

Basic details

UID		Cohorts covered	Earliest cohort 2025-26
Long title	Quantum AI - Independent Study		
New code	ELEC70125	New short title	
Brief description of module (approx. 600 chars.)	The module aims at independent study in quantum AI. The module consists in two parts: first, you will be attending the module leader's lectures on quantum computing, and then, with consultation and agreement with the module leader, you will select topics in Quantum AI to study via research papers and books and online resources. The study can be aimed at developing a survey of one or more topics, experimentation and/or theoretical analysis. The topics may include, but are not restricted to: variational quantum algorithms, theory and practice of learning from quantum data, machine learning for simulating quantum systems, advanced topics in quantum error correction. The project part of the course will be conducted in small groups.		
Available as a standalone module/ short course?	N		

Statutory details

	ECTS	CATS	Non-credit	HECOS codes
Credit value	5	10	N	
FHEQ level	Level 7			

Allocation of study hours

	Hours	
Lectures	28	
Group teaching	0	<i>Incl. seminars, tutorials, problem classes.</i>
Lab/ practical	0	
Other scheduled	10	<i>Incl. project supervision, fieldwork, external visits.</i>
Independent study	87	<i>Incl. wider reading/ practice, follow-up work, completion of assess</i>
Placement	0	<i>Incl. work-based learning and study that occurs overseas.</i>
Total hours	125	
ECTS ratio	25.00	

Project/placement activity

Is placement activity allowed?	No
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Module delivery

Delivery mode	Taught/ Campus	Other	
Delivery term	Term 1	Other	Term 1 and Term 2

Ownership

Primary department	Electrical and Electronic Engineering
Additional teaching departments	Computing

Delivery campus

White City

Collaborative delivery

Collaborative delivery?

N

External institution

N/A

External department

N/A

External campus

N/A

Associated staff

Role	CID	Given name	Surname
Module Leader		Roberto	Bondesan

Learning and teaching

Module description

Learning outcomes

On successful completion of this module, you will be able to:

- 1) Understand the basics of quantum computing
- 2) Conduct a scientific literature survey
- 3) Devise and conduct experiments to validate quantum AI techniques
- 4) Plan, write and present a scientific report

Depending on the topics agreed between you and module leader, the learning outcomes will include detailed analysis and critiquing of topics in Quantum AI.

Module content

See the quantum computing course (CO70021) spec for its content. The project part will contain a major element of directed reading. This can be in the form of either advanced textbooks or research papers. There can also be a practical element of analytical research. This could be experimentation, implementation, theoretical or conceptual analysis, it could involve devising new examples, and so on. The expectation is that each IS will represent around 125 hours of work. A plan will be agreed between the student and the module leader for the technical content, and frequency of meetings.

Learning and Teaching Approach

Lectures, One-to-one meetings with supervisor, complemented by group meeting when needed or helpful, if more than one student is assigned this module. An online service will be used as a discussion forum for the module.

Assessment Strategy

You will not be taking the tests and exam of the quantum computing course. Instead, assessment is based on a written report and oral presentation, both delivered at the end of the project. In a group, you should produce a short, well-focused dissertation (20-30 pages), and give an oral presentation with time for discussion. The assessment is carried out by the supervisor and a second marker. The presentation is normally 45 minutes, including 20 minutes of Q&A. Formative assessment and feedback will be provided in the regular meetings with the module leader or GTAs, where progress is monitored and guidance is provided.

Feedback

You will be provided with summative written feedback after the marking of the module. This will be in the form of a short document. You can also request a one-to-one meeting with the module leader. Formative feedback will be provided verbally, and if required in writing, in each meeting with the module leader, prior to the final submission.

Reading list

Reading List to provided in the relevant teaching sessions.

Quality assurance

Date of first approval
Date of last revision
Date of this approval

Module leader **Roberto Bondesan**

Notes/ comments

Office use only

QA Lead
Department staff
Date of collection

Date exported
Date imported

Template version

Assessment details

Grading method

Numeric

Pass mark

50%

Assessments

[illegible]

100%