BSc (Hons) Computing

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 6	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, justify, 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 6	On Achieving Level 5	On Achieving Level 4
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

	On achieving Level 6 you will be able to:	On achieving Level 5 you will be able to:	On achieving Level 4 you will be able to:
C1	**Work Independently** Exercise initiative, independence and personal responsibility to manage your own learning and time.	**Work Independently** Exercise independence and personal responsibility to manage your own learning and time.	**Work Independently** Manage your own learning and time.

C2	Work with Others	Work with Others	Work with Others
	Work collaboratively with others to achieve individual and common goals, solve problems creatively and build interpersonal relationships to flourish in a global workplace.	Work collaboratively with others to achieve individual and common goals, solve problems creatively.	Work collaboratively with others.
C3	Communicate with Impact	Communicate with Impact	Communicate with Impact
	Communicate clearly, effectively and impactfully with specialist and non-specialist audiences.	Communicate clearly and effectively with others.	Communicate accurately and reliably with others.
C4	Demonstrate Digital Fluency	Demonstrate Digital Fluency	Demonstrate Digital Fluency
	Use digital skills productively, critically and ethically to enhance creativity and communication.	Use digital skills productively, critically and ethically.	Use digital skills productively.

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.	£0-100

Graduate Attributes

Graduate Attribute	While at Bath Spa, I will develop my ability to:	This programme will help me to do this through:
Confidently Self-Aware	Reflect on and recognise my unique skills, strengths, and values and be able to apply and articulate them in a range of different contexts.	Cultivating a mindset of continuous improvement and life-long learning.
Emotionally Attuned	Be mindful of how my actions and emotions impact those around me so I can better navigate difficult situations and build effective interpersonal relationships.	Developing emotional intelligence alongside analytical skills, with an understanding of how these complement each other.
Inclusive Collaborator	Contribute independently to collaborative projects while working effectively with others, valuing diversity and respecting individual differences.	Applying and developing my own skills while learning to recognise and support the skills and contributions of others
Adaptable Innovator	Embrace challenges, taking risks where needed and applying individual and collective problem solving.	Applying creative approaches to the understanding of problems and solutions across all aspects of the course. A forum dedicated to the exploration and application of innovative computing solutions to real world problems.
Critical Thinker	Keep an open mind, ask curious questions and think creatively to gain a deeper and broader understanding of global perspectives and the world around me.	Emphasis on analytical and critical evaluation of new ideas and perspectives, throughout all development activities. Developing curiosity and innate interest in defining and refining best practices that challenge preconceptions.
Forward Thinker	Set goals, plan ahead and utilise resources to support my personal ambitions and achieve my own version of success.	An engaging and applied course that priorities the design and development of reliable, intuitive and sustainable computing products and solutions.
Ethical Leader	Act with empathy, making decisions grounded in ethical principles while advocating for sustainability and positive social change.	Digital Citizenship practices that promote safe, fair, and ethical use of technology in both professional and personal settings. Awareness of the consequences of my decisions and proactive development of contingencies that circumvent negative outcomes.
Responsible Self-Starter	Be accountable for my actions and decisions while demonstrating creativity, proactivity, and a focus on solutions.	Progressively improving my technical skills as well as independence, whilst support is present that enables me to become an autonomous learner.
Compassionately Resilient	Respond to setbacks with a reflective and positive attitude, flexibility and a self-caring approach.	Regular individual attention in a safe environment that encourages development and growth with ready access to support.
Digitally Resourceful	Utilise and responsibly leverage existing and emerging technologies to solve problems and communicate.	Progression from problems that are well-defined to abstract, allowing students to develop an understanding of exploration of problem solving in more complex areas.

Modifications

Module-level modifications

Code	Title	Nature of modification	Date(s) of approval and approving bodies	Date modification comes into effect
CPU4002-20	Introduction to Computing	New module	approved by Creative Industries SQMC 30th Nov 2020	2021/22
CCO4004-20	Introduction to Computing	Deletion of module	approved by Creative Industries SQMC 30th Nov 2020	2021/22
CCO4001-20	Web Development	Assessment change	Approved by Chair's Action at the Creative Industries School Quality and Management Committee 30/11/2020	2021/22
CPU4000	Mathematics in Computing	Semester Change	Covid-19 related change made permanent June 2021	2021/22
CPU4000-20	Mathematics for Computing	Module Deleted	Approved by SQMC March 2022	2022/23
CPU4003-20	Fundamentals of Computation	New Module	Approved by SQMC March 2022	2022/23
CPU4002-20	Introduction to Computing	Assessment change	Approved by SQMC March 2022	2022/23
CPU5001-20	Data Structures and Algorithms	Change of Semester to S2	Approved by SQMC March 2022	2022/23
CPU5002-20	Databases	Change of Semester to S1	Approved by SQMC March 2022	2022/23
CPU5003-20	Software Project management	Description and aims change	Approved by SQMC March 2022	2022/23
CCO5103-20	The Responsive Web	ILO updates	Approved by SQMC March 2022	2022/23
CPU6100-20	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
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	

Single Honours	
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	
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	CPU6001-20 Devised Project II
CPU6002-20 Innovation Lab I	CPU6003-20 Innovation Lab II
CCO6002-20 Cyber Security	
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]	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	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
6	CPU6002-20	Innovation Lab I	C	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	CCO4000-20	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	PPY5100-120	Professional Placements Year	O					1x									
6	CPU6000-20	Devised Project I	C					1x	1x								
6	CPU6001-20	Devised Project II	C			1x					1x						
6	CPU6002-20	Innovation Lab I	C			1x					1x						
6	CPU6003-20	Innovation Lab II	C								1x		1x				
6	CCO6002-20	Cyber Security	C						2x								
6	CCO6001-20	Creative Incubator	O					1x			1x						
6	CPU6102-20	Computing for Business	O						1x		1x						

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