer systems
- Business analysis and solution design
- Introduction to information systems
- Programming in Java
- Operating system concepts
- Software engineering
- Information strategy and management
- Core management concepts

### Teaching hours / week

The time you'll spend in lectures and seminars each week will vary from university to university, so use this as a guide.



League tables for this subject

[The Guardian](#) [The Complete University Guide](#) [The Times](#)

### A-levels (or equivalent) usually required

- No Specific Requirements

Useful to have

- Mathematics

## **Application checklist**

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Here's a guide to what to expect from the application process - also check individual university entry requirements, as these may differ.

- January application
- Personal statement

## **Career prospects**

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With an expert understanding of information systems, you'll find that you have a large number of graduate opportunities available to you. A large part of information systems is taking huge amounts of data, and creating and managing software and hardware which interacts with this e.g. gathering, storing, filtering and distributing this. So in the era of "Big Data" where information about individuals is being recorded on a grand level, there is a high demand for individuals who can create systems to manage this. That said the field can be competitive. That's why it's important to gain as much additional work experience on top of any you undertake as part of your degree; especially that where you get to interact with individuals in a corporate setting, so you can sharpen your commercial awareness and ability to interpret business needs from those without a technical background, and advise them onwards.

## **Jobs where this degree is useful**

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- Information systems manager
- Network administrator
- Systems analyst

## **Other real-life job examples**

- Applications developer
- IT Technical support officer
- IT Sales professional

## **What employers like about this subject**

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Contrary to the popular myth about those who work in IT, solid communications skills are advantageous, especially when explaining complex computing ideas to those without any such background. Those who can act as a bridge between different facets of a business will find many opportunities open up to them. Essentially, you'll be problem-solving as you analyse technical solutions and apply them to a business's problems, both highly-desirable skills in the eyes of employers. Additionally, you'll gain many technical skills such as knowledge of various programming languages. Meanwhile those in information systems manager roles will be charged with managing a team of programmers and analysts; these leadership skills are generally valuable as you progress in your career.

## Software engineering courses

Software touches so many corners of our daily life. Without it, computers would be useless to us because we need software to deliver instructions to fulfil our practical actions and needs. Software engineering takes the application of engineering and applies it to the creation of software. However software engineering goes beyond simply creation, also dealing with maintenance and management. It's also distinct from programming in that software engineers work as part of a team to develop a solution to a problem.

- VOCATIONAL
- TIME IN LABS
- EXAM-INTENSIVE
- COURSEWORK-INTENSIVE
- COMPUTER-LITERATE
- HIGHLY-TECHNICAL
- BENG
- PROBLEM-SOLVING LEARNING
- PRACTICAL

### Example course modules

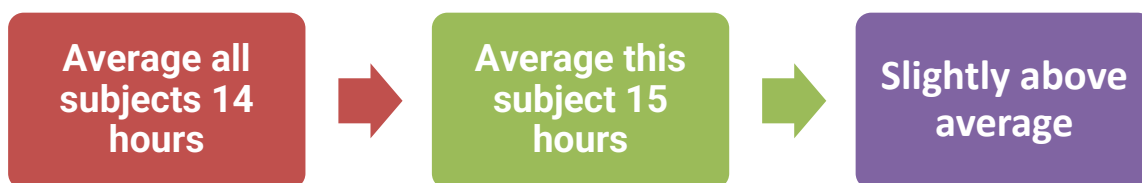
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- Business analysis and solution design
- System environments
- Networking and operating systems
- Database and UML modelling
- Programming and user interface design
- Programming language paradigms
- Information systems
- Computer algorithms and modelling
- Communications systems
- Application and web development

### Teaching hours / week

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The time you'll spend in lectures and seminars each week will vary from university to university, so use this as a guide.



League tables for this subject

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[The Guardian](#) [The Complete University Guide](#) [The Times](#)

## **A-levels (or equivalent) usually required**

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- Maths

### **Useful to have**

- Computing

## **Application checklist**

---

Here's a guide to what to expect from the application process - also check individual university entry requirements, as these may differ.

- January application
- Personal statement

## **Career prospects**

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Software engineering graduates are equipped to enter the innovative software industry, but can actually find employment in any company which has a hand in computer systems. The role of software engineer is still pretty new; but with the explosion of mobile technology, apps and data-processing systems in all facets of life, the area has witnessed massive growth in a short space of time. Plus more and more objects are being fitted with computer systems which require special software to carry out commands. Popular roles include software architects, software engineers and software developers, but can also stretch to cyber security managers and IT consultants. Employers can range from e-commerce sites and government agencies to tech giants and even the military. While many graduates work in large teams, there are opportunities as independent consultants too.

## **Transferable skills**

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Teamwork, IT & Technology, Problem solving, Social Skills, Organisation, Numeracy, Communication, Attention to detail, Creative thinking, Analytics, Project Management

## **Jobs where this degree is useful**

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- IT Project manager
- IT Systems analyst
- Site developer

### **Other real-life job examples**

- Software consultant
- Technical consultant
- Project manager

## **What employers like about this subject**

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Software engineering graduates possess the in-depth knowledge to work in any organisation which has a hand in computer systems (which is a lot!). This includes a detailed understanding of hardware, software and several programming languages. Because software engineering roles are focused around creating solutions to real-life problems, graduates are expected to have excellent analytical skills, including the ability to respond quickly to problems which arise throughout the design process; to interpret technical plans; and to communicate instructions to the wider team (especially important for

those in senior roles). In fact these communication skills go further! You might be forgiven for thinking that the brains behind the software would be sat in a darkened room, putting it altogether – not true! You may be called on to explain to clients how the software works.

## Sources & Links

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[Software Engineering Subject Guide | Why Study Software? | UCAS](#)

We asked admissions tutors to share their dos and don'ts for writing a strong and engaging computer science personal statement. Here's what they told us...

### What computer science tutors are looking for

'I want to know that you know what computer science is actually about. At Oxford it's a mathematical subject, so show a bit of mathematical interest too. It's not so much the knowledge you get from maths that matters, but the skills you've developed through it and the ability to think logically and mathematically. I would also be interested to hear about any reading around the subject or any programming you've done. Even if it's just a simple programme, talk about it and show your enthusiasm. But remember that we will probably then delve into it at interview.' Professor Gavin Lowe | Admissions Co-ordinator For Computer Science - University Of Oxford

'We read lots of statements that start "Ever since I was five years old I have been interested in computing". We do want to see passion for the subject, but be original. Try to tell us why you are passionate about computing now and how you can demonstrate this. Make sure you understand the aims and approach of the degree programmes you are applying for and make sure your application demonstrates that. So if you are applying for one of our creative pathways like creative computing or music computing, let us know what kind of relationship you are interested in pursuing between computing and your artistic practice.' Robert Zimmer | Head Of Computing - Goldsmiths University Of London

### What to include in your computer science statement

A strong opening: explain succinctly where your enthusiasm for computer science comes from, and why – but avoid the temptation to begin with a potted history describing when you got your first computer!

How you're engaged with the subject: do talk about what's inspiring you or motivating you to study it, whether it's a relevant book or news articles you've read, or maybe a bit of programming you've done.

An understanding of what's involved: tutors love to read statements where your enthusiasm for the subject comes across, alongside a clear sense that you understand what computer science as a discipline is all about. Don't actually tell them what it is – they know that already. Show them that you know.

Your personal goals: what are you hoping to achieve by studying this subject for the next three to four years?

Show you're a team player: according to the engineering and computer science department at Durham University, 'try to write about how you work with others. Have you been part of a team or led a team? Have you had to organise something complex such as an event, a play or a football league?'

### Computer science personal statement pitfalls

Not standing out: Professor Lowe from the University of Oxford says that lots of the personal statements he sees 'are similar, bland, impersonal and don't stand out – so make it personal, specific, and concrete'.

Using clichés: avoid phrases such as 'computers are important in the modern world' or just saying 'I'm fascinated by artificial intelligence' without explaining why.

Quoting Wikipedia: 'We already know what computer science is so we don't need a Wikipedia definition. We're interested in your understanding of it and your desire to learn', Robert Zimmer from Goldsmiths adds.

### **Engagement with the subject**

Admissions tutors at University of Portsmouth and University of Warwick both agreed that clichés like 'I want to do computing because it's the future' or opening lines like 'I got my first computer when I was three' are a big turn-off.

However, they do like to see evidence of your most recent engagement with the subject, or something current that's inspired you. In fact, the kind of statement that would really hit the mark would include your reflections on some or all of the following:

- a programme you wrote or side project you've been working on
- an internship or some relevant work experience you did
- how your studies or wider reading have boosted your understanding or sparked your curiosity
- your opinions on a key topic such as data privacy
- any extracurricular interests that have given you relevant transferable skills
- an area or module you're particularly looking forward to studying. Something along those lines should engage the tutor reading your statement

[https://web.ucas.com/ps\\_computer\\_science](https://web.ucas.com/ps_computer_science)

**In Sept 2022 72 BHASVIC students** went onto study Computing-related degrees at 29 different universities including **Bournemouth University, Bristol, UWE, Brunel University London, City, University of London, Edge Hill University, Imperial College London, Kingston University, Lancaster University, Loughborough University, Manchester Metropolitan University, Newcastle University, Norwich University of the Arts, Queen Mary University of London, Royal Holloway, University of London, Staffordshire University, University for the Creative Arts, University of Bath, University of Brighton, University of Bristol, University of Cambridge, University of East Anglia UEA, University of Essex, University of Exeter, University of Greenwich, University of Kent, University of Liverpool, University of Manchester, University of Plymouth, University of Portsmouth, University of Reading, University of Sheffield, University of Southampton, University of Sussex, University of York**

### Examples of degrees and combined degrees for BHASVIC student's 2019-22 entry

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- Artificial Intelligence
- Business Computing
- Business Computing with Cyber Security
- Business Information Systems
- Computer Character Animation
- Computer Games (Software Development)
- Computer Games Art
- Computer Science
- Computer Science & Mathematics with Industrial Experience (4 years)
- Computer Science (Artificial Intelligence) with a Year-in-Industry
- Computer Science (Cyber Security) with a Year in Industry
- Computer Science (Games Development)
- Computer Science (with an industrial placement year)
- Computer Science (with Foundation Year)
- Computer Science (with integrated year in industry)
- Computer Science and Artificial Intelligence
- Computer Science and Artificial Intelligence (with an industrial placement year)
- Computer Science and Mathematics
- Computer Science for Games
- Computer Science with a Year-in-Industry
- Computer Science with an Industrial Year
- Computer Science with Artificial Intelligence.
- Computer Science with Digital Technology Partnership (PwC)
- Computer Science with High-Performance Graphics and Games Engineering
- Computer Science with Industrial Placement
- Computer Science with Innovation
- Computer Science with Placement
- Computing (International Programme of Study)
- Computing and Information Technology
- Computing for Business and Management (with an industrial placement year)
- Computing Science with a Foundation Year
- Computing Science/Mathematics
- Computing Sciences (with a foundation year)
- Computer Games Design (with a Placement Year) - Staffordshire University London
- Computer Games Technology
- Computer Science and Electronics
- Computer Science and Mathematics (with placement year)



- Computer Science and Mathematics with Industrial Placement
- Computer Science for Games
- Computer Science with an Integrated Foundation Year
- Computer Science with Cyber Security
- Computer Science with Foundation Year
- Computer Science with Industrial Placement
- Computer Science with Placement
- Computer Systems Engineering with Placement
- Computers with Electronics
- Computing
- Computing (Games Programming)
- Computing and Management (with placement year)
- Computing Science with a Year in Industry
- Computing Sciences (with a foundation year)
- Concept Art for Games and Film (with a Foundation Year)
- Cyber Security and Forensic Computing
- Cyber Security and Digital Forensics
- Data Science
- Digital Games Development
- Game Art
- Games Art & Design
- Games Arts
- Games and Multimedia Environments
- Games Design
- Games Technology
- Games Design and Art
- Games Design and Development
- Games Development (with Professional Practice Year)
- Information Technology Management
- Mathematics and Computer Science
- Robotics
- Software Engineering for Business

## Other routes

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### Higher apprenticeships (Level 4)

- [Cyber intrusion analyst](#)
- [Cyber security technologist](#)
- [Data analyst](#)
- [Digital community manager](#)
- [IS business analyst](#)
- [Network engineer](#)
- [Software developer](#)
- [Software tester](#)
- [Unified communications trouble shooter](#)

### Degree apprenticeships (Levels 5 – 7)

- [Cyber security technical professional \(integrated degree\)](#)
- [Data scientist \(integrated degree\)](#)
- [Digital and technology solutions professional \(integrated degree\)](#)
- [Digital and technology solutions specialist \(integrated degree\)](#)
- [Project manager \(degree\)](#)

[GRADUATE PROSPECTS](#)

[WHICH? STUDENT SURVEY](#)

[HESA](#) & [HEPI-HEA](#)

[Computer Science Subject Guide | Why Study Computer Science? | UCAS](#)

<https://targetcareers.co.uk/uni/degree-subject-guides>

<https://www.whatuni.com/advice/guides/subject-guides/>

<https://www.thecompleteuniversityguide.co.uk/courses>


<https://universitycompare.com/guides/subject/>

<https://www.timeshighereducation.com/student/advice/which-subject-should-you-study-university>

<https://targetcareers.co.uk/career-sectors>

[Institution of Analysts and Programmers](#)

[The Chartered Institute for IT](#)

<b>Computer Science, Computing &amp; IT</b> 	<ul style="list-style-type: none"><li>• Why choose Computer Science at university.</li><li>• Computer Science-related courses at university &amp; grades needed.</li><li>• About degree &amp; higher apprenticeship schemes and which universities offer them.</li><li>• Apprenticeship schemes &amp; opportunities in summer schools, internships etc.</li></ul>	<a href="#">BHASVLE/Computer Science /Uni &amp; Apprenticeships</a>  <a href="#">Twiter - @BHASVIC_Comp</a>
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