CS357-15 Responsible Computing

24/25

Department
Computer Science
Level
Undergraduate Level 3
Module leader
James Archbold
Credit value
15
Module duration
10 weeks
Assessment
Multiple
Study location
University of Warwick main campus, Coventry

Description

Introductory description

This module is designed to provide students with a comprehensive understanding of responsible computing, focusing on ethical considerations and best practices in the use and development of technology. The course will cover topics such as the societal impact of computing, ethical considerations of software development and the key considerations of emerging technologies. Students will engage in discussions, case studies, and hands-on activities to explore the ethical implications of technology and develop strategies for responsible computing.

Module aims

The module aims to provide students with the knowledge, frameworks and confidence needed to engage in the complex conversations that occur around emerging technologies and the use of computer science within society. By the end of the module, students should be aware of key ethical issues within the field of computer science and be capable of evaluating and critiquing technology based case studies in an ethical context.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- Ethics vs morality
- Social context of computing
- Professional ethics & codes of conduct
- Sustainability
- Software issues, including risks and liabilities
- Data privacy & security
- Algorithmic bias
- Governance
- The digital divide, democracy and work
- Decolonising Computer Science
- The Internet of Things
- Mobile communications and ecosystems
- Online communities
- Augmented and virtual reality technologies
- Artificial Intelligence
- Generative Artificial Intelligence
- Computer crime investigations and the use of biometrics
- Responsible Research and Innovation
- Ethical aspects of emerging and converging technologies

Learning outcomes

By the end of the module, students should be able to:

- Apply ethical frameworks to emerging technological issues
- Understand how to operate ethically within a professional context
- Identify, analyse and debate the impact of technological change on society
- Analyze the societal impact of technology and its role in shaping ethical norms
- Demonstrate critical reasoning skills for evaluating ethical dilemmas
- Develop confidence in their own ethical identity

Indicative reading list

Tavani, Herman T. Ethics and technology: Controversies, questions, and strategies for ethical computing. John Wiley & Sons, 2016.

Kizza, Joseph Migga, Ethical and social issues in the information age 6th ed. New York, NY: Springer New York, 2017.

Subject specific skills

- Understanding of ethical computing.
- Knowledge of how computing affects the wider world, and the ethical dilemmas that come with that.
- Professional approaches to the ethical development of technology.
- Ability to analyse technology based case studies through the lens of chosen ethical frameworks.

Transferable skills

- Critical thinking
- Ethical Values
- Information Literacy
- Organisational Awareness
- Professionalism
- Self awareness
  Sustainability

Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (13%)
Seminars	9 sessions of 1 hour (6%)
Private study	121 hours (81%)
Total	150 hours

Private study description

Reading
Completing module diary
Completing peer assessment
Essay planning and writing

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group D

	Weighting	Study time
Essay Plan	10%	

Written plan for final summative essay. This assessment is eligible for self-certification.

	Weighting	Study time
Essay	30%	

This assessment is worth more than 3 CATS and is, therefore, ineligible for self-certification

Exam	60%	

Students are permitted to bring a single A4 side of typed notes

Assessment group R

	Weighting	Study time
Resit Exam	100%	

Students are permitted to bring a single A4 side of typed notes

Feedback on assessment

Feedback on the essay plan and essay will be provided on Tabula

Past exam papers for CS357

Availability

Courses

This module is Optional for:

- UCSA-G4G1 Undergraduate Discrete Mathematics
  - Year 3 of G4G1 Discrete Mathematics
  - Year 3 of G4G1 Discrete Mathematics
- Year 3 of UCSA-G4G3 Undergraduate Discrete Mathematics
- Year 4 of UCSA-G4G4 Undergraduate Discrete Mathematics (with Intercalated Year)
- Year 4 of UCSA-G4G2 Undergraduate Discrete Mathematics with Intercalated Year

This module is Option list A for:

- Year 4 of UCSA-G504 MEng Computer Science (with intercalated year)
- UCSA-G500 Undergraduate Computer Science
  - Year 3 of G500 Computer Science
  - Year 3 of G500 Computer Science
  - Year 3 of G500 Computer Science
- UCSA-G502 Undergraduate Computer Science (with Intercalated Year)
  - Year 4 of G502 Computer Science with Intercalated Year
  - Year 4 of G502 Computer Science with Intercalated Year
- UCSA-G503 Undergraduate Computer Science MEng
  - Year 3 of G500 Computer Science

    - Year 3 of G503 Computer Science MEng
    - Year 3 of G503 Computer Science MEng
- Year 3 of UCSA-G406 Undergraduate Computer Systems Engineering
- Year 3 of UCSA-G408 Undergraduate Computer Systems Engineering
- Year 4 of UCSA-G407 Undergraduate Computer Systems Engineering (with Intercalated Year)
- Year 4 of UCSA-G409 Undergraduate Computer Systems Engineering (with Intercalated Year)