Course Title	BSc (Hons) Computer Science
Final Award	BSc (Hons) Computer Science
Delivery Centres	Ravensbourne Trent Global College
Interim Awards	Certificate of Higher Education in Computer Science Diploma of Higher Education in Computer Science BSc Computer Science
Awarding Body	Ravensbourne University London
Teaching Institution	Ravensbourne University London
UCAS Code	I100
HECOS code (with Subject percentage Splits if applicable)	
QAA Subject Benchmark	Computing (2022)
External Accrediting Bodies	N/A
Apprenticeship Standard used to inform the development of the course (if applicable)	N/A
Accelerated Degree Option	☒ No
Level 6 Top Up Option (online only)	☒ No
Study Load	☒ Full-time ☒ Part-time
Mode of study	☒ Face-to-face
Delivery Location(s)	Ravensbourne University campus
Length(s) of Course(s)	3 years full time 6 years part time
Type (open/closed)	Open
Validation period	Five years (September 2022 – September 2027)
Intended First Cohort Start Date	Sep / 2022
Date produced/amended	March / 2022
Course Leader	Ajaz Ali
Course Development Team Members	Ajaz Ali
Course Administrative Contact	Charles Mullany

Course Description
The BSc in Computer Science prepares students for industry using 'practice-based approach' rather than a typical academic delivery. Students learn about latest and emerging trends in the computing environment and apply them to real life problems. If students want a highly practical Computer Science education that's designed to give them cutting edge technical skills and prepare for the jobs of tomorrow then this is the degree programme for them.

Ravensbourne has an established international reputation for innovation at the intersection of design and digital media. The BSc Computer Science programme capitalises and consolidates these past successes, offering students a computer science education that nurtures them ability to innovate while developing them computer science skills.

The BSc Computer Science programme offers a dynamic core Computer Science curriculum that blends technical skills acquisition with design thinking and interdisciplinary skills informed by the World Economic Forum's (WEF) Future of Jobs report (https://www.weforum.org/reports/the-future-of-jobs-report-2020/digest). The overarching aim is to produce Computer Science graduates who are technically competent, innovative problem-solvers and whose technical and non-technical skillset leans into the emerging needs of the global economy.

To achieve this aim, the programme is structured in modules which progressively build students technical and non-technical skillset. The curriculum takes a somewhat unique approach to this by emphasising a learning-through-doing approach to skills acquisition. Through exposure to this approach, students will develop a portfolio of technical competencies which complement and inform one another, allowing them to progress towards technically and conceptually more advanced work as their studies progress.

Ever daydreamed about working in software development, mobile application development, cyber security, Artificial Intelligence, the Internet of Things, cloud computing, networking or any mixture of these things then consider applying for this course.

Computer Science mapping with QAA Computing Benchmark (2022)

Level 4

- Demonstrate basic awareness of fundamentals, concepts, principles, and theories of Computer Science.
- Programme in a range of languages to solve common computer science problems.
- Comprehend different data and information types and appropriate processing and management techniques.
- Demonstrate basic creative problem-solving skills as applied through Computer Science.
- Understand issues relating to legal, ethical and health and safety-based concerns.
- Locate Computer Science within a wider social and professional context.
- Demonstrate an understanding of the link between theory and practice.

Level 5

- Demonstrate critical understanding and knowledge of principles and techniques of Computer Science.
- Analyse, design, develop and evaluate a range of projects that utilise core concepts of Computer Science.
- Apply principles of Computer Science to create a range of software and/or hardware entities.

- Demonstrate a knowledge of how Computer Science fits within a broader social, political and/or professional context.
- Work effectively as part of a team.

Level 6

- In addition to the level 6 outcomes above, in order to gain the award with honours students will have demonstrated the following learning outcomes:
- Critically evaluate and synthesise current knowledge to solve computer science research problem.
- Demonstrate a detailed subject knowledge and professional competence in the analysis, design and development of appropriate computational solutions.
- Apply a high level of project management skills, technical knowledge, and creative techniques to the production of a final Computer Science project & report.
- Engage with contemporary scholarship utilising research methodologies and deploying analytical skills to sustain a coherent intellectual critique on particular aspects of computer science.

Career opportunities

A wide range of technical and non-technical roles are available to Computer Science graduates. Common career trajectories include:

- Software Developer/Engineer
- Full Stack Web Developer/Engineer
- Penetration tester
- Internet of Things developer
- Cyber security consultant
- Network architect
- Systems administrator
- Database developer
- Cloud Architect

Course Aims
To produce graduates who can design and engineer technical solutions to real-world challenges
To support students in the development of professional 'soft-skills' of the kind required by wider industry
To support and encourage the development of an innovation mindset
To enable students to identify professional development goals that may lead them into future career opportunities and/or postgraduate level studies
To support students in developing a professional network via interactions with peers, tutors and other professionals, that may provide future value and support to them as their career develops
To encourage students to understand and embrace the concept of becoming a lifelong learner

Course Learning Outcomes

	The course provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. On completion of the **BSc (Hons) Computer Science** students will be able to:
Explore	Evidence and contextualise capacity for utilising and synthesising Computer Science specific knowledge, elegant theories, critical & computational thinking, algorithmic thinking, evaluation and reflection, supporting deeper understanding of subject knowledge and innovative complex problem solving. (CLO1)
Create	Critically engage with the cognitive development of ideas, materials, tests and outcomes that may inform practical and theoretical development in physical, written and oral forms aligned to Computing Disciplines Evidence ability to synthesise idea development, experimentation, and technical ability supporting fully resolved outcomes and systems regarding communication and presentation for Computer science (CLO2)
Influence	Evidence a methodical working approach and ethos that critically identifies consideration of social, ethical and environmentally responsible working methods and how this aligns and supports personal development and professional working practices in relation to Computer Science (CLO3)
Integrate	Evidence a critical ability to successfully synthesise collaboration, industry interactions & practices and professional working models in order to facilitate self-efficacy, personal agency and professional development in relation to Computer Science (CLO4)

	The course provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. On completion of the **BSc Computer Science** students will be able to:
Explore	Evidence and contextualise capacity for utilising and synthesising Computer Science specific knowledge, critical thinking and reflection, supporting deeper understanding of subject knowledge and problem solving. (CLO1)
Create	Evidence ability to consider ideas, materials, tests and outcomes that may inform practical and theoretical development in physical, written and oral forms aligned to Computer Science. Evidence ability to synthesise idea development, experimentation, and technical ability supporting resolved outcomes regarding communication and presentation for Computer Science. (CLO2)
Influence	Evidence a coherent working approach and ethos that identifies consideration of social ethically and environmentally responsible working methods and how this aligns and supports personal development in relation to Computer Science. (CLO3)

Integrate	Evidence ability to effectively synthesise collaboration, industry interactions & practices and professional working models in order to facilitate self-efficacy, personal agency and professional development in relation to Computer Science. (CLO4)

Where a student does not complete the full course, but exits with a Diploma in Higher Education, they will have had the opportunity to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

On completion of the **Diploma in Higher Education Computer Science** students will be able to:

Explore	Evidence evolving ability to utilise research and critical reflection to support developing understanding of subject knowledge and ability to problem solve in relation to Computer Science (CLO1)
Create	Evidence capacity to combine ideas, materials, tests and outcomes into solutions that inform and guide practical and theoretical development in physical, written and oral forms aligned to Computer Science. Exhibit developed technical competencies, supporting ideation, communication and presentation in relation to Computer Science. (CLO2)
Influence	Evidence developing working processes that identify consideration and interpretation of social, ethically and environmentally responsible working methods and how this guides personal professional practice in relation to Computer Science. (CLO3)
Integrate	Evidence evolving ability to engage with collaborative working to support academic development, industry interactions & practices to enhance and progress self-efficacy and professional development in relation to Computer Science (CLO4)

Where a student does not complete the full course, but exits with a Certificate of Higher Education, they will have had the opportunity to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

On completion of the **Certificate of Higher Education Computer Science** students will be able to:

Explore	Demonstrate capacity for engaging with research and critical thinking, developing computer science specific knowledge and emerging ability to problem solve. (CLO1)
Create	Demonstrate capacity to consider ideas, materials, tests and outcomes that may inform practical and theoretical development in physical, written and oral forms in relation to computer sciences. Exhibit emerging technical competencies, supporting ideation, communication and presentation in relation to computer science. (CLO2)

Influence	Demonstrate emerging working approach/attitude that identifies consideration of social, ethical and environmentally responsible working methods and how this informs personal practice in relation to Computer Science. (CLO3)
Integrate	Demonstrate emerging capacity to engage with collaboration, teamwork, industry interactions, and professional working practices to support self-efficacy and professional development in relation to Computer Science. (CLO4)

Ravensbourne University Assessment Criteria	
Explore	Research and Analysis Subject Knowledge Critical Thinking and Reflection Problem Solving
Create	Ideation Experimentation Technical Competence Communication and Presentation
Influence	Social Impact Ethical Impact Environmental Impact
Integrate	Collaboration Entrepreneurship and Enterprise Professional Development

Core Competencies

Each module learning outcome should be aligned to at least one competency.

Competency	Definition	Aligned Assessment Criteria
Cognitive	The ability to acquire, retain and use knowledge, recognise, pose and solve problems. Attributes may include: • Evaluate their own beliefs, biases and assumptions • Evaluate strengths, weaknesses, and fallacies of logic in arguments and information • Apply lesson from the past or learned knowledge and skills to new and varied situations • Perform basic computations or approach practical problems by choosing appropriately from a variety of mathematical techniques • Devise and defend a logical hypothesis to explain observed phenomenon • Recognise a problem and devise and implement a plan of action	**Explore, Create, Integrate, Influence**
Creative	The ability to generate new ideas, express themselves creatively, innovate and/ or solve complex problems in an original way.	**Create**
Professional	The ability to understand and effectively meet the expectations of industry partners, through outputs and behaviours.	**Integrate, Influence**

Emotional, Social and Physical	Emotional -The intrapersonal ability to identify, assess, and regulate one's own emotions and moods; to discriminate among them and to use this information to guide one's thinking and actions and where one has to make consequential decisions for oneself. Attributes may include: • Self-awareness & regulation (including metacognition) • Mindfulness • Cognitive flexibility • Emotional resilience • Motivation • Ethical decision- making Social – The interpersonal ability to identify & understand the underlying emotions of individuals and groups, enhancing communication efficacy, empathy and influence. Attributes may include: • Managing your audience • Coordinating with others • Negotiation • Creativity • People management • Leadership & entrepreneurship • Service orientation • Active listening • Coaching and mentoring Physical – The ability to perceive and optimise physiological activity and responses to influence emotion, solve problems or otherwise effect behaviour. Physical intelligence engages the body to train neuron pathways to help change an inappropriate response to an appropriate response. Attributes may include • Self-discipline & management • Attention • Reaction & response time • Cognitive & muscle memory	**Explore, Influence, Integrate**

The Quality Team   Definitive Documents

	• Managing stress • Physical resilience	
Cultural	The capability to relate to and work effectively across cultures including intercultural engagement, cultural understanding and intercultural communication.	**Influence, Integrate**
Enterprise and Entrepreneurial	The generation and application of ideas within a practical setting. It combines creativity, idea generation and design thinking, with problem identification, problem solving, and innovation followed by practical action. This can, but does not exclusively, lead to venture creation (UK Quality Assurance Agency, Enterprise and Entrepreneurship Education 2018).	**Create, Influence, Integrate**
Digital	The confident adoption of applications, new devices, software and services and the ability to stay up to date with ICT as it evolves. The ability to deal with failures and problems of ICT and to design and implement solutions (Jisc Digital Capabilities Framework)	**Explore, Create, Integrate, Influence**
Ravensbourne Return	Engagement with inhouse activities including mentoring other students, volunteering, acting as a student rep or ambassador. Demonstrate a knowledge of current events and social issues Identify their personal convictions and explore options for putting these convictions into practice Engagement with the external community through (from) employment, volunteering, participation in a Professional Life or other programme-based project.	**Explore, Create, Influence, Integrate,**

Learning, Teaching and Assessment

Learning and Teaching methods	Assessment Strategy
Level 4: At Level 4 Learning & teaching will be delivered through a combination of workshops, laboratory sessions, lectures, seminars and group exercises, self-directed study, as well as individual or group tutorials. • Lecture • Seminar • Tutorial • Guest Lecture • Technical Demonstration • Practical Classes and Workshops • Supervised Time in Studio • Fieldwork • External Visits • Independent Study • Directed Study • Hybrid Approach Level 4 will also introduce students to the Professional Life Practice modules that are embedded in each undergraduate learning level. These modules specifically support collaborative experimental practice, entrepreneurship, and enterprise, helping to catalyse, develop and showcase interdisciplinary working methods interaction and innovation. The Modules will also facilitate opportunities to integrate with industry partners in order to establish professional currency at the start of the undergraduate journey, and to drive enterprise and employability through the degree experience. The Professional Life Practice Modules integrate the emerging subject knowledge of each student with working methods from a range of disciplines to create a multidisciplinary synthesis of practice, skills	For all levels of the Course: Oral Assessment – content and form Presentation Portfolio Digital Workbook Practical Assignment Artefact and demonstrations Presentations Reflective Written Document Industry Focussed Report Project Pre-Production Treatment Critique Personal Progress Review (PPR) **Formative Assessment** is used in all modules of the programme to assess students progress relating to module briefs and an opportunity to offer feedback, feedforward and a diagnostic response. This is typically within a group or individual review held midway throughout each module though for latter modules in level six there are more formative assessment points. **Summative Assessment** is held in the latter stages of each module and is the definitive assessment point where each assessment requirement is assessed. All Assessment involves moderation and verification. Written or aural feedback and clear feedforward will be provided shortly after

and learning. Students will develop social, cultural, emotional, and cognitive intelligence through projects that facilitate community and industry connections aligned to the Ravensbourne Core Competencies.

Level 5:

Skills acquired at Level 5 are developed further through a combination of workshops, lectures, seminars, group exercises, self-directed study, as well as individual or group tutorials.

Students will test their developing disciplinary knowledge in collaborative scenarios with the opportunity to take part in the Professional Life Practice Modules, and Work Based Learning Modules, offering collaborative and industry aligned opportunities both within Ravensbourne and in external contexts.

Visiting speakers and industry specialists will be invited to deliver lectures or practical workshops, bringing their own specialism and examples of industry work into the sessions.

The Professional Life Practice Modules at Level 5 supports practical, theoretical and industry focused engagement facilitating expertise, experience and interactions with professional aspects of the games and games programming disciplines.

All Level 5 students will have the opportunity to undertake a Work Based Learning modules at the end of Semester 2. The Work Based Learning module will offer students the ability to engage with industry-led experience supporting industry interactions, entrepreneurship and employability skills. The placements will be supported by the careers team at Ravensbourne.

assessment and there are opportunities for tutorials if you need further classification before the start of the next module.

Assessment will be aligned to the Ravensbourne Core Competencies.

Level 6

Skills acquired at Level 4 and 5 will be developed and perfected at Level 6 through lectures, seminars, workshops, self-directed study and individual tutorials.

Students are expected to take on professional attitudes to time and project management.

Visiting lecturers may be invited to deliver lectures and/or practical sessions related to their area of work and students will develop an outward facing portfolio to aid graduate progression.

Written work will focus upon critical analysis and reflection of project-based work, with a view to encouraging ongoing development. Within the sphere of theoretical study, students will expand their ability to write reflexively and critically about their discipline and competently be able to contextualise their personal practice.

Students will be expected to interface directly with industry through mentoring, competition, and research.

Work-Based Learning

Student are encouraged from Level 4 to engage with industry and seek internship opportunities within the industry at Level 5. The careers team within Student Services can facilitate outreach for students to contact companies. Students are provided with membership of industry bodies that can assist with placements.

Students are likely to apply for specific internship or work experience placements with development or publishing companies. They might also apply for zero hours casual work as quality assurance engineers.

Students are encouraged to find industry mentors to assist professional development.

A number of opportunities are advertised through the virtual learning environment.

Course Structure

Code	Module Title	Shared Module	Mandatory / Elective	Credits

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Level 4				
CYS22101	Software Design and Development	Yes	Mandatory	20
CYS22102	Computer Networks and Technology	Yes	Mandatory	20
PLP22103	Professional Life Practice "Developing your Practice"	Yes	Mandatory	20
CYS22104	Web Design and Databases	Yes	Mandatory	20
CMS22101	Immersive Technologies *	No	Mandatory	20
PLP22106	Professional Life Practice "Exploring your Practice"	Yes	Mandatory	20
			Total	**120**
Level 5				
CYS22201	Operating Systems and Cloud	Yes	Mandatory	20
CMS22202	Computer Vision and AI	Yes	Mandatory	20
CMS22204	Full Stack application Development	No	Mandatory	40
PLP22203	Professional Life Practice "Applying your Practice"	Yes	Mandatory	20
PLP22206	Work-Based Learning	No	Mandatory	20
				120
			Total	**240**
Level 6				
CMS22301	Advanced Computer Vision and 3D	No	Mandatory	40
PLP22303	Professional Life Practice "Situating your Practice"	Yes	Mandatory	20
CMS22302	Final Project	No	Mandatory	40
CYS22304	Ethics, Risk and Project Management	Yes	Mandatory	20
				120
			Total	**360**

Learning Hours

Learning Hours (per 20 credit module excluding the Work-Based Learning)			
Staff – Student Contact Hours		**Independent Study Hours**	
Taught hours	48	Independent study, self-directed study and assessment	152
Total			200

Course Regulations

Entry Requirements
Please refer to the institutional regulations on the expected minimum entry requirements (found under Section 5 of the General Academic Regulations found on the website here), and the course page on the Ravensbourne University website for course specific entry requirements. In addition, students will be required to have obtained GCSE Mathematics Grade 4/C or above.
Accreditation of Prior Learning (if applicable)
Applications are welcomed from those who may not possess formal entry qualifications, mature students, those with work experience or with qualifications other than those listed above. Such applicants should demonstrate sufficient aptitude and potential to complete the course successfully. Applicants will be assessed at interview in accordance with Ravensbourne's Accreditation of Prior Learning Policy and Procedure and Student Transfer Plan.
Conditions for Progression
Students will be deemed to have passed a module if they achieve a 40% for undergraduate students; or a 50% for postgraduate students. A student who has passed all assessments to date but has not yet reached the end of a level (or stage) will be permitted to proceed into the following term by the Interim Assessment Board.
Reassessment of Failed Elements
Failure in any component will result in a Fail grade for the component. Non-submission in any component will result in a non-submission for the component. Students must then successfully retrieve the failed or non-submitted component by resubmission of assessment in order to pass the module. Where a student does successfully retrieve a component failure, the grade for the component will be capped at 40% (undergraduate) or 50% (postgraduate) (except where Extenuating Circumstances have been approved). The overall grade for the module will be calculated using all achieved grades where there are 2 or more components.
Conditions for the Granting of Awards
A student who completes an approved course of study, shall be awarded *BSc (Hons) Computer Science*

Those students who exit the Course without completing it may be entitled to exit with an award of either a:

1. Certificate of Higher Education in Computer Science, provided they complete an approved course of modules and the learning outcomes for such award as set out in the Course Specification.
2. Diploma of Higher Education in Computer Science, provided they complete an approved course of modules and the learning outcomes for such award as set out in the Course Specification.
3. BSc Computer Science (ordinary degree) provided they complete an approved course of modules and the learning outcomes for such award as set out in the Course Specification.

Any derogation(s) from the Regulations required?	
No	
Student Support	https://www.ravensbourne.ac.uk/student-services
Assessment Regulations	https://www.ravensbourne.ac.uk/staff-and-student-policies

Course Learning Outcomes	CLO1	CLO2	CLO3	CLO4
Level 4 Modules				
CYS22101 Software Design and Development	X		X	X
CYS22102 Computer Networks and Technology		X	X	X
PLP22103 Professional Life Practice Developing your Practice	X	X	X	X
CYS22104 Web Design and Databases	X		X	
CMS22101 Immersive Technologies		X		X
PLP22106 Professional Life Practice Exploring your Practice	X	X	X	X
Level 5 Modules				
CYS22201 Operating Systems and Cloud	X			X
CMS22202 Computer Vision and AI	X		X	
CMS22204 Full Stack Application Development		X	X	
PLP22203 Professional Life Practice Applying your Practice	X		X	
PLP22206 Work-Based Learning				X
Level 6 Modules				
CMS22301 Advanced Computer Vision and 3D	X		X	
CYS22304 Ethics, Risk and Project Management	X	X		X
PLP22303 Professional Life Practice Situating your Practice	X	X	X	
CMS22302 Final Project		X		X

Course Diagram

	Semester 1	Semester 2	
Level 4 120 credits	**CYS22101 Software Design and Development** 20 credits (Shared)	**CYS22104 Web Design and Databases** 20 credits (Shared)	
	CYS22102 Computer Networks and Technology 20 credits (Shared)	**CMS22101 Immersive Technologies** 20 credits (Not shared)	
	PLP22103 Professional Life Practice – Developing Your Practice 20 credits (Shared)	**PLP22106 Professional Life Practice - Exploring Your Practice** 20 credits (Shared)	
	Semester 1	**Semester 2**	
Level 5 120 credits	**CMS22201 Operating Systems and Cloud** 20 credits (Shared)	**CMS22204 Full Stack Application Development** 40 credits (Not Shared)	**PLP22206 Work-Based Learning** 20 credits
	CMS22202 Computer Vision and AI 20 credits (Not Shared)		
	PLP22203 Professional Life Practice – Applying Your Practice 20 credits (Shared)		
	Semester 1	**Semester 2**	
Level 6 120 credits	**CMS22301 Advanced Computer Vision and 3D** 40 credits (Not Shared)	**CMS22302 Final Project** 40 credits (Not Shared)	**CYS22304 Ethics, Risk and Project Management** 20 credits (Shared)
	PLP22303 Professional Life Practice – Situating your Practice 20 credits (Shared)		