

# PROGRAMME SPECIFICATION

## 1. Key Information

<b>Programme Title:</b>	BSc (Hons) Computer Science (Blended)
<b>Awarding Institution:</b>	Buckinghamshire New University
<b>Teaching Institution(s):</b>	Buckinghamshire New University
<b>Subject Cluster:</b>	Computing
<b>Award Title (including separate Pathway Award Titles where offered):</b>	BSc (Hons) Computer Science
<b>Pathways (if applicable)</b>	N/A
<b>FHEQ level of final award:</b>	6
<b>Other award titles available (exit qualifications):</b>	Certificate of Higher Education Diploma of Higher Education BSc Computer Science
<b>Accreditation details:</b>	N/A
<b>Length of programme:</b>	3 years
<b>Mode(s) of Study:</b>	Full Time
<b>Mode of Delivery:</b>	Blended learning
<b>Language of study:</b>	English
<b>QAA Subject Benchmark(s):</b>	Computing (including Master's) (2022)
<b>Other external reference points (e.g. Apprenticeship Standard):</b>	British Computer Society
<b>Course Code(s):</b>	BSCOMPBF
<b>UCAS Code(s):</b>	CS03
<b>Approval date:</b>	November 2024
<b>Date of last update:</b>	

## 2. Programme Summary

The world is a connected place in all aspects of modern life - ourselves in our personal activities, in businesses through commercial activities and for society via smart cities. These stimulating areas are becoming more essential and vital aspects of modern everyday life. The aim of this course is to ensure that you will acquire the full-stack of capabilities and skills in the field of Computer Science, and where relevant Artificial Intelligence (AI), to embark on careers in this ever expanding area of computing. The course will provide you with the appropriate skills and knowledge to pursue a number of careers within Computer Science including as Computer Scientists, AI developer, Software Development, Computer Vision, Intelligent Systems developer in Business, Retail and Research sectors. Furthermore, the

programme will place great emphasis on developing your employability skills, thus providing you with the competence and confidence to succeed in the many and varied roles in this exciting field.

This programme is rooted in software and web technologies, alongside computer networking and artificial intelligence, with a strong emphasis on the technical aspects, applications, and services. It is designed for those aiming to work in industries that demand expertise in web-centric computing, networking, and AI. You will develop a comprehensive understanding of the roles involved in developing software systems, managing computer networks, and applying AI technologies.

The programme provides a balance of theory and practice, providing opportunities to apply knowledge into real projects where possible. You will acquire a wide range of skills and competences such as the ability to think critically about real-world problems. You will be exposed to a variety of computing discipline areas, so that you will then be able to select and apply appropriate principles, theories, best practices and appropriate technologies to address the needs of different business contexts, users, customers and stakeholders.

There will be progression and development in your learning through the programme, from initially learning the fundamentals in areas, such as web development, programming, computer architecture, software development and network industries, before going on to apply what you have learned to various individual and team assignments. Following on from this you will develop your abilities to think strategically about dynamic real-world problems, whilst enhancing and extending your transferable skill set to include analysis, design, research and leadership.

In the final year of the programme, You will be expected to integrate, apply and evaluate the knowledge you have gained through independent, work-relevant study as part of a major project or extended written piece of work. The course provides, through choice of research topic and via selection of work focus on some assignments, for tailoring of your studies to suit your own individual interest areas and future career ambitions.

Employability skills will be enhanced through practical and real-world assessments, engaging with live project briefs, and tackling problem-solving tasks. Additionally, the flipped learning approach, which involves students engaging with learning materials before class and applying knowledge during interactive sessions, will further support the development of these skills. This combination ensures that students are well-prepared for the demands of the professional world.

### 3. Programme Aims and Learning Outcomes

#### Programme Aims

This programme aims to:

1. Provide learners with a deep understanding of the methodologies, technologies and techniques used within computing systems and web/cloud development technologies
2. Empower learners to apply knowledge of computing systems and web development technologies to the development of systems and software for industrial, business, and commercial applications, both working individually and working in professional teams

3. Make our learners aware of the impact, challenges presented, and the increasing pervasiveness and ubiquity of Computing in our contemporary world, including where appropriate web-based developments that are particularly relevant
4. Enable the building of solutions using different technologies, architectures and appropriate methodological approaches in the context of varying organisational structures
5. Enable learners to be flexible enough in the evaluation of different approaches to solving problems and taking technical decisions using computer systems, within a constantly changing complex and dynamic professional environment

## Programme Learning Outcomes

### Knowledge and Understanding (K)

On successful completion of the programme, you will be able to:

ID	Learning Outcome
K1	Understand the core principles of computer science, including AI, architectures, programming, operating systems, networks, software, and databases, especially for web/cloud.
K2	Discuss the mathematical principles behind computer science, like computability and algorithmic complexity.
K3	Recognise the need to manage software/hardware construction efficiently and effectively within a professional framework.
K4	Describe and comment upon aspects of current research, or equivalent advanced scholarship prevalent in the computer science field including the ethical, professional and legal standard requirements.

### Analysis and Criticality (C)

On successful completion of the programme, you will be able to:

ID	Learning Outcome
C1	Develop advanced problem-solving skills and recognize risks in computing systems.
C2	Develop innovative solutions to computer science issues within a quality assurance framework for critical systems.
C3	Evaluate concepts and data to make judgments, frame questions, and develop computing and AI systems logically, analytically, and ethically.
C4	Analyze future computer science technologies, focusing on various system architectures, including those using AI.
C5	Evaluate critically computer-based systems in terms of quality and associated trade-offs, whilst appreciating society's increased dependence on nascent technology.

### Application and Practice (P)

On successful completion of the programme, you will be able to:

ID	Learning Outcome
P1	Create and support social, ethical, and mathematical arguments to solve problems using advanced computer science techniques.
P2	Produce a final year computing-based project involving the key processes of analysis, design, implementation and testing; underpinned by their associated product documentation.
P3	Follow professional codes and understand the ethics of adopting computing technology in society.
P4	Use various methods and techniques to develop computer science solutions.

### Transferable skills and other attributes (T)

On successful completion of the programme, you will be able to:

ID	Learning Outcome
T1	Communicate data, ideas, problems and solutions to both specialist and non-specialist audiences effectively in writing, speaking and in appropriate forms of presentation.
T2	Apply computational data using information technology to efficiently handle such data and simulations of systems for design and testing.
T3	Consolidate and expand on previous experience in order to enhance personal development or when leading/working as part of a team.

### Graduate Attributes

The BNU Graduate Attributes of: Knowledge and its application; Creativity; Social and ethical awareness and responsibility; and Leadership and self-development focus on the development of innovative leaders in professional and creative capacities, who are equipped to operate in the 21st Century labour market and make a positive impact as global citizens.

Whilst developing as a computing professional on this programme, personal attributes are developed through the practical application of analytical skills, computational principles, algorithmic intricacy, basic microprocessors technology and intelligent systems in a variety of creative situations, including real-world scenarios, and life-critical Case Studies (K1, C1, C2, P3, P4). Analysis and evaluation approaches are embedded throughout the programme in individual and team tasks, through the appraisal of current and past computing and web/cloud-based systems supported by the feedback given to your own personal work (C3, C4, C5, P1, T1, T3). An understanding and awareness of operational applications fostered with a strong focus given to applying and assessing an appropriate life-cycle methodology (K3, C4). This nurtures the self-efficacy to develop your own work opportunities and to adapt to a constantly evolving technological work environment (K1, K2, K4, C4). Through analysing the historical, social and cultural contexts of operational computing and web/cloud-based systems, a growing social awareness is formed to ensure professional and ethical values are developed. In conjunction with the confidence to assess existing real-world, life critical systems, whilst appreciating the balance between the needs of 'software' engineering practice, embedded by computing fundamentals (C1, P1, P2, P3, P4, T2, T3).

## 4. Entry Requirements

The University's [general entry requirements](#) will apply for admission to a BSc (Hons) Degree programme. For this course, you must also hold both GCSE English Language and GCSE Maths at Grade C/4 or above, or equivalent qualifications.

A typical offer for entry to the programme would be a UCAS tariff score of 104 – 128, with UCAS points being obtained through qualifications such as A Levels, BTECs and Access to Higher Education courses in appropriate subjects.

If you do not meet the entry requirements you may, if you have relevant professional experience, still be invited for interview, where you will be required to demonstrate the necessary knowledge and understanding for entry onto the course.

Previous study, professional and / or vocational experiences may be recognised as the equivalent learning experience and permit exemption from studying certain modules in accordance with our [accreditation of prior learning](#) (APL) process.

## 5. Programme Structure

BSc (Hons) Computer Science (blended)

Level	Modules (Code, Title and Credits)	Exit Awards
<b>Level 4</b>	COM4036 Programming Concepts (20) COM4037 Computer Architecture (20) COM4038 Networking (20) COM4039 Web Development (20) COM4040 Computing Computational Fundamentals (20) COM4041 Data Protection, Ethics, and Compliance (20)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5077 Introduction to Natural Language Processing (20) COM5078 Research Methods (20) COM5079 Machine Learning (20) COM5080 Object Orientated Programming (20) COM5081 Algorithms and Data Structures (20) COM5082 Data Essentials (20)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6048 Project (40) COM6049 Data Science (20) COM6050 Cloud Computing (20) COM6051 Advanced Programming (20) COM6052 Computer Vision (20)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

## 6. Learning, Teaching and Assessment

### Learning and teaching

Our adopted teaching and learning styles in the subject of computer science reflect the role and importance that the discipline undertakes in the modern world of today. Increasing emphasis on capability, competency and performance is woven into our approach to all aspects of our teaching and learning methods. Practical coursework, both individual and in teams, features heavily in this programme. The focus is to provide learners better control of their own educational learner journeys, giving them the tools and techniques to enable them to self-regulate and to optimise their personal performance: self-reflection, performance monitoring, evaluation, and feedback within learning to support a more personalised journey. The teaching and learning approaches also aim to imbue the ability to work autonomously, both individually and in teams, reflecting the key desired professional attributes that are valued by employers in the field of computer science.

This programme will employ a blended delivery. Learners will attend High Wycombe campus for one day per week with the other day delivered asynchronously online. Learning in face-to-face workshops will focus on active learning and team based guided inquiry learning. For the asynchronous online learning, resources and learning activities will be made available to students via the University's Virtual Learning Environment (VLE). Typical pre-class activities might include a review of study notes and module learning outcomes, an online quiz, short videos, or a worksheet. Post class activities might include a review and consolidation of in class activities, short videos and a review of passages from key texts. Engagement with the VLE will be monitored so timely additional support can be offered to students who are disengaged and/or struggling.

### Assessment

Assessment will include a variety of methods that are accessible to all learners. Assessments are, where possible, authentic and tied to real-world contexts and constraints, allowing learners to practically demonstrate the skills they have developed.

We aim to incorporate, where appropriate, the use of capstone activities (to encourage learners to think critically, solve challenging problems, and develop professional employability skills) when concluding the session. This brings together knowledge with practical and analytical skills that learners have developed throughout the course. This may take the form of a traditional project, but other formats can be appropriate.

Where a learner may identify with disabilities that require further adjustments these will be handled, and adaptations made in accordance with the reasonable adjustment policy. The procedures used for assessment cover the subject knowledge, abilities and skills developed through the degree course.

Therefore, a variety of assessment vehicles will be used as appropriate to the module, including assignments carried out in the learner's own time, in-class assignment, practical exercises, presentations and reports. The form of assessment has been chosen to motivate learners to achieve their best and create learning activities for the learners. The assessment vehicles for individual modules are detailed in the module descriptor documents.

Assessments will be appropriate to the task, achievable, motivating and vocationally focussed and will form a constructive part of the learning process.

Assessments will develop general transferable skills as well as academic and practical skills.

Assessments will provide enough opportunity for the best learners to exhibit a level of innovation and creativity associated with excellence.

Level 4 assessments will be primarily formative and will encourage the development of appropriate academic practice and concepts. The emphasis will be on frequent small-scale activities wherever possible with a balance between formative and summative assessment.

Level 5 assessments will be more demanding, with the emphasis still on development of knowledge, skills, and concepts but now encouraging learning at greater depth, emphasising the fundamental principles. There will be a shift towards summative assessment.

Level 6 assessments are designed to allow learners to demonstrate their knowledge and skills so that they have become effective, independent learners. The emphasis is on summative assessment.

### Advice, Feedback and Collaborative Learning

Assessment is an integral part of the education process, promoting learning by providing a focus for consolidating, applying and demonstrating understanding of the subject matter. The listed summative assessment regime essentially measures and grades learner development and achievement in relation to the intended Learning Outcomes. It also generates feedback information for learners about the strengths and weaknesses in their work, with tutors affirming what learners have done well whilst giving constructive and encouraging advice about areas requiring reflection and further improvement.

In fact, tutor feedback on formal assessment elements is just part of the ongoing dialogue with learners about their learning and personal development. Tutors will offer learners frequent opportunities to discuss their progress, where their work can be examined and reviewed, including the evaluation of plans and drafts for assignments prior to submission. This supportive engagement helps to clarify what “good performance” is, with reference to published criteria and expected standards; it also encourages, motivates and directs learners towards achieving their full potential.

Different strategies for timely advice and effective feedback will be adopted, according to what is fit-for-purpose for learners and modules. For instance: good or bad examples of previous learner work not only give learners clues about appropriate content, structure and presentation of assignments but also highlight common mistakes and omissions; mock exam papers and formative tests; work portfolios represent a collection of structured activities completed over a period of time with regular interactions with the tutor; individual and group tutorials; practising presentations with other learners can invite peer review; model answers can supplement and extend the feedback given on assessments; group discussions can promote reflection and collaborative learning; audio and video recordings can be used at various points to explain topics and to give guidance; other technology (such as the VLE) can facilitate information sharing, and support learning and collaboration.

### Contact Hours

One unit of credit is broadly equivalent to ten notional learning hours. Full time undergraduate learners will normally study 120 credits per year on their programme (1200 notional learning hours). The combination of scheduled teaching (contact) activities, guided independent study and any opportunities for placement or work-based learning, will be defined at Module level.

## 7. Programme Regulations

This programme will be subject to the following assessment regulations:

- Regulations for Taught Degree Programmes (2023)

## 8. Support for learners

The following systems are in place to support you to be successful with your studies:

- The appointment of a personal tutor to support you through your programme
- A programme handbook and induction at the beginning of your studies
- Library resources, including access to books, journals and databases - many of which are available in electronic format – and support from trained library staff
- Access to Blackboard, our Virtual Learning Environment (VLE), which is accessible via PC, laptop, tablet or mobile device
- Access to the My BNU portal where you can access all University systems, information and news, record your attendance at sessions, and access your personalised timetable
- Academic Registry staff providing general guidance on University regulations, exams, and other aspects of learners and course administration
- Central learner services, including teams supporting academic skills development, career success, learner finance, accommodation, chaplaincy, disability and counselling
- Support from the Bucks Students' Union, including their Advice Centre which offers free and confidential advice on University processes

## 9. Programme monitoring and review

BNU has several ways for monitoring and reviewing the quality of learning and teaching on your programme. You will be able to comment on the content of their programme via the following feedback mechanisms:

- Formal feedback questionnaires and anonymous module 'check-ins'
- Participation in external surveys
- Programme Committees, via appointed learner representatives (Student Reps)
- Informal feedback to your programme leader

Quality and standards on each programme are assured via the following mechanisms:

- An initial event to approve the programme for delivery
- An annual report submitted by the External Examiner following a process of external moderation of work submitted for assessment
- The Annual Monitoring process, which is overseen by the University's Education Committee
- Review by the relevant PSRB(s)
- Periodic Subject Review events held every five years
- Other sector compliance and review mechanisms

## 10. Internal and external reference points

Design and development of this programme has been informed by the following internal and external reference points:

- The Framework for Higher Education Qualifications (FHEQ)

- The QAA Subject Benchmark Statement – Computing (2022) see detailed mapping below
- The BNU Qualifications and Credit Framework
- The BNU Grading Descriptors
- The University Strategy

Mapping of Subject Benchmark Statement and any relevant Apprenticeship Standard to Programme Learning Outcomes

Subject Benchmark Statement / Apprenticeship Standard: Computing (2022)	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)				Transferable skills and other attributes (T)		
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	T1	T2	T3
<b>Benchmark / Standard requirement</b>																
<b>Subject knowledge understanding and skills/</b> Demonstrate an exceptional understanding of the main body of knowledge for their subject and be able to exercise insightful and critical judgement in the use of that knowledge. Be creative and innovative in the application of the principles covered in the curriculum, and be able to go beyond what has been taught in classes	X	X			X	X		X	X	X		X				X
<b>Intellectual skills/</b> Critically analyse and apply a wide range of concepts, principles and practices of the subject in the context of open scenarios, showing refined judgement and adaptability in the selection and use of tools and techniques	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

<p><b>Computational problem-solving/</b>                  Be able to demonstrate sophisticated judgement, critical thinking, research design, and well-developed problem-solving skills with a high degree of autonomy, and to create highly effective computational artefacts across complex and unpredictable circumstances</p>		X		X	X	X	X	X		X		X			X	
<p><b>Practical skills across the computing lifecycle/</b>                  Demonstrate the ability to undertake problem identification and analysis to appropriately design, develop, test, integrate or deploy a highly complex computing system and any associated artefacts; deeply understand the relationship between stages and be able to demonstrate related sophisticated problem-solving and evidence-informed evaluative skills</p>	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
<p><b>Interpersonal and team working Skills/</b>                  Demonstrate the ability to work in a highly proactive and accomplished manner, including as a leading member of a team, making</p>	X	X		X			X	X			X	X	X			X

excellent use of tools and techniques to proficiently communicate, manage tasks and plan projects with minimum guidance																
<b>Professional practice covering Equality, diversity and inclusion, Sustainability and Entrepreneurship and enterprise education/</b> Identify best-of-kind practices and effect highly principled solutions within a professional, legal and ethical framework to consistently address a wide breadth of relevant considerations – including data management and use, security, equality, diversity and inclusion (EDI) and sustainability – in the work that they undertake	X				X	X	X	X	X	X		X		X	X	X

Mapping of Programme Learning Outcomes to Core Modules

Programme Learning Outcome	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)				Transferable skills and other attributes (T)			
	Module	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	T1	T2	T3
<b>Level 4</b>																	
<b>COM4036 - Programming Concepts</b>	X	X	X	X	X	X			X		X		X	X	X	X	
<b>COM4037 - Computer Architecture</b>		X		X	X	X			X	X						X	
<b>COM4038 - Networking</b>	X	X		X	X	X			X	X	X		X		X		
<b>COM4039 - Web Development</b>		X		X				X					X	X		X	X
<b>COM4040 - Computing Computational Fundamentals</b>	X	X	X	X	X				X	X			X			X	
<b>COM4041 - Data Protection, Ethics, and Compliance</b>	X	X			X	X	X			X	X		X			X	
<b>Level 5</b>																	
<b>COM5082 - Data Essentials</b>	X	X	X		X			X	X			X		X		X	
<b>COM5080 - Object Orientated Programming</b>	X			X				X	X		X	X		X	X		
<b>COM5078 - Research Methods</b>	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
<b>COM5077 - Introduction to Natural Language Processing</b>		X		X				X	X		X		X		X		X
<b>COM5079 - Machine Learning</b>	X			X		X				X	X	X					X
<b>COM5081 - Algorithms and Data Structures</b>	X	X		X	X					X			X	X			X
<b>Level 6</b>																	
<b>COM6048 - Project</b>	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
<b>COM6051 - Advanced Programming</b>	X	X		X		X	X	X									

<b>COM6049 - Data Science</b>	X	X		X				X	X	X					
<b>COM6052 - Computer Vision</b>		X	X	X		X	X	X	X	X	X		X		X
<b>COM6050 - Cloud Computing</b>	X	X		X			X	X	X	X	X		X	X	X