Template C4

Kingston University London

Programme Specification

Title of Course: *BSc (Hons) Computer Science and Artificial Intelligence*

Date first produced	24/01/2023
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Version number	17
Faculty	Faculty of Engineering, Computing and the Environment
Cross-disciplinary	
School	School of Computer Science and Mathematics
Department	Department of Computer Science
Delivery Institution	Kingston University

This Programme Specification is designed for prospective students, current students, academic staff and employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes and content of each modules can be found in the course VLE site and in individual Module Descriptors.

SECTION 1: GENERAL INFORMATION

Award(s) and Title(s):	BSc (Hons) Computer Science and Artificial Intelligence
Exit Award(s) and Title(s):	Cert HE Computer Science and Artificial Intelligence Dip HE Computer Science and Artificial Intelligence BSc Computer Science and Artificial Intelligence
Course Code *For each pathway and mode of delivery*	UFCSA1CSA20
UCAS code *For each pathway*	

Award(s) and Title(s):	BSc (Hons) Computer Science and Artificial Intelligence with Foundation Year
Exit Award(s) and Title(s):	CertHE DipHE Ordinary Degree
Course Code *For each pathway and mode of delivery*	UFCSA1CSA55
UCAS code *For each pathway*	

Award(s) and Title(s):	BSc (Hons) Computer Science and Artificial Intelligence with Professional Placement
Exit Award(s) and Title(s):	CertHE DipHE Ordinary Degree
Course Code *For each pathway and mode of delivery*	USCSA1CSA45
UCAS code *For each pathway*	

Award(s) and Title(s):	BSc (Hons) Computer Science and Artificial Intelligence with Foundation Year and Professional Placement
Exit Award(s) and Title(s):	CertHE DipHE

	Ordinary Degree
Course Code *For each pathway and mode of delivery*	N/A
UCAS code *For each pathway*	

Awarding Institution:	Kingston University
Teaching Institution:	Kingston University
Location:	Penrhyn Road
Language of Delivery:	English
Delivery mode:	Primarily campus based (up to 20% of scheduled L&T hours delivered online)
Learning mode(s):	Full-time With Professional Placement With foundation year
Minimum period of registration:	Full-time - 3 With Professional Placement - 4 With foundation year - 4
Maximum period of registration:	Full-time - 6 With Professional Placement - 7 With foundation year - 8
Entry requirements	Kingston University typically uses a range of entry requirements to assess an applicant's suitability for our courses. Most course requirements are based on UCAS Tariff points, usually stipulated as a range, and are sometimes coupled with minimum grades in specific relevant subjects. We may also use interview, portfolio and performance pieces to assess an applicant's suitability for the course. We recognise that every person's journey to Higher Education is different and unique and in some cases we may take into account work experience and other non-standard pathways onto University level study. Additionally, all non-UK applicants must meet our English language requirements. Please see our course pages on the Kingston University website for the most up to date entry requirements
Regulated by	The University and its courses are regulated by the Office for Students.

Programme Accredited by:	N/A
Approved Variants:	CI6600 cannot be compensated (IET/BCS). Compensation of at most 30 credits only (IET/BCS)
Is this Higher or Degree Apprenticeship course?	No

SECTION 2: THE COURSE

A. Aims of the Course

The over-arching aim of the Computer Science and Artificial Intelligence (AI) course is to produce highly trained graduates with specialist technical knowledge in the mathematical and computational science aspects of applied AI, capable of solving real world problems with understanding of the wider socio-technical implications. As part of Kingston University's Future Skills programme, this course also equips students with essential skills such as critical thinking, problem-solving, adaptability, and digital literacy. These future-focused skills ensure graduates are prepared for the evolving demands of the tech industry and can thrive in a rapidly changing professional landscape.

Specifically, the aims are to produce graduates who:

- are equipped to meet the academic, professional, and practical requirements for membership of appropriate professional bodies such as the British Computer Society
- possess the appropriate ability and inclination, and are equipped, to undertake advanced studies and/or research and development in the computing, applied AI, and information systems disciplines
- can apply their knowledge and skills in the commercial, economic, and other contexts in which information and computer-based systems are developed with aspects of AI
- have an inquisitive and reflective attitude when modelling systems or data and understands the functional, information security and qualitative properties of systems and AI models
- understand and can articulate the legal, social, ethical, professional, cultural, and public aspects of problems and solutions in computing and AI
- have the capacity to acquire new knowledge and skills independently and to reflect on trends in the broad domain of computing and AI
- can seek, use, and communicate relevant information effectively in oral, visual and written forms
- are able to work in groups and individually, and to work for and with non-specialists, interpreting model and statistical outcomes for different audiences

The course is ideal for students who are interested in developing and applying problem-solving skills to real world problems, would like to develop their understanding of computing, mathematics and statistical techniques through the practical lens of AI, and seek to expand their knowledge of the ethical dimensions inherent in these expanding and influential areas of computer science. With a balance of solid theory and practical application, this course builds on knowledge in relevant areas of statistics, data analysis, probability and programming.

The course is designed to not require a mathematics or statistics A-level or equivalent and does not assume significant prior knowledge of programming. However, an interest and enthusiasm for both data analysis and computing is an essential pre-requisite.

B. Programme Learning Outcomes

The programme learning outcomes are the high-level learning outcomes that will have been achieved by all students receiving this award. They have been aligned to the levels set out in ‘Sector Recognised Standards in England’ (OFS 2022).

Programme Learning Outcomes					
	Knowledge and Understanding On completion of the course students will be able to:		**Intellectual Skills** On completion of the course students will be able to		**Subject Practical Skills** On completion of the course students will be able to
A1	explain and apply essential concepts, theories, principles and practices of computer science and mathematics underpinning applications of AI	B1	analyse, abstract and decompose problems to design effective solutions or models	C1	develop and critically evaluate specifications for specialist computer systems involving AI and communicate these specifications to other computing professionals
A2	explain the social, ethical, legal, commercial and other human factors that affect the design, development, deployment of computer systems involving aspects of AI	B2	synthesise information from disparate and potentially incomplete sources	C2	se (and, where appropriate, modify) established systems, AI models, techniques and tools to model and build computer-based solutions
A3	explain security issues and evaluate risk in the context of computing and AI	B3	analyse and evaluate the extent to which a system or AI model meets the criteria for its current use and future development	C3	collaborate and communicate effectively with other professionals/stakeholders to plan, design, implement, evaluate and deliver projects
A4	explain the different ways in which data and information may be represented, stored and transmitted digitally	B4	elicit, evaluate and model business, customer and user requirements, incorporating considerations such as sociological and commercial contexts	C4	implement software solutions involving AI using a variety of programming languages, environments and platforms
A5	select and apply knowledge appropriate to specific	B5	use different programming environments and justify the		

	situations, particularly unfamiliar situations		selection of one or more for a given context		
		B6	identify appropriate mathematical methods and any relevant computer applications, to assist in the solution of problems		

C. Future Skills Graduate Attributes

In addition to the programme learning outcomes, the programme of study defined in this programme specification will engage students in developing their Future Skills Graduate Attributes:

1. Creative Problem Solving
2. Digital Competency
3. Enterprise
4. Questioning Mindset
5. Adaptability
6. Empathy
7. Collaboration
8. Resilience
9. Self-Awareness

D. Outline Programme Structure

Full details of each module will be provided in module descriptors and the course page on the University Learning Management System, Canvas.
Students on the Foundation pathway need to refer to the Foundation Year in Computing for level 3 module structure.
Note: As per GR5 within the general regulations, the University aims to ensure that all option modules listed below are delivered. However, for various reasons, such as demand, the availability of option modules may vary from year to year or between teaching blocks. The University will notify students by email as soon as these circumstances arise.

BSc (Hons) Computer Science and Artificial Intelligence

Level 4							
BSc (Hons) Computer Science and Artificial Intelligence							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Computing Fundamentals	CI4250	30	4	1 AND 2		1	1
Mathematics for AI	MA4700	30	4	1 and 2		1	1
Professional Environments 1	CI4450	30	4	1 AND 2		1	1
Programming I – Thinking Like a Programmer	CI4105	30	4	1 AND 2		1	1

Exit Awards at Level 4

This course permits progression from level 4 to level 5 with 90 credits at level 4 or above. Progression to level 5 requires passes in MA4700, CI4105. The outstanding 30 credits from level 4 can be trailed into level 5 and must be passed before progression to level 6. Students exiting the course at this point who have successfully completed 120 credits at level 4 or above are eligible for the award of Certificate of Higher Education in *Computer Science and Artificial Intelligence*.

Level 5							
BSc (Hons) Computer Science and Artificial Intelligence							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Data Modelling	CI5325	15	5	1		2	1
Introduction to Artificial Intelligence	MA5700	30	5	Year long	MA4700 CI4105	2	1
Principles of Data Analytics for AI	MA5710	15	5	2		2	1
Professional Environments 2	CI5450	30	5	Year long		2	1
Optional Modules							
Computing Systems	CI5250	30	5	Year long		2	1
Industrial Placement	CI5999	120	5	Year Long		3	
Programming II - Software Development	CI5105	30	5	Year long	CI4105	2	1

Exit Awards at Level 5

Students exiting the programme at this point who have successfully completed 120 credits at level 5 or above are eligible for the award of Diploma of Higher Education.

Level 6							
BSc (Hons) Computer Science and Artificial Intelligence							
Core modules	**Module code**	**Credit Value**	**Level**	**Teaching Block**	**Pre-requisites**	**Full Time**	**Part Time**
Individual Project	CI6600	30	6	Year long		3	
Advanced Data Modelling	CI6416	15	6	TB2		3	3

Applied AI and Machine Learning	MA6700	30	6	Year long	MA5700 MA5710	3	1
Future Skills Apply	AX6001	15	6	TB1		3	3
Optional Modules							
Bayesian Estimation and Risk Modelling	MA6720	15	6	1		1	1
Business Modelling with AI	MA6730	30	6	Year Long		3	
Data Analytics for AI	MA6710	15	6	2		1	1
Mobile Application Development	CI6330	30	6	Year Long		3	3
Programming III – Patterns and Algorithms	CI6115	30	6	Year long	CI5105	3	1
Software Development Practice	CI6125	30	6	Year long		3	1
User Experience Design Thinking	CI6315	30	6	Year long		3	1

Exit Awards at Level 6

Students exiting the programme at this point who have successfully completed 120 credits at level 5 or above are eligible for the award of Diploma of Higher Education.

BSc (Hons) Computer Science and Artificial Intelligence with Foundation Year

BSc (Hons) Computer Science and Artificial Intelligence with Professional Placement

BSc (Hons) Computer Science and Artificial Intelligence with Foundation Year and Professional Placement

E. Teaching, Learning and Assessment

This course uses a range of teaching and assessment methods which have been designed to support students' learning and achievement of the learning outcomes.

The course has been developed with reference to the Kingston University Academic Framework which sets-out core principles relating to Course and Credit Structure (including Module delivery Structure and Pattern, and Learning Hours and Learning Formats); Curriculum Design (inclusion Learning Design Principles and Inclusive Curriculum); and Future Skills.

Teaching and Learning on the course consist of Scheduled Learning and Teaching and Guided Independent Study (self-managed time). Scheduled Learning and Teaching includes the following, and the format for each module is set out in the module specification:

- Laboratory Sessions
- Lectures
- Seminars
- Tutorials
- Workshops
- Placements

Guidance for students on the use of independent study time is communicated through the 'Succeed in your module' section on the Canvas Virtual Learning Environment and through other communications during the course.

In addition to the core Scheduled Learning and Teaching activities for the course, the University may offer students additional optional opportunities for learning. Examples of these include Study abroad and Work-based learning.

The course will provide students with the opportunity to develop their knowledge and skills relating to at least two United Nations Sustainable Development Goals (UN SDGs). We are committed to empowering students with the knowledge, skills and opportunities to understand and address the UN SDGs: each course is thus also required to prepare students for at least two of the SDGs (not including Quality Education, which all courses must deliver).

F. Support for Students and their Learning

Students are supported through a range of services that provide academic and wider support. These include:

- A Module Leader for each module
- A Course Leader to help students understand the course structure
- Personal Tutors to provide academic and personal support
- Technical support to advise students on IT and the use of software
- Student Voice Committee – to ensure the views of students are heard
- Canvas – Kingston University's Virtual Learning Environment
- Student support facilities that can provide advice on issues such as finance, regulations, legal matters, accommodation, international student support
- Disabled student support
- The Kingston Students' Union
- Student Development and Graduate Success

G. Ensuring and Enhancing the Quality of the Course

The University has policies and procedures for evaluating and improving the quality and standards of its provision. These include:

- Continuous Monitoring of courses through the Kingston Course Enhancement Programme (KCEP)
- Student evaluation including Module Evaluation Questionnaires (MEQs), the National Student Survey (NSS)
- Internal and external moderation of graded assignments
- The British Computer Society who accredits many of the School's courses

H. External Reference Points

External reference points which have informed the design of the course. These could include:

- PSRB standards
- QAA Subject benchmarks
- Other subject or industry standards

I. Development of Course Learning Outcomes in Modules

This table maps where programme learning outcomes are **summatively** assessed across the **core** modules for this course. It provides an aid to academic staff in understanding how individual modules contribute to the course aims, a means to help students monitor their own learning, personal and professional development as the course progresses and a checklist for quality assurance purposes.

Module Code		Level 4				Level 5							Level 6										
		CI4450	CI4250	MA4700	CI4105	MA5700	CI5325	MA5710	CI5250	CI5450	CI5105	CI5999	MA6710	MA6720	MA6730	CI6600	CI6416	CI6330	AX6001	MA6700	CI6315	CI6125	CI6115
Knowledge & Understanding	A1	S		S	S	S	S	S		S	S					S	S		S	S	S	S	S
	A2							S		S									S				S
	A3						S			S	S											S	

	A4		S		S												S						S
	A5	S				S	S	S	S	S	S					S	S					S	
Intellectual Skills	B1	S	S		S	S	S		S	S	S					S	S			S		S	S
	B2					S	S	S	S	S	S						S		S				
	B3						S	S		S	S						S						S
	B4							S		S	S									S		S	
	B5				S			S			S											S	S
	B6	S				S	S	S		S									S	S			S
Practical Skills	C1						S	S	S	S									S			S	
	C2	S				S	S	S			S					S	S					S	
	C3						S	S	S	S									S	S		S	
	C4									S	S												

Students will be provided with formative assessment opportunities throughout the course to practise and develop their proficiency in the range of assessment methods utilised.

Additional Information