EV7122 Module Specification

Module Title: **Circular Building**	**Module Code: EV7122** **Level: 7** **Credit: 15** **ECTS credit: 7.5**	**Module Leader**: Ivor Davies
Pre-requisite: none	**Pre-cursor: none**	
Co-requisite: none	**Excluded combinations: none**	**Suitable for incoming study abroad?** N
Location of delivery: CAT and online – blended delivery		

Summary of module for applicants:

In this module students will consider the 'whole life' principles of sustainable building design and practices:

Synthesise an understanding of sustainable design principles within the building project life cycle and of sustainable building practice, their historical development, current discourse and trends.

Build a sound appreciation of regulatory and legal requirements, voluntary codes and standards for the built environment, construction professional disciplines, responsibilities and ethics, and their implications for sustainable building.

Develop a systematic, holistic, multidisciplinary and analytical approach to the critical appraisal of circularity as applied to Building with respect to the demands of climate change adaptation and the principles of sustainable design and construction.

Main topics of study:

- Circularity as applied to buildings, including sustainable design principles and practices across the building project life cycle *(for example, greening material sourcing and supply chains, sustainable construction, building retrofit and adaptation, design for deconstruction/disassembly and material re-use strategies, 'Cradle-to-Cradle').*
- Environmental, social and economic impacts of buildings and the construction process, their monitoring and evaluation.
- Eco-design philosophies and logics *(for example, low-impact development, biomimicry etc.)*
- Building project management tools and methods (*for example, the RIBA Plan of Works etc.*).
- Technical aspects of planning from drawings (*at the scale of an individual building or small group of buildings*).
- Regulatory and legal arrangements and requirements for sustainable building construction (*for example, Building Regulations, CDM, relevant environmental protection legislation, procurement routes etc.)*
- Sustainable building voluntary codes and standards *(which could include BREEAM, LEED, AECB, Passivhaus, Living Building Challenge, Soft Landings etc.*).
- The design and construction management team *(including, for example, professional disciplines, roles and responsibilities, contractual arrangements, codes of conduct and ethics).*

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☒
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

Where a LO meets one of the UEL core competencies, please put a code next to the LO that links to the competence.

- *Digital Proficiency - Code = (DP)*

- *Industry Connections - Code = (IC)*
- *Social & Emotional Intelligence - Code = (SEI)*
- *Physical Intelligence - Code = (PI)*
- *Cultural Intelligence - Code = (CI)*
- *Community Connections & UEL Give Back - Code = (CC)*
- *Cognitive Intelligence – Code = (COI)*
- *Enterprise and Entrepreneurship (EE)*

At the end of this module, students will be able to:

Knowledge

1. Demonstrate a clear understanding of sustainable design principles and practices within circular building and regulatory and legal requirements for sustainable building construction. Whilst taking into consideration voluntary codes and standards for sustainable building and related construction professional disciplines, responsibilities and ethics (COI)

Thinking skills

2. Critically evaluate the impact of the above factors on the prioritisation of features within the design and construction of the built environment and their subsequent impacts on the overall sustainability of a case building or built environment scheme and its capacity for adaptation (COI)

Subject-based practical skills

3. Demonstrate an ability to identify and critically evaluate processes, systems, tools, methods and/or compliance criteria of innovative or best sectoral best practice. (COI) (PI)

Skills for life and work (general skills)

4. Effectively communicate circular building principles and practice clearly to both specialist and non-specialist audiences (COI) (SEI)

5. Take personal responsibility to reflect critically on learning experiences in order to inform self-development and confidence. (SEI)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For students studying onsite and by distance learning:

The factual content of the module is taught through lectures, seminars, practical workshops, presentations, demonstrations and tutorials, and throughout this process an active exchange of views and opinions is encouraged. Students have access to MS Teams where they can access recorded and written support material, meet with their peers and a tutor to discuss any academic issue. Both theoretical and practical aspects are covered both onsite and through interactive sessions on Teams.

There is a formative learning element to the module to allow the students to receive critical feedback on their work without the pressure of marked assessment.

For distance learning (DL) students, learning will be supported through streamed and recorded Internet-based lectures (of the onsite lectures), situation related practical exercises, seminars and tutorials.

Lectures onsite and through MS Teams highlight key concepts, models and frameworks, and integrate additional resources (such as journal articles). They encourage deep learning through the use of self-assessment questions which encourage students to engage with the topic, to help students understand new topics and skills.

Assessment methods which enable students to demonstrate the learning outcomes for the module:	**Weighting:**	**Learning Outcomes demonstrated:**

1. **Case Study** (2,400 words max. Or equivalent)	**80%**	**1,2,3,5**
2. Presentation (600 words equivalent)	**20%**	**4**

Reading and resources for the module:

Core

Santamouris, M. (2015) *A Handbook of Sustainable Building Design and Engineering*. 1 edition. Edited by D. Mumovic. Routledge Abingdon. (*)

Recommended

Architecture for Humanity. (2012) *Design Like You Give a Damn [2]: Building Change from the Ground Up*. Abrams, San Francisco.

Baker-Brown, D. (2017) *The Re-Use Atlas: A Designer's Guide Towards the Circular Economy*. RIBA Publications.

Birkeland, J. (2008). *Positive Development: From Vicious Circles to Virtuous Cycles through Built Environment Design*. Routledge, London.

Bokalders, V. and Block, M. (2010). *The Whole Building Handbook: How to Design Healthy, Efficient and Sustainable Buildings*. Earthscan, London.

Braungart, M. and McDonough, W. (2009). *Cradle to Cradle*. Random House.

Ching, F. D. K. (2015) *Architectural Graphics*. John Wiley & Sons, Hoboken, New Jersey (*).

Halliday, S. (2018) *Sustainable Construction*. Routledge, London.

Kwok, A. G. and Grondzik, W. (2018) *The Green Studio Handbook: Environmental Strategies for Schematic Design*. Routledge.

McGregor, A., Roberts, C. and Cousins, F. (2013) *Two Degrees: The Built Environment and Our Changing Climate*. Abingdon: Routledge.

Roaf, S. et al (2009) *Adapting buildings and cities for climate change: a 21st century survival guide.* 2nd ed. Oxford: Elsevier. (*)

Santamouris, M. (2013) *Energy and Climate in the Urban Built Environment.* Routledge, Abingdon. (*)

Further relevant journals, websites and other relevant resources will be provided within reading materials that are made available for the module.

(*) Available as an e-book

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project

The module will typically be delivered through an interdisciplinary team-based case study design project. Onsite and distance learning students undertaking this module will form project groups who will collaboratively resolve the requirements of a design brief to a strategic and schematic level. The project work will seek to support students to engage with issues of circular building design, to investigate current practice, real issues and future solutions through their application to a real-world project.
Examples:
AY19-20: low-energy new-build and retrofit of a rural domestic property in Wales, liaising directly with the owner-occupier clients.
AY20-21: C.200sqm new-build residential blocks of flats in Brighton, UK, liaising with the architectural practice acting as client representative for a local housing trust.

Company/engagement visits

The module delivery will seek to include visiting lecturers who are specialist/practioners in the field and/or visits to relevant specialist design/manufacturing/construction organisations.
Examples:

- Lecture by Wood Knowledge Wales, including demonstration of life cycle carbon analysis software.

• Virtual tour of PYC (Welshpool) specialist off-site manufacturing facility, including Q&A with the company director. ***Company/industry sector endorsement/badging/sponsorship/award***

Indicative learning and teaching time **(10 hrs per credit):**	**Activity**
1. Student/tutor interaction:	Lectures, seminar, tutorial, presentation, practical / demonstration 35 hours
2. Student learning time:	Seminar reading and preparation, Assignment preparation, Background reading, On-line research activities. 115 hours
Total hours (1 and 2):	 150 hours

For office use only. (Not required for Programme Handbook)

Assessment Pattern for Unistats KIS (Key Information Sets)	**Weighting:**
Coursework *(written assignment, dissertation, portfolio, project output)*	
Practical Exam *(oral assessment, presentation, practical skills assessment)*	
Written Exam	

HECoS Code:	
UEL Department:	