1. **Title of the module**

ARCH8530 (AR853) – Principles and Methods of Bio Digital Architecture

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

Arts and Humanities

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 course(s) 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 principal concepts underpinning generative modelling methods.
   2. A comprehensive understanding and awareness of systems-oriented thinking and its application to architectural/design problems.
   3. A detailed understanding of dynamic systems and how to model them.
   4. A thorough ability to use computers to explore configurations of form and space.
   5. An ability to critically reflect on bottom-up versus top-down design thinking and processes.
   6. An ability to use generative modelling software and demonstrate a critical understanding of concepts underpinning generative modelling techniques.
2. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to demonstrate:**
   1. A comprehensive understanding of the idea of “laws of form” and how generative processes can be used to explore architectural design.
   2. An ability to assess relevance between concepts and methods and to apply this knowledge practically using and adapting generative design techniques.
3. **A synopsis of the curriculum**

This module will introduce students to thinking about form and spatial organisation as a bottom-up process and give students an introduction to the use of the computer as a tool to model generatively. Students will be introduced to a series of concepts and theoretical positions to anchor their outlook, facilitate engagement with the computational logic of the programme, develop their understanding of key concepts and ideas to support and further their design thinking, and develop their understanding of the role and application of computing in and for architectural design.

The module consists of a blend of lectures, seminars and workshops. Concepts and theories fundamental to the programme are presented in lectures and seminars, which are married with workshop sessions in which students are introduced to computer modelling methods that demonstrate the theory. Workshops will be studio based to emphasise a design ethos and promote exchange between theory, demonstration and application. Students will be required to adapt a method presented towards the generation of architectural space and form.

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

Ball, P. (2017). *Patterns in Nature: Why the Natural World Looks the Way it Does*. University of Chicago Press.

Burry, M. (2011). *Scripting Cultures: Architectural Design and Programming*. John Wiley & Sons.

Coates, P. (2010). *programming.architecture*. Routledge, London.

Resnick, M. (1998). *Turtles, Termites and Traffic Jams: Explorations in Massively Parallel*

*Microworlds.* MIT Press, Cambridge, MA.

Jabi, W. (2014). *Parametric Design for Architecture*. Laurence King Publishing, 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%) (3000-5000 words)

13.2 Reassessment methods

100% course work

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 | 8.6 | 9.1 | 9.2 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |
| Private Study | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Lectures | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Tutorials/seminars | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| Workshops | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Report | **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**

Lectures, seminar teaching and tutorials will continue to draw on international source materials for historical and contemporary examples and theories of bio digital architecture.

**DIVISIONAL 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) |
| 14/01/2021 | Minor | 2021/22 | 1,13-14 |  |
|  |  |  |  |  |