Ravensbourne University London

COURSE SPECIFICATION

Course Title	MSc Computer Science
Final Award	MSc Computer Science
Interim Awards	Postgraduate Certificate of Higher Education in Computer Science Postgraduate Diploma of Higher Education in Computer Science
Awarding Body	Ravensbourne University London
Teaching Institution	Ravensbourne University London
HECOS code (with Subject percentage Splits if applicable)	
QAA Subject Benchmark	Computing (Postgraduate) 2022
External Accrediting Bodies	N/A
Apprenticeship Standard used to inform the development of the course (if applicable)	N/A
Accelerated Degree Option	N/A
Study Load	☒ Full-time ☒ Part-time
Mode of study	☒ Face-to-face ☐ Blended ☐ Online
Delivery Location(s)	☒ Ravensbourne University campus ☐ Online
Length(s) of Course(s)	1 year full time 2 years part time
Type (open/closed)	Open
Validation period	5 Years (September 2022 – September 2027)
Intended First Cohort Start Date	September 2022
Date produced/amended	June 2022
Course Leader	TBC
Course Development Team Members	Ajaz Ali
Course Administrative Contact	Charles Mullany

Course Description

Ravensbourne's Postgraduate Department provides a research and practice-based laboratory/studio environment which allows technology specialists, designers, creative practitioners and entrepreneurs take a holistic view of the impact of their professional practice. Each course and field of work brings together a range of collaborative programmes to give learners the depth of their specialism supported by the breadth of innovation, creativity, new venture modelling and methods to generate long-term social and business value.

Our portfolio of postgraduate courses allows learners to respond to the dramatic and on-going changes in the field of technology design and systems methodologies as the basis for actionable insights, new services and creative problem-solving approaches. Our area of specialism applies across a wide range of technology and social fields – from the nature of human interactions, to brand innovation and service systems, from the emergence of new business models to the

challenge of consumption, health, wealth and wellbeing, from biodiversity to biotechnology. At the heart of Postgraduate Studies is an understanding of collaborative competencies, prototyping, real world testing, real world engagement and interaction.

Learners will be taught to collaborate and co-create with a team of interdisciplinary technology, design and business practitioners working across but not limited to: scientific and technology systems, computation, business management, leadership, service design, visual communications, design systems, communication platforms, social and economic transformation.

The MSc Computer Science course sits within Ravensbourne University on the North Greenwich Peninsula at the heart of London. This geographic alignment connects technology specialists, designers, researchers and students with local and global partnerships to explore the interplay between technology and creativity for industry, education and society.

Ravensbourne has an established international reputation for innovation at the intersection of design and digital media. Our portfolio of MSc programmes – of which this course is an integral part – seeks to capitalise and consolidate these past successes, expanding Ravensbourne's activities from its current position as innovative user of technologies to innovative creator of technologies. The course invites prospective postgraduate students to be part of that journey, empowering them to draw on and learn from this rich history of innovative design thinking and apply this to the creation of new technologies.

To facilitate this, the MSc Computer Science course is targeted at graduates and professionals who already have a background in Computing or a related field and who are seeking to update their skills to encompass some of the most cutting-edge areas within Computer Science. To this end, the course offers modules in Advanced Software Development, Cloud Computing, Internet of Things and bleeding edge 'Web3' technologies such as Blockchain and smart contracts. In tackling these fields, the curriculum takes a systems architecture approach encouraging students to work both within and across these technologies, treating them as building blocks through which to articulate solutions to real world challenges in a wide range of domains.

Course Aims
• To produce graduates who can apply systems thinking in order to engineer technical solutions to real-world challenges
• To improve student understanding of the impact of engineering decisions across a broad range of spectrums
• To support and encourage the development of an innovation mindset
• To enable students to identify professional development goals that will lead them into future career opportunities
• 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 **MSc Computer Science** students will be able to:	
Explore	Critically apply tools and technical skills to identify, model a computing systems and use established concepts and techniques from the study of Computer Science to propose and analyse solutions to a range of computing challenges.
Create	Solve a range of current and emerging computing challenges, demonstrating critical selection, evaluation and application of software engineering tools and techniques. Select and apply engineering processes to comply with the legal and ethical considerations governing the use of computers and the processing of information to develop solutions which address real-world challenges.
Influence	Evaluate, refine, and apply comprehensive analytical and technical skills to solving a significant Computer Science related challenge.
Integrate	Define a significant Computer Science challenge, and professionally manage a process of work to propose and execute a viable solution to it using a recognised project management strategy.

Postgraduate Diploma Learning Outcomes

Where a student does not complete the full course, but exits with a Postgraduate Diploma, 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 **Postgraduate Diploma of Higher Education in Computer Science**, students should be able to:	
Explore	Apply tools and technical skills to identify, model, and engineer systems and use established concepts and techniques from the study of Computer Science to propose and analyse solutions to a range of engineering challenges.
Create	Solve a range of current and emerging challenges, demonstrating critical selection, evaluation and application of software engineering tools and techniques.
Influence	Apply comprehensive analytical and technical skills to solving a significant Computer Science related challenge.
Integrate	Define a significant Computer Science challenge, and propose a viable solution to it using a recognised project management techniques.

Postgraduate Certificate Learning Outcomes

Where a student does not complete the full course, but exits with a Postgraduate Certificate, 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 **Postgraduate Certificate of Higher Education in Computer Science** students should be able to:	
Explore	Apply tools and develop technical skills to identify, model, and engineer systems
Create	Explain a range of current and emerging computing challenges, demonstrating critical selection, evaluation and application of software engineering tools and techniques.
Influence	Develop comprehensive analytical and technical skills to solving a significant Computer Science related challenges.
Integrate	Define and plan a significant Computer Science challenge.

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	**Explore, Create, Integrate, Influence**

	• 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	
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	**Explore, Influence, Integrate**

	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 • 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
Formal learning and teaching methods applied on this programme will predominantly take the form of: • Lectures • Practical Labs • Seminars • Research Projects • Tutorials (Group and Individual) These methods will be applied across the programme in keeping with wider established practices in the field of Computer Science education. Other methods may be applied as curricular enhancements, as deemed appropriate by the delivery team. These may include: • Flipped classroom activities • Live industry projects and/or briefs • Guest speaker talks • Visits to companies • Hackathons	An appropriate range of assessment methods will be used to support students across the programme. Portfolios are used for several assessment processes. In the context of Computer Science, these will normally consist of evidence of completed practical work and may optionally include some form of written report. For example, a piece of working software (practical) may be accompanied by formal software documentation (written). Portfolios are selected in the first instance for summative assessment since they may be assessed holistically. Students' marks are derived from the cumulative relationship between the study elements, rather than based on each single assessed element considered in isolation. Formative assessment techniques will also be used to monitor student learning and provide constant feedback for staff and students. This methodology gives the lecturer the optimum opportunity to mark to feedback and encourage, providing meaningful support and guidance to help the student develop to their full potential. Aside from portfolios, other common assessment strategies will predominantly include: • Reports • Slide Presentations • Engineering Projects Summative and Formative assessment will be given in line with university regulations. Within Computer Science, formative assessment will play a key part in helping students orientate and calibrate their skills. This may take place through individual and group class-based exercises and through activities in the Virtual Learning Environment (VLE). For example, lecturers may

	present tests and quizzes in the VLE that allow students to undertake simple exercises to test their memory and understanding of material covered in class.

Course Structure

Module Code	Module Title	Shared Module	Mandatory / Elective	Credits
Level 7				
MCS22701	**Advanced Software Development**	N	Mandatory	20
MCS22702	**Mixed Reality**	N	Mandatory	20
MCS22703	**Introduction to Research**	Y	Mandatory	20
MCS22704	**Innovation and Management**	N	Mandatory	20
MCS22705	**Web 3 and Cloud**	N	Mandatory	20
MCS22706	**Negotiated Practice**	Y	Mandatory	20
MCS22707	**Final Project**	Y	Mandatory	60
				180

Learning Hours

Learning Hours (per 20 credits)			
Staff – Student Contact Hours		**Independent Study Hours**	
Taught hours	36	Independent study, self-directed study and assessment	164
Total			200

Course Regulations

Entry Requirements
First, Upper Second Class or a 2:2 honours degree (or equivalent non-UK qualifications) in a relevant subject, or an equivalent professional qualification in a related subject area. If you are applying directly from an undergraduate degree course without experience or professional practice you must be able to demonstrate a good knowledge of your chosen subject area. Substantial professional work experience with relevant references could be considered for entry into this course. *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.*

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.
Conditions for Progression
Students will be deemed to have passed a module if they achieve 40% for undergraduate students; or 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 a Master of Science in Computer Science. Those students who exit the course without completing it may be entitled to exit with an award of either a: **1.** Postgraduate 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. ***2.*** Postgraduate 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.
Any derogation(s) from the Regulations required?
None

Student Support	https://www.ravensbourne.ac.uk/student-services
Assessment Regulations	https://www.ravensbourne.ac.uk/staff-and-student-policies

Course learning outcome mapping

Level 7							
Course LOs	MCS22701	MCS22702	MCS22703	MCS22704	MCS22705	MCS22706	MCS22707
LO 1	X	X	X		X		X
LO 2	X	X	X		X		X
LO 3	X	X	X		X		X
LO 4	X			X		X	X
LO 5				X		X	X
LO 6				X		X	X

Course Diagram

Trimester 1	**Trimester 2**	**Trimester 3**
MCS22701 **Advanced Software Development** 20 credits	MCS22704 **Innovation and Management** 20 credits	MCS22707 **Final Project** 60 credits (Shared)
MCS22702 **Mixed Reality** 20 credits	MCS22705 **Web 3 and Cloud** 20 credits	
MCS22703 **Introduction to Research** 20 credits (Shared)	MCS22706 **Negotiated Practice** 20 credits (Shared)	