1. **Title of the module**

COMP6590 (CO659) – Computational Creativity

1. **School or partner institution which will be responsible for management of the module**

Division of Computing, Engineering and Mathematical Sciences

School of Computing

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 6

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn or Spring

1. **Prerequisite and co-requisite modules**

Pre-requisite: COMP5200 Further Object-Oriented Programming, or comparable programming competence (in the latter case, please contact course convenors beforehand to confirm before registering).

MSc equivalent prerequisites (COMP8810, COMP8820)

1. **The programmes of study to which the module contributes**

BSc Computer Science (and pathways)  
BSc Computing and Business Administration  
BSc Computing (and pathways)  
BSc Business Information Technology

BSc Artificial Intelligence

BSc Software Engineering

Year in Industry equivalents of the above  
School of Computing Joint Honours programmes  
MSc Advanced Computer Science

MSc Artificial Intelligence

MSc Computer Science

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**
   1. State and compare the various definitions of computational and human creativity, to discuss the various philosophical issues relating to computational and human creativity, and to relate these to specific examples of creative software e.g. software which composes music, writes stories, or creates scientific hypotheses.
   2. Describe a number of computational creativity systems, both standalone and collaborative, to describe the techniques used in creating them, and describe how they are used in specific examples across a number of creative domains in the arts and sciences.
   3. Write software that implements computational creativity techniques, grounded in an understanding of research in the area, applied to a variety of domains in the arts and sciences.
   4. Describe, employ and debate methods for evaluation of computational creativity.
   5. Identify appropriate contexts for using computational creativity, and design an appropriate system for that context.
2. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**
   1. Make effective use of general IT facilities.
   2. Engage with research literature and other information sources.
   3. Communicate technical issues clearly in written and spoken formats.
   4. Manage their own learning and development, including time management and organisational skills.
3. **A synopsis of the curriculum**

The module aim is to give students an overview and understanding of key theoretical, practical and philosophical research and issues around computational creativity, and to give them practical experience in writing and evaluating creative software.

The following is an indicative list of topics that may be covered:

* Introduction to computational creativity
* Examples of computational creativity software e.g. musical systems, artistic systems, linguistic systems, proof generator systems, systems for 2D and 3D design.
* Evaluation of computational creativity systems (both of the quality and the creativity of systems)
* Philosophical issues concerning creativity in computers
* Comparison of computer creativity to human creativity
* Collaborative creativity between humans and computers
* Overview of recent research directions/results in computational creativity
* Practical experience in writing creative software.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

There is no specific textbook for this module. However students will be expected to read material provided in lectures, web-based articles and classes, as well as relevant textbooks. The following list is by way of example only***:***

Boden, M. (1990/2003). *The Creative Mind: Myths and Mechanisms.*Routledge. ISBN 978-0415314534  
Deliege, I., and Wiggins, G. (eds) (2006). *Musical Creativity: Multidisciplinary Research in Theory and Practice*. Psychology Press. ISBN 978-1841695082  
McCormack, J., and d’Inverno, M. (eds). (2012). *Computers and Creativity*.Springer. ISBN 978-3-642-31726-2  
Veale, I. and Cardoso, A. (Eds) (2019). Computational Creativity: The Philosophy and Engineering of Autonomously Creative Systems. Springer. ISBN 978-3-319-43610-4

Veale, T. (2012). *Exploding the Creativity Myth: The Computational Foundations of Linguistic Creativity.*Bloomsbury Acad. & Prof.. ISBN 978-1441181725

Veale, T (2014). <http://robotcomix.com/> Web comics that transform our understanding of Computers and Creativity,

Selected papers from special journal issues on computational creativity, 2006-present, as listed at <http://computationalcreativity.net/home/resources/journals/>

1. **Learning and teaching methods**

Total contact hours: 34

Private study hours: 116

Total study hours: 150 hours

1. **Assessment methods**
   1. Main assessment methods

Presentation and Participation in Seminars, 20 hours (30%)

Practical Project Proposal (5 hours) (10%)

Practical Project, Report and Video, 40 hours (60%)

13.2 Reassessment methods

Like for like.

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 |  | 9.1 | 9.2 | 9.3 | 9.4 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Private Study** | **X** | **X** | **X** | **X** | **X** |  | **X** | **X** | **X** | **X** |
| **Lectures** | **X** | **X** | **X** | **X** | **X** |  |  | **X** |  |  |
| **Practical Classes** |  |  | **X** | **X** | **X** |  | **X** | **X** |  |  |
| **Student led seminars** | **X** | **X** |  | **X** | **X** |  |  | **X** | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| Presentation& participation | **X** | **X** |  | **X** |  |  |  | **X** | **X** | **X** |
| Project proposal |  |  |  |  | **x** |  | **x** | **x** | **x** | **x** |
| Project, report & video | **X** | **X** | **X** | **X** | **X** |  | **X** | **X** | **X** | **X** |

1. **Inclusive module design**

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

The question of how to model creativity computationally is a world-wide research pursuit. This module covers topics that are the subject of research across the globe, as represented for example in the International Conference on Computational Creativity which includes participants from across the globe. The topics covered by this module are international, being research projects and issues that transcend any expression in English or in UK-only contexts. We highlight research contributions from contributors worldwide – because these are important contributions to the field as a whole. One example of a key topic we cover is the MEXICA story-telling system, which creates Mexican folk-lore tales and which is our main illustrative example of an important modelling technique: ‘engagement-reflection’. We often use papers, videos and other resources from international researchers in our teaching and eagerly take options to host international guest lecturers where possible, using our contacts. In assessment, students are expected to recognise crucial contributions to a particular topic, from researchers across the world.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 19/11/2021 | Minor | September 2022 | 6, 7, 11 | No |
| 15/12/2022 | Minor | September 2023 | 2, 13, 14 | No |