

Module specification

When printed this becomes an uncontrolled document. Please access the **Module Directory** for the most up to date version by clicking on the following link: [Module directory](#)

Module Code	COM659
Module Title	Emergent Technologies
Level	6
Credit value	20
Faculty	FACE
HECoS Code	100367
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Computer Science	Core
BSc (Hons) Computer Science with Industrial Placement	Core
BSc (Hons) Software Engineering	Core
BSc (Hons) Software Engineering with Industrial Placement	Core

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	12 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	12 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	24 hrs
Placement / work based learning	0 hrs
Guided independent study	176 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	08/11/2023
With effect from date	Sept 2026



For office use only	
Date and details of revision	
Version number	1

Module aims

The module aims to provide students with an understanding of emerging technologies and their impact on the field of computing. It explores cutting-edge technologies, their underlying principles, and their potential applications. Students will gain knowledge and skills to critically evaluate and apply emerging technologies in real-world scenarios. The module also fosters creativity and innovation by encouraging students to explore and experiment with novel technologies.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Evaluate and analyse emerging technologies and their potential impact on the field of computing and society.
2	Demonstrate the underlying principles and concepts behind different emerging technologies.
3	Apply emerging technologies to solve complex problems in the field of computing.
4	Demonstrate creativity and innovation by exploring and experimenting with novel technologies.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The assessment for this module will be made up of a couple of portfolio tasks, the first will be a research report that will analyse the impact of an emergent technology within the report they will evaluate the benefits, risks and ethical considerations. The second part of the portfolio students will work in teams or as individuals to develop a prototype or proof-of-concept utilizing an emerging technology.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3,4	Portfolio	100%

Derogations

None



Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.

As this module progresses, the strategies will change to best support a diverse learning environment. Initially, the module will start with a heavier reliance on engaging tutor-led lectures, demonstrations, and workshops to ensure that the students get the relevant threshold concepts. As the module continues experiential and peer learning strategies will be encouraged as the students' progress with their portfolio work.

Assessment will occur throughout the module to build student confidence and self-efficacy in relation to emerging technologies and their potential impacts.

Indicative Syllabus Outline

- Introduction to Emergent Technologies
 - Definition and scope of emergent technologies
 - Overview of the impact of emergent technologies
- Internet of Things (IoT)
 - Concepts and architecture of IoT systems
 - IoT communication protocols and security considerations
 - Practical applications and case studies of IoT in different industries
- Artificial Intelligence and Machine Learning
 - Principles of artificial intelligence and machine learning
 - Deep learning and neural networks
 - Application of artificial intelligence and machine learning
- Blockchain
 - Fundamentals of blockchain technology
 - Use cases of blockchain technology
- Cloud Computing and Edge Computing
 - Introduction to cloud computing models
 - Edge computing and its role in distributed systems
- Augmented Reality (AR) and Virtual Reality (VR)
 - Introduction to AR and VR technologies
 - Applications in entertainment, education, and training
- Quantum computing
 - Basics of quantum computing principles
 - Potential applications of this technology
- Ethical Considerations and Future Trends
 - Ethical implications of emergent technologies
 - Legal and regulatory considerations of emergent technologies
 - Addressing privacy and security concerns
 - Exploring upcoming trends in the field

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Kl. Schwab. *The Fourth Industrial Revolution*. Portfolio Penguin. 2017.

Other indicative reading

J. Follett, *Designing for Emerging Technologies*. O'Reilly. 2014.

E. Brynjolfsson & A. McAfee. *The Second Machine Age: Work, Progress and Prosperity in a Time of Brilliant Technologies*. W.W Norton & Company. 2016.