1. **Title of the module**

ARCH8540 (AR854) – Introduction to Programming for Architecture and Design

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

Kent School of Architecture and Planning

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

Level 7

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

30 credits (15 ECTS)

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

Autumn

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

None

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

MSc Bio Digital Architecture

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to demonstrate:**
   1. A comprehensive understanding of the fundamentals of the Processing computer programming language.
   2. A comprehensive understanding of the principles of computer code and Object-Oriented Programming.
   3. A comprehensive understanding of agent-based modelling.
   4. An ability to read and adapt computer code, to produce a different outcome.
   5. An ability to think spatially and behaviourally through code.
2. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to demonstrate:**
   1. A comprehensive understanding of the principles of programming and writing computer code.
   2. An ability to thinking algorithmically.
3. **A synopsis of the curriculum**

This module will introduce students to the basics of computer programming to take them from beginners through to intermediate programmers, using Processing, a Java-based language created for visual designers, architects and artists. Through the course, students will learn how to use core Processing methods, and transferable programming techniques, to create architectural spatial formations.

Students will be taught the fundamentals of computer code through a series of workshops, which are studio based to emphasise a design ethos and promote exchange between learning code and application. Students will learn how to write short programs that create dynamic patterns and then, having grasped the fundamentals of coding, will study Object-Oriented Programming (OOP) and Agent-Based Modelling (ABM). The module will shift from taught workshop demonstrations initially to tutorial/studio oriented sessions in which the students will develop a short ABM program generating architectural space and form as a result of interaction.

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

Reas, C. and Fry, B. (2015). *Processing: A Programming Handbook for Visual Designers and Artists*.

The MIT Press, Cambridge: Mass.

Shiffman, D. (2012). *The Nature of Code: Simulating Natural Systems with Processing.* The Nature of Code.

Shiffman, D. (2015). *Learning Processing: A Beginner's Guide to Programming Images, Animation, and Interaction*. Morgan Kaufmann, Amsterdam, London.

1. **Learning and teaching methods**

Total contact hours: 36 hours

Private study hours: 264 hours

Total study hours: 300 hours

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

Report (100%) (2000 to 4000 words)

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)***

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 9.1 | 9.2 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshops | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |
| Report | **X** | **X** | **X** | **X** | **X** | **X** | **X** |

1. **Inclusive module design**

The School 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**

Workshops will continue to draw on international source materials for historical and contemporary examples and theories of bio digital architecture.

**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.**

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| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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