

## Programme Specification

Programme Summary Information			
1	<b>Programme Title</b>		CertHE in Computer Science with Artificial Intelligence
2	<b>University of Sunderland Course Code</b>		<b>UCAS Code</b>
3	<b>Awarding Institution</b>		University of Sunderland
4	<b>Teaching Institution(s)</b> (if different from point 3)		University of Sunderland in London
5	<b>Professional Statutory or Regulatory Body (PSRB)</b> (if applicable)		N/A
6	<b>For Apprenticeships:</b>		
	<b>Name of Apprenticeship Standard</b>		N/A
	<b>Apprenticeship Standard Number</b>		N/A
	<b>IfATE LARS Number</b>		N/A

7	Programme Description
	<p><b>Overview</b></p> <p><i>The CertHE in Computer Science with Artificial Intelligence is a one-year, Level 4 programme designed to provide a strong foundation in core computing alongside an introduction to artificial intelligence (AI). It offers an accessible entry point into higher education for a diverse range of learners, including school leavers, adult returners and those seeking a shorter, employment-focused qualification. The programme also serves as a clear progression route into Level 5 of a full honours degree in Computer Science with AI or related disciplines.</i></p> <p><i>Structured over two academic terms, the programme delivers a balanced curriculum that integrates fundamental areas of computer science such as programming, mathematics, algorithms and computer systems with introductory AI and data concepts. Students develop both theoretical understanding and practical skills, enabling them to design, implement and evaluate basic software and AI solutions. The curriculum emphasises computational thinking, problem-solving and the application of digital technologies to real-world challenges.</i></p> <p><i>A key feature of the programme is its strong alignment with industry and employer expectations. The content has been designed to reflect current labour market demands, particularly in areas such as software development, data handling and entry-level AI applications. Through hands-on laboratory work, applied projects and portfolio-based assessments, students gain practical experience that mirrors professional practice. This approach ensures that graduates are equipped with demonstrable skills relevant to roles such as junior developer, data technician or AI support assistant.</i></p> <p><i>The programme also places significant emphasis on the development of transferable skills, including communication, teamwork and professional awareness. Students are encouraged to articulate technical ideas clearly, work collaboratively on projects and reflect on ethical considerations in computing and AI, such as data privacy, bias and responsible innovation.</i></p>

Assessment is mostly coursework-based, supporting continuous learning and regular feedback. This design reflects student preferences for applied and supportive assessment methods while also promoting confidence, retention and academic success. Tasks such as programming portfolios, technical reports, data analysis exercises and project presentations allow students to build a body of work that can be used to demonstrate their capabilities to employers or for further study.

### **What's covered in the course?**

The CertHE in Computer Science with Artificial Intelligence covers the essential foundations of computing while introducing students to the core principles and applications of artificial intelligence. The course is designed to build knowledge progressively, combining theoretical understanding with practical, hands-on experience across four interrelated areas.

The programme begins with programming and computational thinking, where students learn how to design and implement solutions to structured problems. This includes writing code using a high-level programming language, understanding key constructs such as variables, control structures and functions and developing logical approaches to problem-solving. Students also gain experience in debugging, testing and improving their code, laying the groundwork for software development.

Alongside programming, the course develops mathematical and algorithmic knowledge that underpins both computer science and AI. Students explore topics such as logic, discrete mathematics, and basic statistics, as well as learning how algorithms are designed and evaluated. These concepts support analytical thinking and enable students to understand how computational problems are structured and solved efficiently.

The programme also introduces the fundamentals of computer systems and software engineering. Students examine how computer hardware and software interact, including the role of processors, memory, operating systems and basic networking. In addition, they are introduced to structured approaches to software development, including planning, designing, testing and maintaining software systems, as well as using industry-relevant tools to support development.

A key component of the course is the introduction to artificial intelligence and data. Students learn about the basic concepts of AI, including how intelligent systems are designed and how data is used to inform decision-making. They engage with simple AI techniques, such as rule-based systems and introductory machine learning ideas and gain practical experience working with datasets. This includes data collection, cleaning, analysis and interpretation.

Throughout the course, there is a strong emphasis on practical application. Students participate in laboratory-based activities, mini-projects and case studies that simulate real-world scenarios. These experiences help them to build a portfolio of work demonstrating their skills in programming, data handling and problem-solving.

In addition to technical knowledge, the course develops important transferable skills. Students learn how to communicate technical information clearly in both written and oral formats, work collaboratively on tasks, and reflect on their learning. Ethical, legal and professional considerations are also embedded throughout the curriculum, including topics such as data privacy, bias in AI and responsible use of technology.

### **Where will I study?**

Students who enrolled on the CertHE in Computer Science with AI will be studying at the University of Sunderland in London. Teaching will be face-to-face.

	<b>Does the programme have an associated IFY? No</b>
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<b>8</b>	<b>Programme Awards</b>		
<b>8a</b>	<b>Name of Final Award</b>	<b>Level</b>	<b>Credits Awarded</b>
	Certificate of Higher Education	4	120
<b>8b</b>	<b>Exit Awards and Credit Awarded</b>	N/A	

<b>9</b>	<b>Programme Specific Regulations</b>
	No

<b>10a</b>			
	<b>Mode(s) of Study</b>	<b>Location/Campus</b>	<b>Duration of Study</b>
	Full time	London	1 year
	Part time	London	2 years

<b>10b</b>		
	Is this programme delivered at a <a href="#">Transnational (TNE) partner</a> ?	No
	Is this programme delivered at <a href="#">UK Partner Institutions</a> ?	No

<b>11</b>	<b>Entry Requirements</b>
	The admission requirements for this programme as stated on the course page of the University of Sunderland website at <a href="https://www.sunderland.ac.uk/">https://www.sunderland.ac.uk/</a> , or found by searching for the course entry profile located on the <a href="#">UCAS website</a> are correct. YES
	This programme is suitable for students to enter with advanced standing (e.g. APL) YES
	Where applicable use the space below to detail any specific arrangements – e.g. APL only permitted to a specific level <a href="#">Accreditation of Prior Learning (APL)</a>

<b>12</b>	<b>Programme Learning Outcomes</b>
	By the end of the programme successful students will be able to do the following:
<b>1</b>	<i>Demonstrate knowledge of fundamental computer science principles including programming, data structures, computer systems and mathematics.</i>
<b>2</b>	<i>Apply computational thinking to solve structured problems using appropriate programming techniques.</i>
<b>3</b>	<i>Explain foundational AI concepts and simple intelligent system architectures.</i>
<b>4</b>	<i>Develop and test basic software applications using professional tools.</i>
<b>5</b>	<i>Communicate technical ideas clearly in written and oral formats.</i>
<b>6</b>	<i>Demonstrate awareness of professional and ethical responsibilities in computing.</i>

<b>13. Programme Requirements</b>
<b><i>There are optional modules on this programme No</i></b>
<b>Level 4:</b> <b><i>In order to complete this programme, a student must successfully complete all the following CORE modules (totalling 120 credits):</i></b>

Module Code	Module Name	Credit Value	PLO(s) assessed
UGCS100	<i>Programming and Computational Thinking</i>	30	PLO1, PLO2, PLO4, PLO5, PLO6
UGCS101	<i>Mathematics and Algorithms for AI</i>	30	PLO1, PLO5, PLO6
UGCS102	<i>Computer Systems and Software Engineering Foundations</i>	30	PLO1, PLO4, PLO5, PLO6
UGCS103	<i>Introduction to Artificial Intelligence and Data</i>	30	PLO3, PLO5, PLO6

**For Apprenticeships only:**

**What is the total number of off the job training hours for this programme?**

**Please describe the End Point Assessment (EPA) with reference to the IfATE EPA Plan.**

**Please note mapping of PLOs against apprenticeship KSBs is required. The mapping table is available separately.**

**Please explain how Safeguarding, Prevent and British Values are embedded in the curriculum.**

**14. Employability**

**The programme contributes to the development of the following graduate attributes.**

**Please refer to [Integrated Curriculum Design Framework](#) when completing this section.**

<b>Professional</b>	<i>The programme fosters the professional attribute by embedding industry-relevant practices and standards throughout the curriculum. Students gain hands-on experience using programming languages, development environments and basic software engineering tools that reflect current workplace expectations. Through practical laboratory work, project-based assessments and portfolio development, they learn to produce work to a professional standard, manage tasks effectively and meet deadlines. The inclusion of technical reporting and presentations strengthens their ability to communicate complex ideas clearly and appropriately for different audiences. Furthermore, ethical considerations such as data privacy, algorithmic bias and responsible AI are integrated across modules, ensuring that students develop an awareness of professional responsibilities and conduct within the computing field.</i>
<b>Adaptable</b>	<i>The programme supports the development of adaptable graduates by equipping students with strong foundational knowledge and transferable problem-solving skills that can be applied across a wide range of contexts. By focusing on computational thinking, algorithmic reasoning and core principles of computer science, students learn how to approach unfamiliar problems systematically and develop solutions using appropriate tools and techniques. Exposure to a variety of topics including programming, mathematics, systems and AI encourages intellectual flexibility and the</i>

	<i>ability to connect concepts across domains. The coursework-based assessment model, with its emphasis on continuous feedback and iterative improvement, helps students build resilience, reflect on their learning and adapt their approaches in response to challenges.</i>
<b>Engaged</b>	<i>The programme also promotes the engaged attribute by encouraging active participation in learning and awareness of the broader societal context of technology. Students are involved in collaborative activities, discussions and project work that require teamwork, communication and shared problem-solving. Real-world case studies and applied tasks help students understand how computing and AI are used to address contemporary challenges, making learning relevant and meaningful. In addition, the integration of ethical and societal issues such as fairness, inclusivity and the impact of AI on society encourages students to think critically about the role of technology and their responsibilities as future professionals. Opportunities for feedback, reflection and participation in student voice mechanisms further support their engagement with both the programme and the wider academic community.</i>

**15. Additional Costs: Are there any additional costs on top of the fees?**

List any additional costs the students will have to meet and whether this is optional (e.g. an optional field trip) or essential (e.g. buying a lab coat). Give an estimation of the approximate cost which may be a range. This information should be replicated in the Module Guide and will be published on the course page.

No, but all students buy some study materials such as books and provide their own basic study materials	✓
Yes (optional). All students buy some study materials such as books and provide their own basic study materials. In addition, there are some additional costs for optional activities associated with the programme (see above)	
Yes (essential). All students buy some study materials such as books and provide their own basic study materials. In addition, there are some essential additional costs associated with the programme (see above)	

**16. Version Control**

**Programme Specifications are checked annually and updated when changes are made to the programme.**

Version Number		Date	Details of change	Author
V1	Document created	13/04/2026	New programme	Dr Yahaya Alhassan
V2	Document changed			

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Version number:	5	Template owner:	Quality Team
Date reviewed:	Jun-24	Date of next review:	Jun-29