Programme Specification (Undergraduate) FOR ENTRY YEAR: 2025/26

Date created: 05/07/2024 **Last amended:** 25/04/2025 **Version no.** 1

1. Programme title(s) and code(s):

BSc Computer Science with Artificial Intelligence (G4G7)

BSc Computer Science with Artificial Intelligence with a Year in Industry (G47G)

BSc Computer Science with Artificial Intelligence with a Year Abroad (???)

Diploma of Higher Education in Computer Science with Artificial Intelligence*

Certificate of Higher Education in Computer Science with Artificial Intelligence*

Notes

* An award marked with an asterisk is only available as an exit award and is not available for students to register onto.

HECOS Code

HECOS Code	%
100366	100%

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full-time

b) Type of study

Campus-based

4. Registration periods:

BSc Computer Science with Artificial Intelligence

The normal period of registration is 3 years

The maximum period of registration 5 years

BSc Computer Science with Artificial Intelligence with a Year in Industry

BSc Computer Science with Artificial Intelligence with a Year Abroad

The normal period of registration is 4 years

The maximum period of registration 6 years

5. Typical entry requirements

A level: ABB or points equivalent from best three A levels. Computer Science or Mathematics preferred but not essential.

BTEC Diploma: D*D*D* in appropriate subject area, plus a pass in a Departmental UCAS day test.

6. Accreditation of Prior Learning

APL will not be accepted

7. Programme aims

The programme aims to:

- Provide students with a state-of-the-art education in Computer Science and Artificial Intelligence that includes both theory and foundations and practical applications.
- Provide opportunities for students to learn a wide range of skills in the analysis, specification, design, implementation, testing, maintenance and documentation of computing and artificial intelligence systems.
- Provide students with the knowledge and skills to use, develop artificial intelligence and integrate it into computer systems.
- Enable students to become proficient in a variety of modern programming languages, and the underlying principles of programming paradigms (concurrent, imperative, functional, logical, mobile, object oriented and so on).
- Enable students to explain core subjects such as advanced algorithms, computer architecture, operating systems and networks, foundations of computation, databases, web & mobile computing, together with a further range of advanced subjects such as data analytics, big data, and machine learning that reflect the research expertise of the Department.
- Enable students to develop skills such as Communication, Teamwork^, Leadership & Supervision, Researching & Analysing^, Problem Solving & Decision Making^, Planning & Organization^; Learning, Improving & Achieving; Resilience, Adaptability & Drive; and Digital Skills^. Skills labelled ^ are taught to a high level of insight and complexity.
- Provide students with experience of both team-based and individual project work.
- To develop an appreciation for computational, mathematical and scientific thinking, along with an appreciation of the necessity for rigorous subject foundations, and the need for mathematical and logical arguments, which will provide a lifelong support for careers.
- Ensure students will have expertise and understanding at a level where they can embark upon a high quality taught Masters programme in Computer Science.

In addition, for the 'with a Year abroad' variants

- The 'Year Abroad' variant of this programme is offered in accordance with the University's standard specification for the experiential year abroad variant.

In addition, for the 'with Industry' variants

- The 'Year in industry' variant of this programme is offered in accordance with the University's standard specification for year in industry programme variants.
- To provide experience of applications of professional and discipline-specific skills in Industry and to reinforce knowledge through its use in different environments.

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement for Computing 2022
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- University Education Strategy
- University Assessment Strategy [login required]
- United Nations Education for Sustainable Development Goals
- Student Destinations Data

9. Programme Outcomes

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

a) Discipline specific knowledge and competencies

i) Mastery of an appropriate body of knowledge

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Explain and discuss both foundations and applications of Computer Science together with concomitant scientific knowledge and concepts from logic and mathematics.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.
2. Explain, discuss and apply engineering principles scientific principles and mathematical and logical theories in computing.	As above.	As above.
3. Explain, and apply principles and practices of artificial intelligence.	As Above	As Above

ii) Understanding and application of key concepts and techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Apply knowledge of Mathematics, Logic Artificial Intelligence and Computer Science to solve individual problems, both seen and unseen.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.
Apply the concepts and techniques of abstraction, reification, logical structure and modelling, that pervade Computer Science, Artificial Intelligence and Software Engineering to specify, design, implement and test small to medium size computer systems.	As above.	As above.
Explain and apply the theoretical principles, and practical tools of Mathematics, Logic, Computer Science, Artificial Intelligence and Software Engineering, together with suitable processes and methodologies, to determine strategies for innovative solutions of large-scale problems.	As above, with emphasis on all forms of project work.	As above, with emphasis on project assessments.

iii) Critical analysis of key issues

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Analyse client/customer problems, requirements and criteria, and hence plan an appropriate yet innovative solution strategy.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.
2. Explain and analyse the constraints of budgets, data, time, staffing and resources in the practical computing domain, undertaking suitable research. Ensure solutions are fit-for-purpose. Manage the complete process and evaluate the end product, and to work with associated uncertainties.	As above.	As above.
3. Be able to recognise risks in the development and use of technology solutions.	As above.	As above.

iv) Clear and concise presentation of material

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Present information in a variety of forms, chosen to maximise reader/audience impact and understanding, such as reports, dissertations, seminars, posters, blogs, podcasts, videos and other current media technologies.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.

v) Critical appraisal of evidence with appropriate insight

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Evaluate and appraise software systems, in terms of attributes and tradeoffs. Identify risks including data privacy and cyber security risks, and safety concerns. 2. Perform software testing, and critically evaluate and analyse test results. Evaluate whether a system meets requirements, for future and for current use. 3. Use relevant knowledge to appraise the commercial use and economic and long-term viability of computer systems. 4. Evaluate the use of data and artificial intelligence to identify issues with bias, ethics and safety.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.

vi) Other discipline specific competencies

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Explain and discuss social, legal, equality, diversity and inclusion, and ethical issues as required by computing and artificial intelligence professionals. Adopt and implement suitable professional and legal practice. 2. Explain and react to the rapidity of change in Computer Science and Artificial Intelligence. Formulate innovative and creative ideas for future advances. 3. Collect, work with and analyze all forms of data.	Lectures, tutorials, computer laboratories, audios & videos, group discussions, project work, guided independent study. Also background reading and research.	Written examinations, summative and formative coursework, group and individual project presentations, individual project oral examinations and project dissertations.

b) Transferable skills

i) Oral communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Respond to technical questions with accurate and concise answers.	Lectures and tutorials. Project supervisions.	Group and individual project presentations, individual project oral examinations.
2. Demonstrate fluent and sustained scientific, technical and business communication.	As above.	As above.

ii) Written communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Write concise and accurate summaries of computing and scientific knowledge, and solutions to problems, in a variety of different formats.	Lectures, tutorials, computer laboratories, project work.	Written examinations, assessed coursework.
2. Produce properly structured, clear, advanced technical reports or dissertations.	Lectures and tutorials. Discussed in both group and individual project supervisions.	Group project assessed coursework and individual project reports.

iii) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Use a very broad range of software and IT tools, and to choose these appropriately for uses throughout Computer Science and artificial intelligence.	Lectures, tutorials and laboratories.	Assessed (laboratory) coursework.
2. Adapt to future programming languages and paradigms, and all varieties of software tools and technology.	As above.	As above.

iv) Numeracy

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Demonstrate understanding of the concept of number. Solve numerical problems.	Lectures, tutorials, computer laboratories.	Written examinations, assessed coursework.
2. Use analytical, quantitative, and graphical methods, and deploy statistics.	As above, together with project work.	As above, along with group and individual project presentations and reports.

v) Team working

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Work effectively as part of a team, organise roles and manage time, undertake assigned tasks, and ensure final completion of a team project. Identify strengths and weaknesses of team members.	Lectures, tutorials and project supervision.	Group project assessed coursework and presentations. Mini projects.

vi) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Solve a variety of short problems through the integration of knowledge of mathematics, logic, Artificial Intelligence and Computer Science.	Lectures and tutorials. Also covered in project supervisions.	Written examinations, assessed coursework, and project reports.
2. Use systematic analysis and design methods, and appropriate algorithms, to solve medium scale problems.	As above.	As above.
3. Analyze large-scale problems to produce suitable solutions with sensible economic and commercial compromises. Apply management techniques to allocate resources to projects.	As above.	Group and individual project presentations and reports.

vii) Information handling

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Conduct significant background research and literature surveys, and summarise content from information sources.	Taught in lectures. Also covered in project supervisions.	Individual project reports.
2. Demonstrate a broad understanding of problems and issues that arise in the location, organization, processing and evaluation of data.	As above.	Written examinations, assessed coursework, and project reports.
3. Recognize the need for information, and work with fuzzy, limited and possibly contradictory information.	As above.	As above.

viii) Skills for lifelong learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
1. Demonstrate knowledge and understanding of professional and ethical issues, and aspects of the law, in the context of Computing Professionals.	Lectures and tutorials. Also covered in project supervisions.	Written examinations, assessed coursework, and project reports.
2. Demonstrate independence and time management skills.	Project supervisions and research project work. Meeting coursework deadlines.	Project reports.
3. Design a personal work plan and be able to improve performance with a clear view of long-term professional development.	Project supervisions and research project work.	As above.

a) Year Abroad

The Year Abroad variant of this programme is offered in accordance with the University's standard specification for year abroad programme variants.

b) Year in Industry

The Year in Industry variant of this programme is offered in accordance with the University's standard specification for year in industry programme variants.

10. Progression points

This programme follows the standard Scheme of Progression set out in Senate Regulations – see the version of Senate Regulation 5 governing undergraduate programmes relevant to the year of entry.

The following modules have restrictions on the assessment components that can be reassessed:

CO2302

CO3201

Please refer to the module specification for full details.

a) Course Transfers

Student may transfer from CS with AI onto our Software Engineering programme, or vice versa up until the end of the second year, if they have taken, as an option, the module (CO2114 or CO2115) that is core for the degree that they wish to switch to. If switching to Software Engineering, student must have met that programme's progression criteria. If switching to CS with AI the student must be informed that they are switching to a programme that is not accredited by the BCS. Students switching to Software Engineering will have their degree accredited by the BCS.

b) Year Abroad

The Year Abroad variant of this programme is offered in accordance with the University's standard specification for year abroad programme variants.

c) Year in Industry

The Year in Industry variant of this programme is offered in accordance with the University's standard specification for year in industry programme variants.

11. Criteria for award and classification

This programme follows the standard scheme of undergraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 5 governing undergraduate programmes* relevant to the year of entry.

12. Special features

The University recognises that undertaking a work placement as part the programme of study can enhance career prospects and provide added value, and as such this programme includes a 'year in industry' variant.

By experiencing real-world scenarios and applying skills and knowledge to a professional environment, students can gain a unique insight into how their studies can be utilised in industry. This will not only showcase their abilities to future employers but will also enhance their studies upon returning to university to complete your programme.

To understand the special features for year in industry undergraduate programme variants, this programme specification should be read in conjunction with the programme specification content which can be found here. This outlines details including programme aims, support, progression and duration.

Being able to focus on learning about and practicing Artificial Intelligence within a school with world class teaching and research in this area is a distinctive opportunity for students.

12a. Research-inspired Education

Students on this programme will advance through the four quadrants of the University of Leicester Research-inspired Education Framework as follows:

RiE Quadrant	Narrative
	The programme puts emphasis on blending long-term foundational knowledge with state-of-the-art research-based technologies and current programming languages. It provides opportunities for students to learn a wide range of skills in the analysis, specification, design, implementation, testing, maintenance, and documentation of computing and artificial intelligence systems.
Research-briefed Bringing staff research content into the curriculum.	*Research-briefed:* Students will be exposed to a number of programming languages and paradigms (Java, Python, …) all of which are actively being used in research, as well as in industry. For each programming language, the students will be shown, and taught, its most common applications. Students will be introduced to a range of advanced subjects such as data analytics, big data, and machine learning that reflect the research expertise of the School.
Research-based Framed enquiry for exploring existing knowledge.	*Research-based:* During computer labs, students will have an opportunity to put their problem-solving and research skills in practice by solving problems with applications to data analysis, machine learning, AI, and more.
Research-oriented Students critique published research content and process.	*Research-oriented:* Students will be able to search information effectively, and organise and present information in the form of an IT literature survey. Students will also have the opportunity to evaluate the outcomes of a project, including social, legal and ethical considerations.
Research-apprenticed Experiencing the research process and methods; building new knowledge.	*Research-apprenticed:* Students will work in groups and individually to produce complete pieces of software, be it a website, a game demo, an app, from various IT applications. Students will then have the opportunity to present their work and process, and be challenged on choices that were made throughout the development of the project.

As part of studying at a research-intensive university, students on this programme have the following extra or co-curricular opportunities available to them to gain exposure to research culture:

The School helps organise multiple Hackathons during the academic year where the students can come together and collaboratively work or build new software. These Hackathons often have industrial partnerships and collaborators, for example IBM and Capital One. Students are informed and invited to participate in these events via emails.

Students can apply to join the DriverLeics group, which was invited to demonstrate autonomous technologies at the Royal Society Summer Science Exhibition. Successful candidates will engage in research-inspired learning activities in autonomous systems, such as robotics and autonomous vehicles. They will also have opportunities to participate in national and international competitions, such as F1Tenth, and take part in local outreach and voluntary STEM activities. Throughout term, subject specific career drop-in sessions are scheduled (and added to the students' timetable), in order for students to find out more about the subject and research specific paths in Computer Science.

Teaching on this programme will be research-informed (it draws consciously on systematic inquiry into the teaching and learning process itself) in the following way:

The School supports all staff involved in teaching to gain an accredited Higher Education teaching qualification, in which they demonstrate their use of teaching theory to support their own practice and reflect on their current teaching and continuing professional development.

All module convenors are part of teaching pods, which group similar fields together. These pods are designed to provide a forum for discussion between teaching-focussed and teaching/research staff, and as a way for more experienced staff to support others by, for example, peer observation and feedback. This provides a platform for staff to share considerations and observations of their teaching experience and obtain research-based input.

Teaching staff meet once a year for a 'Teaching Away Day', which gives the opportunity to discuss some key issues in depth with the other members within the teaching pods, and shared with everyone. This gives a chance to share ideas and experience, and to identify questions that need answers.
Additionally, staff will be paired within their teaching pods to observe each other's teaching sessions then meet to agree actions in order to participate in UoL's Peer Observation of Teaching scheme.

13. Indications of programme quality

This course shares most of its structure and modules with courses accredited by the BCS, who conducted a rigorous assessment of the programmes' quality in 2024.

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found at exampapers@Leicester [log-in required]

UNIVERSITY OF LEICESTER

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Date created: 05/07/2024 **Last amended:** 25/04/2025 **Version no.** 1

Appendix 1: Programme structure (programme regulations)

The University regularly reviews its programmes and modules to ensure that they reflect the current status of the discipline and offer the best learning experience to students. On occasion, it may be necessary to alter particular aspects of a course or module.

BSc Computer Science with Artificial Intelligence

Level 4/Year 1 **2025/26**

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	n/a	60 credits	60 credits
Optional	n/a	n/a	n/a

120 credits in total

Semester 1 - Core

Delivery Period	Code	Title	Credits
Semester 1	CO1101	COMPUTING FUNDAMENTALS	15
Semester 1	CO1102	PROGRAMMING FUNDAMENTALS	15
Semester 1	CO1103	MATHEMATICS FUNDAMENTALS	15
Semester 1	CO1104	COMPUTER ARCHITECTURE	15

Semester 2 - Core

Delivery Period	Code	Title	Credits
Semester 2	CO1105	INTRODUCTION TO OBJECT ORIENTED PROGRAMMING	15
Semester 2	CO1106	REQUIREMENTS ENGINEERING AND PROFESSIONAL PRACTICE	15
Semester 2	CO1107	ALGORITHMS, DATA STRUCTURES AND ADVANCED PROGRAMMING	15
Semester 2	CO1109	BUSINESS AND FINANCIAL COMPUTING	15

Notes
N/A

Level 5/Year 2 2026/27

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	n/a	60 credits	45 credits
Optional	n/a	n/a	15 credits

120 credits in total

Semester 1 - Core

Delivery Period	Code	Title	Credits
Semester 1	CO2123	SOFTWARE ARCHITECTURE AND SYSTEM DEVELOPMENT - I	15
Semester 1	CO2301	PROJECT MANAGEMENT	15

Semester 1	CO2101	OPERATING SYSTEMS AND NETWORKS	15
Semester 1	CO2102	DATABASES AND DOMAIN MODELLING	15

Semester 2 - Core

Delivery Period	Code	Title	Credits
Semester 2	CO2124	SOFTWARE ARCHITECTURE AND SYSTEM DEVELOPMENT - II	15
Semester 2	CO2302	SOFTWARE ENGINEERING GROUP PROJECT	15
Semester 2	CO2114	FOUNDATIONS OF ARTIFICIAL INTELLIGENCE	15

Semester 2 - Options (Choose 1 of the following)

Delivery Period	Code	Title	Credits
Semester 2	CO2115	INFORMATION SECURITY FUNDAMENTALS	15
Semester 2	CO2106	DATA ANALYTICS	15
Semester 2	CO2104	USER INTERFACES DESIGN AND EVALUATION	15

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Level 6/Year 3 2027/28

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	15 credits	n/a
Optional	n/a	30 credits	30 credits

120 credits in total

Year Long - Core modules

Delivery Period	Code	Title	Credits
YEAR LONG	CO3201	COMPUTER SCIENCE PROJECT	45

Notes

Students will study 15-credits of CO3201 in Semester 1 and 30-credits in Semester 2. The teaching and assessment schedule for this module supports this balance.

Semester 1 - Core

Delivery Period	Code	Title	Credits
Semester 1	CO3101	COMPUTERS, SOCIETY & PROFESSIONALISM	15
Semester 1	CO3091	COMPUTATIONAL INTELLIGENCE AND SOFTWARE ENGINEERING	15

Semester 1 - Options (choose one of the following)

Delivery Period	Code	Title	Credits
Semester 1	CO3095	SOFTWARE MEASUREMENT AND QUALITY ASSURANCE	15

Semester 1	CO3102	MOBILE AND WEB APPLICATIONS	15
Semester 1	CO3105	C++ PROGRAMMING	15
Semester 1	C03219	INTERNET AND CLOUD COMPUTING	15

Semester 2 – Options (choose two of the following, including at least one starred* option)

Delivery Period	**Code**	**Title**	**Credits**
Semester 2	CO3002	ANALYSIS AND DESIGN OF ALGORITHMS	15
Semester 2	CO3093	BIG DATA AND PREDICTIVE ANALYTICS	15
Semester 2	CO3099	CYBER SECURITY	15
Semester 2	CO3103	TECHNOLOGY MANAGEMENT	15
Semester 2	CO3111	FUNCTIONAL PROGRAMMING	15
Semester 2	CO3113	AI FOR SPACE*	15
Semester 2	CO3114	DATA SCIENCE AND VISUALISATION*	15
Semester 2	CO3115	ADVANCED AI*	15

Notes
Choose 30 credits, including at least one of the CO3113, CO3114, CO3115

BSc COMPUTER SCIENCE WITH ARTIFICIAL INTEGLLIGENCE WITH A YEAR IN INDUSTRY

First and Second Year Modules

As for the first- and second-year of the BSc degree in Computer Science with Artificial Intelligence.

Third Year Modules

1. Students will work within a sponsoring company for one year between 1 July of the second year of the course and the start of the following year.
2. During their one-year placement students will undertake a programme of training and work experience which will be agreed by the sponsoring company and the University.
3. Students will be expected to keep a logbook recording their training and experience that is to be presented for approval to the sponsoring company and the University.
4. Students will be issued with a *Certificate of Industrial Studies* indicating successful completion of their placement.
   Students who do not satisfactorily complete their industrial placement will be transferred to the B.Sc. Computer Science with Artificial Intelligence degree.
   The Year in Industry does not contribute to the final degree classification.

Fourth Year Modules

As for the third-year of the BSc degree in Computer Science with Artificial Intellgience.

BSc COMPUTER SCIENCE WITH ARTIFICIAL INTEGLLIGENCE WITH A YEAR ABROAD

First and Second Year Modules

As for the first- and second-year of the BSc COMPUTER SCIENCE WITH ARTIFICIAL INTEGLLIGENCE

Third Year Modules

The third year will be spent abroad taking approved courses either in an institution associated with the School of Computing and Mathematical Sciences. Students will normally be required to complete the year and to reach a pass level of attainment in 60 credits of Computer Science modules. Failure to do so will result in the student reverting to the three year BSc Computer Science with Artificial Intelligence degree. The marks awarded during the year abroad do not contribute to the final degree classification.

Note: Transfer will be confirmed only after successful completion of the first year.

Fourth Year Modules

As for the third-year of the BSc degree in BSc COMPUTER SCIENCE WITH ARTIFICIAL INTEGLLIGENCE

Appendix 2: Module specifications

See undergraduate module specification database [login required] (Note - modules are organized by year of delivery).

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Appendix 3: Module mapping matrix

Research-inspired Education: Module Mapping Matrix

Please refer to the Research-inspired Education guidance document when completing the sections below. ***This is an internally-facing document which will not be shared directly with prospective or future students.***

Sub-section i: Articulation of research-inspired components within taught modules.

RiE Quadrant	Module code and name	Core[1]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-briefed Bringing staff research content into the curriculum.	CO1101 Computing Fundamentals	Core	Students learn to explain and discuss an overview of modern Computer Science and Software Engineering
	CO1103 Mathematics Fundamentals	Core	Staff describes the relevance of set theory and mathematical logic to Computer Science and Software Engineering practices.
	CO1104 Computer Architecture	Core	In this module, students will be introduced to the emerging trends in next-generation computer architecture in current research, including advancements in quantum computing.
	CO2102 Databases and Domain Modelling	Core	This module covers the latest advancements and research developments in NoSQL and multi-model databases, alongside traditional SQL-based relational databases.
	CO2123 Software Architecture and System Development I, CO2124 Software Architecture and System Development II.	Core	These modules briefly explore emerging trends in software architecture and design, such as Event-driven Architecture and Microservices architecture.
	CO3091 Computational Intelligence and Software Engineering	Core	The topics covered in this module have arisen from research carried out by the original convenor and are revised based on the current convenors' research background.

[1] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

RiE Quadrant	Module code and name	Core[1]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
	CO3201 Computer Science Project	Core	Supervisors for the project will be allocated according to the project's topic and the supervisor's research background.

RiE Quadrant	Module code and name	Core[2]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-based Framed enquiry for exploring existing knowledge.	CO1102 Programming Fundamentals, CO1103 Mathematics Fundamentals, CO1105 Introduction to Object Oriented Programming, CO1107 Algorithms, Data Structures and Advanced Programming, CO2102 Databases and Domain Modelling, CO2123 Software Architecture and System Development I, CO2124 Software Architecture and System Development II, CO2114 Foundations of Artificial Intelligence, CO3091 Computational Intelligence and Software Engineering.	Core	Students work in computer labs, where they are encouraged to work with their neighbours, to solve problems that require implementing and putting in practice the programming skills that were introduced during the lectures.
	CO2104 User Interface Design and Evaluation, CO2106 Data Analytics,	Optional *Students have to choose between	Students work in computer labs, where they are encouraged to work with their neighbours, to solve problems that require implementing

[2] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

RiE Quadrant	Module code and name	Core[2]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
	CO2115 Information Security Fundamentals.	one of these 3 courses, so regardless of their choice they will have a course within this quadrant	and putting in practice the programming skills that were introduced during the lectures.
	CO3002 Analysis and Design of Algorithms, CO3093 Big Data and Predictive Analytics, CO3095 Software Measurement and Quality Assurance, CO3099 Cyber-security, CO3102 Mobile and Web Applications, CO3103 Technology Management, CO3105 C++ Programming, CO3111 Functional Programming, CO3219 Internet and Cloud Computing, **CO3113 AI for Space, **CO3114 Data Science and Visualisation, **CO3115 Advanced AI.	Optional *These are all the optional modules offered for 3rd year students, therefore regardless of a student's choice of path, they will have a course within this quadrant. ** Students have to choose at least one of these 3 modules in their second semester.	Students work in computer labs, where they are encouraged to work with their neighbours, to solve problems that require implementing and putting in practice the programming skills that were introduced during the lectures.
	CO2114 Foundations of Artificial Intelligence.	Core	For this module, in addition to having the practical computer labs, there is a project-based assessment. For this assessment students work individually or in group to solve a problem or implement an application connected to the given subject.

RiE Quadrant	Module code and name	Core[2]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
	CO3093 Big Data and Predictive Analytics, CO3095 Software Measurement and Quality Assurance, CO3103 Technology Management, **CO3113 AI for Space, **CO3114 Data Science and Visualisation, **CO3115 Advanced AI.	Optional ** Students have to choose at least one of these 3 modules in their second semester	For these modules, in addition to having the practical computer labs, there are project-based assessments. For these assessments students work individually or in group to solve a problem or implement an application connected to the given subject.

RiE Quadrant	Module code and name	Core[3]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-oriented Students critique published research content and process.	CO1101 Computing Fundamentals	Core	As part of the ILOs for the modules students will be shown how to search information effectively, identify relevant IT sources of conceptual and technical information. Students will also organise, critically analyse and present information in the form of a literature survey.
	CO1109 Business and Financial Computing	Core	Students are introduced to elements of market research and are encourage to critically analyse the processes if the business/financial domain.
	CO2301 Project Management	Core	In this module students will adopt standard engineering practices to study and evaluate the outcomes of a project including the social, legal, environmental or ethical considerations.
	CO3201 Computer Science Project	Core	For their final year individual project, students are required to carry out significant background research and a literature survey which underpins the project work.
	CO3091 Computational Intelligence and	Core	In this module students are encouraged to research, evaluate, analyse and critique computational intelligence approaches for software engineering

[3] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

RiE Quadrant	Module code and name	Core[3]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
	Software Engineering		
	CO3101 Computers, Society and Professionalism	Core	In this module students research, discuss, explain, and analyse social, legal and ethical issues in the realm of Informatics; such as privacy and security, the inequality that can arise, and the impacts on society. Additionally, students learn an outline of the history of digital computing and are encouraged to analyse the events and their consequences.

RiE Quadrant	Module code and name	Core[4]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-apprenticed Experiencing the research process and methods; building new knowledge.	CO2302 Software Engineering Group Project	Core	Students work collaboratively within a group to deliver a software project. To complete the project, they are expected to conduct professional demonstrations of their completed works, evaluate the outcomes of the project including social, legal, environment or ethical considerations, and give professional presentations covering topics associated with the completed software project.
	CO3201 Computer Science Project	Core	Students work individually, with an academic as a supervisor, to identify an IT related problem that can be solved with the creation of a technically complex software system. To complete the project, they are expected to carry out background research and a literature review; carry out requirements analysis; design, implement, and evaluate the end product according to the specifications. (45 credits)

[4] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

Sub-section ii: Articulation of plans / intentions for development of Research-Inspired Education beyond the existing provision. *Please capture any future ideas that are not already happening in the box below. This is an optional section and will not be subject to review.*

Modules such as CO1102 Programming Fundamentals, CO1105 Introduction to Object Oriented Programming, CO1106 Requirements Engineering and Professional Practice, and CO1107 Algorithms, Data Structures and Advanced Programming are first year modules that cover some fundamental aspects of programming that are essential for students to learn before moving on to more advanced topics. As such, these modules don't currently offer many links to research or applications of their topics. In the future, it could be good to bring these modules into the Research-briefed quadrant by encouraging staff to connect these fundamental topics to their scopes and applications. This would help students understand the purpose of the module and how it fits in the 'bigger picture'.
Similar changes can be made to modules such as CO2101 Operating Systems and Networks in order to bring them into the Research-briefed quadrant.

In fact, we currently working on what we have termed the 3^10 project wherein we are reviewing and updating programme curriculum to maximise coherence, streamline learning outcomes enabling students to focus on research topics of interests, encourage consistent student engagement and recognising student engagement and learning in extra-curricular activities.

For future plans, we would like to involve the PhD students more, so that they can share their research with the Undergraduate students. For example, a Poster session could be organised, and invites can be sent to all the students.

As this is a new programme starting in 2025/26 it will be subject to a full review after its first year.