2024 / 25

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Ollscoil Teicneolaíochta an Oirdheiscirt

South East Technological University

Module Descriptor

Computing Ethics
(Computing and Mathematics)

Computing Ethics (A14048)

Short Title: Computing Ethics
Department: Computing and Mathematics
Credits: 5 **Level:** Advanced

Description of Module / Aims

The rate of ICT development has outpaced society?s ability to regulate responsible usage of such technologies. Technology has a profound effect on many aspects of work, living systems, the environment and society in general. The computing professional has unique responsibilities as the creator, developer, implementer and manager of these systems. This module will provide students with a critical awareness of ethical issues in modern society in relation to computing technologies and the systems they impact. It offers an introduction to the controversies, questions and strategies for ethical computing. It also inculcates an awareness of the key ways in which computing professionals can act ethically, including the role of important standards and professional communities.

Programmes

		stage/semester/status
COMP-0674	BSc (Hons) in Applied Computing (WD_KACCM_B)	4 / 8 / E
COMP-0674	BSc (Hons) in Applied Computing (WD_KCOMP_B)	4 / 8 / E
COMP-0674	BSc (Hons) in Computer Forensics and Security (WD_KCOFO_B)	4 / 8 / E
COMP-0674	BSc (Hons) in Computer Science (WD_KCMSC_B)	4 / 8 / E

Indicative Content

- Introduction to Ethics: Ethical Concepts, Ethical Theories and Moral Systems, Ethical Frameworks for discussing Computer-related issues
- Introduction to Cyberethics: Tools for Evaluating Cyberethics issues
- Ethics in the Information Society/Ethical and Regulatory Issues in the Online World - Social Web (Web 2.0), Web of Things (Web 3.0), Intelligent Web (Web 4.0), emerging technologies, Cybercrime, Cyberterrorism, Social Engineering, The Digital Divide, technology and disability, developing world and IT policy, gender issues, transformation of work and quality of life
- Ethics, Privacy and e-Privacy
- Ethical aspects of Cybersecurity
- IS Development and Governance: Risk, Intellectual Property, systems failure, victims/beneficiaries, user/-analyst relations, stakeholders, IS deployment, other issues
- Professional Practice and Moral Responsibility: Whistle-blowing, Peer-Support, Codes of Practice, Frameworks, support communities for computing and systems engineering practitioners (ACM, IEEE, IFAC, AIS)
- Computing Standards in relation to Ethical issues (HCS development, e-privacy, energy-efficiency, other standards)

Learning Outcomes

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

1. Critique ethical issues posed by computing technologies.
2. Appraise the practical implications of ethical dilemmas in computing.
3. Demonstrate the ability to take and exercise personal responsibility in professional practice as a computing professional.
4. Critique what is meant by ethical computing and cyberethics and their practical implications.

Learning and Teaching Methods

- The course will comprise a combination of lectures which present cases and theoretical materials and a combination of workshops and debates unpacking of ethical issues and to develop the critical thinking skills necessary for competent ethical reasoning in the field of computing. Additional readings may be provided from the academic comuting ethics literature.
- The student will prepare a portfolio which will include reports on how ethical issues arising in computing might be addressed.
- The portfolio will include a reflective learning component to test reflective capacity and critical thinking skills. Templates will be provided to guide students in completing these.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	24	
Workshop	24	
Independent Learning	87	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	50%	
Portfolio	50%	1,2,3,4
Final Written Examination	50%	1,2,4

Assessment Criteria

<40%: Unable to demonstrate rudimentary understanding of the concepts and issues described in the indicative content. Failing to demonstrate satisfactory ability to formulate solutions for ethical dilemmas in computing.

40%–49%: Able to demonstrate a rudimentary understanding of the basic concepts and issues outlined in the module indicative content. Being able to formulate basic solutions for typical ethical dilemmas taking into account a narrow range of factors. Little demonstrable reflective learning present.

50%–59%: Able to demonstrate a solid understanding of the concepts and issues outlined in the indicative content taking into account a range of factors, and demonstrate some critical, reflective awareness of ethical issues in computing.

60%–69%: Able to demonstrate a very good understanding of the major concepts and issues outlined in the indicative content taking into account a wide range of factors, and demonstrate some critical awareness of the complexity of ethical issues in computing. Able to reflect upon the role of of ethical issues in the working life of a computing professional and how these might impact others. Appreciate the ways computing professionals can obtain peer support.

70%–100%: All the previous to an excellent level including capacity to solve ethical problems and creatively engage in ethical discourse and the identification of appropriate potential solutions.

Supplementary Material(s)

- Baase, S. *A Gift of Fire: Social, Legal and Ethical Issues for Computers and the Internet.* 2nd ed.. NJ: Prentice Hall, 2013.
- Hersh, M.A. *Ethical Engineering for International Development and Environmental Stability.* 1st ed.. London: Springer-Verlag, 2015.