

BSc (Hons) Computing

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Awarding institution	Bath Spa University
Teaching institution	Bath Spa University
School	Bath School of Design
Department	N/A
Main campus	Newton Park
Other sites of delivery	N/A
Other Schools involved in delivery	N/A
Name of award(s)	Computing
Qualification (final award)	BSc (Hons)
Intermediate awards available	CertHE, DipHE
Routes available	Single
Sandwich year	Yes
Duration of award	3 years full-time (4 years with Professional Placement Year) 6 years part time
Modes of delivery offered	Campus-based
Regulatory Scheme[1]	Undergraduate Academic Framework
Exemptions from regulations/framework[2]	N/A

Professional, Statutory and Regulatory Body accreditation	N/A
Date of most recent PSRB approval (month and year)	N/A
Renewal of PSRB approval due (month and year)	N/A
UCAS code	CP11 CP12 (Professional Placement Year)
Route code (SITS)	BSCM
Relevant QAA Subject Benchmark Statements (including date of publication)	Computing (March 2022)
Date of most recent approval	June 2019
Date specification last updated	April 2024

[1] This should also be read in conjunction with the University's Qualifications Framework

[2] See section on 'Exemptions'

Exemptions

There are no exemptions

Programme Overview

BSc (Hons) Computing adopts an applied approach to help you build an understanding of computing by specifying and implementing applications and experiences. A key feature of the course is its attention to design, and the value of developing systems that are not only functional, but also reliable, intuitive and even enjoyable to use. This thread runs through the entire course yet is spotlighted particularly in user-focused modules such as *User Experience Design and Extended Reality and the 3D Web*. Another key focus is Industry-insight, through modules which are informed by industry practices and emerging trends. We expose the scope and breadth of the UK and international computer industry, and how visionaries in other industries are applying computing technologies to solve the most challenging problems. Industry-insight is consolidated in *Innovation Lab*, which simulates studio environment and helps you mature the personal qualities needed to be effective in professional contexts.

Module content targets the following themes:

- Software development
- Computational thinking
- Problem solving
- Experience design
- Communication
- Innovation
- Industry insight

- Collaboration

Themes are engaged via lab work, development challenges, co-creativity projects, client briefs and deep-dive study to gain a production-led understanding of computing. Assessment work similarly foregrounds 'learning by making', yet pays attention to the importance of contextualising work accurately, evaluating outputs critically, and communicating in ways that are meaningful to both specialist and general audiences.

BSc (Hons) Computing follows a natural trajectory that establishes core skills in year 1, expands understanding into specialist areas in year 2, and shifts focus to professional development and employability in year 3. Year 1 introduces the fundamental concepts and skills that underpin computing, including programming, system design and development, discrete mathematics and user experience. Year 2 exposes the tools and techniques used in computing disciplines to address more complex problems, while allowing you space to explore specialist topics. Year 3 engages you in longer-term development projects that build upon your interests and aim to showcase your talents to potential future employers or clients.

Programme Aims

1. Knowledge – to support an applied understanding of critical concepts, principles and practices within the field of computing.
2. Computational Thinking – to develop individuals that have a capacity to analyse complex problems systematically and propose solutions that rely on the application of computing.
3. Critical Thinking – to teach methods of source selection, critical analysis and evaluation that enable students to form sound judgements and make informed decisions.
4. Design – to expose strategies that underpin the creation of reliable, intuitive and enjoyable computing products and experiences.
5. Collaboration – to cultivate well-rounded, insightful individuals that possess the knowledge, experience and character to co-create effectively with a range of stakeholders.
6. Innovation – to assist students in establishing the contextual awareness, design thinking skills and idea appraisal strategies required to develop outputs that have potential sociocultural or commercial impact.
7. Employability – to embed industry-insight and professional development opportunities across all levels of study.

Programme Intended Learning Outcomes (ILOs)

A Subject-Specific Skills and Knowledge

	Programme Intended Learning Outcomes (ILOs)	On Achieving Level 5	On Achieving Level 4
A1	Systems – Evaluate critically, adapt and deploy methods of modelling, design and construction as appropriate to deliver reliable computer systems	Systems – Apply established methods of modelling, design and construction to deliver functional computer systems.	Systems – Demonstrate knowledge of established methods of computer system modelling, design and construction.

A2	Usability – Select and apply appropriate theory and processes as required to specify, critically assess and modify computing solutions to address the needs of a specific user group.	Usability – Evaluate critically and apply theory and methods within the field of human-computer interaction to propose computing solutions that account for the general needs of end users.	Usability – Demonstrate knowledge of established theory and methods of experience design and usability testing.
A3	Tools – Evaluate critically, select and deploy specialist computing tools and as required to address a complex, self-devised problem in the field of computing.	Tools – Evaluate critically and deploy established computing tools to solve practical problems in the field of computing.	Tools – Evidence a practical understanding of the core design and development tools used in the field of computing.
A4	Collaboration – Identify, evaluate critically and deploy appropriate co-working strategies to respond effectively to complex briefs that require collaborative effort.	Collaboration – Contextualise and implement solutions to briefs in partnership with peers within given parameters for co-working	Collaboration – Propose solutions to design and technical briefs in partnership with peers.
A5	Documentation – Evaluate critically, adapt and deploy appropriate forms of communication and language to meet defined objectives for a specific computing scenario.	Documentation – Review critically and apply methods of communicating information, arguments and analysis to specialist audiences within the field of computing.	Documentation – Demonstrate a practical understanding of the principle methods of recording process and output within the field of computing.
A6	Professional Development – Demonstrate a systematic understanding of the commercialisation of computing, including the factors that determine the success of a computing product in the public realm.	Professional Development – Demonstrate a critical understanding of the processes used in industry to plan, develop and maintain a computing product.	Professional Development – Demonstrate knowledge of the role of computing within wider societal and industry contexts.

B Cognitive and Intellectual Skills

	Programme Intended Learning Outcomes (ILOs)	On Achieving Level 5	On Achieving Level 4
	On Achieving Level 6		
B1	Knowledge – Evidence a systematic understanding of established and emerging concepts within the field of computing, including the way in which such concepts have developed.	Knowledge – Evidence a critical understanding of established and emerging concepts within the field of computing.	Knowledge – Evidence knowledge of established concepts and principles within the field of computing.
B2	Computational Thinking – Evaluate critically and apply appropriate methods to deconstruct abstract problems and propose solutions that are efficient and generalisable.	Computational Thinking – Apply established frameworks for computational thinking to represent a complex problem appropriately and reduce it to a series of ordered, solvable steps	Computational Thinking – Express a defined problem as a series of small and solvable steps.

B3	Critical Thinking – Interpret and analyse systematically a range of sources as required to undertake sustained argument on complex topics within the field of computing.	Critical Thinking – Extract insights from structured and unstructured sources to establish a critical position on topics within the field of computing.	Critical Thinking – Draw on structured sources to evaluate underlying theories and concepts within the field of computing.
B4	Reflection – Identify and deploy appropriate evidence and methods of critical reflection to construct a systematic personal development strategy that extends beyond graduation.	Reflection – Apply established frameworks for critical reflection to establish short-term personal learning and development opportunities	Reflection – Evaluate the key successes and limitations of personal work and the work of others.

C Skills for Life and Work

	Programme Intended Learning Outcomes (ILOs) On Achieving Level 6	On Achieving Level 5	On Achieving Level 4
C1	Autonomous learning ^[3] (including time management) that shows the exercise of initiative and personal responsibility and enables decision-making in complex and unpredictable contexts.	Autonomous learning (including time management) as would be necessary for employment requiring the exercise of personal responsibility and decision-making such that significant responsibility within organisations could be assumed.	Autonomous learning (including time management) as would be necessary for employment requiring the exercise of personal responsibility.
C2	Team working skills necessary to flourish in the global workplace with an ability both to work in and lead teams effectively.	Team work as would be necessary for employment requiring the exercise of personal responsibility and decision-making for effective work with others such that significant responsibility within organisations could be assumed.	Team work as would be necessary for employment requiring the exercise of personal responsibility for effective work with others.
C3	Communication skills that ensure information, ideas, problems and solutions are communicated effectively and clearly to both specialist and non-specialist audiences.	Communication skills commensurate with the effective communication of information, arguments and analysis in a variety of forms to specialist and non-specialist audiences in which key techniques of the discipline are deployed effectively.	Communication skills that demonstrate an ability to communicate outcomes accurately and reliably and with structured and coherent arguments.
C4	IT skills and digital literacy that demonstrate core competences and are commensurate with an ability to work at the interface of creativity and new technologies.	IT skills and digital literacy that demonstrate the development of existing skills and the acquisition of new competences.	IT skills and digital literacy that provide a platform from which further training can be undertaken to enable development of new skills within a structured and managed environment.

[3] i.e. the ability to review, direct and manage one's own workload

Programme content

This programme comprises the following modules

Key:

Core = C

Required = R

Required* = R*

Optional = O

Not available for this status = N/A

If a particular status is greyed out, it is not offered for this programme.

BSc (Hons) Computing				Status	
Level	Code	Title	Credits	Single	Joint
4	CCO4000-20	CodeLab I	20	C	
4	CPU4002-20	Introduction to Computing	20	C	
4	CPU4003-20	Fundamentals of Computation	20	C	
4	CCO4007-20	Web Dev I	20	C	
4	CPU4004-20	User Experience Design	20	C	
4	CPU4005-20	Databases	20	C	
5	CPU5004-20	CodeLab II	20	C	
5	CCO5104-20	Web Dev II	20	C	
5	CPU5005-20	Software Engineering	20	C	
5	CPU5006-20	Artificial Intelligence	20	C	
5	CPU5007-20	Extended Reality and the 3D Web	20	C	
5	CPU5100-20	Data Visualisation	20	O	
5	CCO5102-20	Smartphone Apps	20	O	
5	CCO5105-20	Physical Computing	20	O	
5	CYS5000-20	Network Administration	20	O	
5	PPY5100-120	Professional Placement Year	120	O	
6	CPU6000-20	Devised Project I	20	C	
6	CPU6001-20	Devised Project II	20	C	
6	CPU6002-20	Innovation Lab I	20	C	
6	CPU6003-20	Innovation Lab II	20	C	
6	CCO6002-20	Cyber Security	20	C	

6	CCO6001-20	Creative Incubator	20	O	
6	CPU6102-20	Computing for Business	20	O	

Assessment methods

A range of summative assessment tasks will be used to test the Intended Learning Outcomes in each module. These are indicated in the attached assessment map which shows which tasks are used in which modules.

Students will be supported in their development towards summative assessment by appropriate formative exercises.

Please note: if you choose an optional module from outside this programme, you may be required to undertake a summative assessment task that does not appear in the assessment grid here in order to pass that module.

Work experience and placement opportunities

There are several opportunities to engage with industry across BSc (Hons) Computing. We encourage you to take advantage of:

- Summer placement schemes
- Live briefs and industry pitching opportunities within modules
- Design and technical work as part of Creative Computing commissioned projects
- Roles within university-led external projects
- Personal commissioned work with support from the Creative Computing team
- Invites to attend or participate in external networking opportunities, IT meetups and Creative Computing industry-insight events

BSc Computing can also be taken as a 'Sandwich' degree, which is studied over 4 years and includes a year-long work placement in a sector of your choice. The placement year is completed between years 2 and 3 of your degree and counts for 120 Level 5 credits. During this time you will be able to utilise knowledge gained as part of your studies in a real work environment to gain 'hands on' experience. The university has a dedicated Careers & Employability team to help you find and prepare for a placement. Following your placement year, you will return to University to complete your final year of study.

Opportunities to study abroad via the Erasmus+, International Exchange and Study Abroad programmes are also available.

Additional Costs Table

Module Code & Title	Type of Cost	Cost
CCO5105-20 Physical Computing	Students may wish to purchase additional physical computing components to develop their project ideas. The total additional costs will depend on the nature of the project.	£ 0- 1 00

Graduate Attributes

	Bath Spa Graduates...	In BSc (Hons) Computing, we enable this by...
1	Will be employable: equipped with the skills necessary to flourish in the global workplace, able to work in and lead teams	Supporting a critical understanding of the wider sociocultural and industry context of computing, and by establishing co-creation as a key course focus
2	Will be able to understand and manage complexity, diversity and change	Helping you build a rich set of transferable skills (communication, adaptability, resilience) that ensure you thrive when faced with complex challenges and unpredictable scenarios
3	Will be creative: able to innovate and to solve problems by working across disciplines as professional or artistic practitioners	Maintaining a problem-led approach to learning across all aspects of the course, and providing a dedicated forum to explore practically the collision of computing and innovation
4	Will be digitally literate: able to work at the interface of creativity and technology	Providing continual exposure to a range of industry-standard computing tools, development environments and creative-thinking strategies
5	Will be internationally networked: either by studying abroad for part of their programme, or studying alongside students from overseas	Encouraging you to apply for Erasmus+, International Exchange and Study Abroad programmes offered by Bath Spa University
6	Will be creative thinkers, doers and makers	Engaging you in an applied course that priorities the design and development of reliable, intuitive and sustainable computing products and solutions
7	Will be critical thinkers: able to express their ideas in written and oral form, and possessing information literacy	Emphasising ideation and critical evaluation across all development activities, and by sharing best practice for communicating context, process and output within a range of scenarios
8	Will be ethically aware: prepared for citizenship in a local, national and global context	Championing practices of digital citizenship and the safe, fair, responsible and ethical use of technology in study, work and daily life.

Modifications

Module-level modifications

Code	Title	Nature of modification	Date(s) of approval and approving bodies	Date modification comes into effect
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CPU4 002- 20	Introduction to Computing	New module	approved by Creative Industries SQMC 30th Nov 2020	2021/22
CCO 4004- 20	Introduction to Computing	Deletion of module	approved by Creative Industries SQMC 30th Nov 2020	2021/22
CCO 4001- 20	Web Development	Assessment change	Approved by Chair's Action at the Creative Industries School Quality and Management Committee 30/11/2020	2021/22
CPU4 000	Mathematics in Computing	Semester Change	Covid-19 related change made permanent June 2021	2021/22
CPU4 000- 20	Mathematics for Computing	Module Deleted	Approved by SQMC March 2022	2022/23
CPU4 003- 20	Fundamentals of Computation	New Module	Approved by SQMC March 2022	2022/23
CPU4 002- 20	Introduction to Computing	Assessment change	Approved by SQMC March 2022	2022/23
CPU5 001- 20	Data Structures and Algorithms	Change of Semester to S2	Approved by SQMC March 2022	2022/23
CPU5 002- 20	Databases	Change of Semester to S1	Approved by SQMC March 2022	2022/23
CPU5 003- 20	Software Project management	Description and aims change	Approved by SQMC March 2022	2022/23
CCO 5103- 20	The Responsive Web	ILO updates	Approved by SQMC March 2022	2022/23
CPU6 100- 20	Machine Learning	Assessment changes .	Approved by SQMC March 2022	2022/23

Programme-level modifications

Nature of modification	Date(s) of approval and approving bodies	Date modification comes into effect
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Updates to Programme Overview to reflect further differentiation from BSc Creative Computing. Changes to Graduate Attributes also reflect latest QAA Benchmark Statement	Curriculum Committee March 2023	2023/24
Deletion of CPU4001-20 The Computer Industry	Curriculum Committee March 2023	2023/24
Introduction of CPU4005-20 Databases	Curriculum Committee March 2023	2023/24
Deletion of CCO4001-20 Web Development replaced by CCO4007-20 Web Dev I	Curriculum Committee March 2023	2023/24
Deletion of CCO4002-20 Experience Design, replaced by CPU4004-20 User Experience Design	Curriculum Committee March 2023	2023/24
Deletion of CCO5000-20 CodeLab II, replaced by CPU5004-20 CodeLab	Curriculum Committee March 2023	2023/24
Deletion of CCO5103-20 Responsive Web, replaced by CCO5104-20 Web Dev II	Curriculum Committee March 2023	2023/24
Addition of CCO5102-20 Smartphone Apps as an option	Curriculum Committee March 2023	2023/24
Introduction of CCO5105-20 Physical Computing	Curriculum Committee March 2023	2023/24
Deletion of CPU6100-20 Machine Learning as option	Curriculum Committee March 2023	2023/24
Addition of CCO6001-20 Creative Incubator as an option	Curriculum Committee March 2023	2023/24
CPU5002-20 Databases deleted	Curriculum Committee March 2023	2024/25
CPU5003-20 Software Project Management deleted	Curriculum Committee March 2023	2024/25
CPU5005-20 Software Engineering added	Curriculum Committee March 2023	2024/25
CPU5006-20 Artificial Intelligence added	Curriculum Committee March 2023	2024/25
CPU5007-20 Extended Reality and the 3D Web added	Curriculum Committee March 2023	2024/25
CYS5000-20 Network Administration added as an option	Curriculum Committee March 2023	2024/25

CCO6101-20 Physical Computing deleted	Curriculum Committee March 2023	2024/25
CPU6102-20 Computing for Business added as an option	Curriculum Committee March 2023	2024/25

Attached as appendices:

1. Programme structure diagram
2. Map of module outcomes to level/programme outcomes
3. Assessment map
4. Module descriptors

Appendix 1: Programme Structure Diagram – BSc (Hons) Computing

Single Honours	
Level 4	
Semester 1	Semester 2
Core Modules	
CCO4000-20 CodeLab I	CCO4007-20 Web Dev I
CPU4002-20 Introduction to Computing	CPU4004-20 User Experience Design
CPU4003-20 Fundamentals of Computation	CPU4005-20 Databases
Rule Notes: N/A	
Level 5	
Core Modules	
CPU5006-20 Artificial Intelligence	CPU5005-20 Software Engineering
CPU5004-20 CodeLab II	CPU5007-20 Extended Reality and the 3D Web
CCO5104-20 Web Dev II	
Optional Modules	

Single Honours	
N/A	CPU5100-20 Data Visualisation CYS5000-20 Network Administration CCO5102-20 Smartphone Apps CCO5105-20 Physical Computing
Rule Notes: N/A	
Optional Professional Placement Year 120 credits	
Level 6	
Core Modules	
CPU6000-20 Devised Project I CPU6002-20 Innovation Lab I CCO6002-20 Cyber Security	CPU6001-20 Devised Project II CPU6003-20 Innovation Lab II
Optional Modules	
N/A	CCO6001-20 Creative Incubator CPU6102-20 Computing for Business
Rule Notes: N/A	

Appendix 2: Map of Intended Learning Outcomes

Level	Module Code	Module Title	Status (C,R,R*,O)[4]	Intended Learning Outcomes													
				Subject-specific Skills and Knowledge						Cognitive and Intellectual Skills				Skills for Life and Work			
				A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	C1	C2	C3	C4
4	CCO4000-20	CodeLab I	C	x		x	x	x			x	x		x	x	x	x
4	CPU4002-20	Introduction to Computing	C	x					x	x		x		x		x	
4	CPU4003-20	Fundamentals of Computation	C	x		x				x	x	x		x			
4	CCO4007-20	Web Dev I	C		x	x		x		x	x		x	x	x	x	x
4	CPU4004-20	User Experience Design	C	x	x	x	x	x		x		x	x	x	x	x	x
4	CPU4005-20	Databases	C	x				x		x	x			x		x	x
5	CPU5004-20	CodeLab II	C	x	x	x		x	x	x	x	x	x	x		x	x
5	CCO5104-20	Web Dev II	C	x	x	x		x		x	x			x		x	x
5	CPU5005-20	Software Engineering	C	x		x	x	x	x	x	x	x	x	x	x	x	x
5	CPU5006-20	Artificial Intelligence	C	x		x		x		x	x	x		x			
5	CPU5007-20	Extended Reality and the 3D Web	C	x	x	x	x		x	x		x	x	x	x	x	x

5	CPU5100-20	Data Visualisation	O		x	x					x		x		x		x	x
5	CCO5102-20	Smartphone Apps	O	x	x	x				x	x	x	x		x		x	x
5	CCO5105-20	Physical Computing	O	x	x				x			x	x		x		x	x
5	CYS5000-20	Network Administration	O	x		x	x	x			x	x	x		x		x	
5	PPY5100-120	Professional Placement Year	O												x	x	x	x
6	CPU6000-20	Devised Project I	C	x		x		x			x		x		x		x	x
6	CPU6001-20	Devised Project II	C	x	x	x		x			x		x	x	x		x	x
6	CPU6002-20	Innovation Lab I	C	x		x	x	x	x			x		x	x	x	x	x
6	CPU6003-20	Innovation Lab II	C	x	x	x	x	x	x			x		x	x	x	x	x
6	CCO6002-20	Cyber Security	C						x				x		x	x	x	x
6	CCO6001-20	Creative Incubator	O		x	x	x	x	x			x	x	x	x	x	x	x
6	CPU6102-20	Computing for Business	O	x		x	x	x	x			x	x	x	x		x	x

[4] C = Core; R = Required; R* = Required*; O = Optional

Appendix 3: Map of Summative Assessment Tasks by Module

Level	Module Code	Module Title	Status (C,R,R*,O)[5]	Assessment method														
				Coursework						Practical					Written Examination			
				Composition	Dissertation	Essay	Journal	Portfolio	Report	Performance	Practical Project	Practical skills	Presentation	Set exercises	Written Examination	In-class test (seen)	In-class test (unseen)	
4	CCO400-20	CodeLab I	C						1x			1x				1x		
4	CPU4002-20	Introduction to Computing	C			1x								1x				
4	CPU4003-20	Fundamentals of Computation	C								1x			1x				
4	CCO4007-20	Web Dev I	C						1x		1x							
4	CPU4004-20	User Experience Design	C					1x										
4	CPU4005-20	Databases	C								2x							
5	CPU5004-20	CodeLab II	C						1x		1x							
5	CCO5104-20	Web Dev II	C						1x		1x							
5	CPU5005-20	Software Engineering	C						1x		1x			1x				
5	CPU5006-20	Artificial Intelligence	C								2x							
5	CPU5007-20	Extended Reality and the 3D Web	C						2x		1x							
5	CPU5100-20	Data Visualisation	O						1x					1x				
5	CCO5102-20	Smartphone Apps	O						1x		1x							
5	CCO5105-20	Physical Computing	O						1x									
5	CYS5000-20	Network Administration	O						1x		1x							

5	PPY510 0-120	Professional Placements Year	O					1x									
6	CPU600 0-20	Devised Project I	C					1x	1x								
6	CPU600 1-20	Devised Project II	C			1x				1x							
6	CPU600 2-20	Innovation Lab I	C			1x				1x							
6	CPU600 3-20	Innovation Lab II	C							1x		1x					
6	CCO60 02-20	Cyber Security	C						2x								
6	CCO60 01-20	Creative Incubator	O					1x		1x							
6	CPU610 2-20	Computing for Business	O						1x	1x							

[5] C = Core; R = Required; R* = Required*; O = Optional