

<b>Module Title:</b>  <b>Circular Building</b>	<b>Module Code: EV7122</b>  <b>Level: 7</b>  <b>Credit: 15</b>  <b>ECTS credit: 7.5</b>	<b>Module Leader:</b> Tim Coleridge  <b>Additional tutors:</b> Alan Owen Bryce Gilroy-Scott Frances Hill Jane Fisher Louise Halestrap Ruth Stevenson Siobhan Maderson Saskia Pagella Trish Andrews John Carter
<b>Pre-requisite:</b> none	<b>Pre-cursor:</b> EV7102 'Adaptation and Sustainability Concepts and Planning'	
<b>Co-requisite:</b> none	<b>Excluded combinations :</b> none	
<b>Location of delivery: CAT/By distance learning</b>		
<p><b>The main aims of the module are to enable students to;</b></p> <p>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.</p> <p>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.</p> <p>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.</p>		
<p><b>Main topics of study:</b></p> <ul style="list-style-type: none"> <li>• Circularity as applied to buildings, including sustainable design principles and practices across the building project life cycle (<i>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'</i>).</li> <li>• Environmental, social and economic impacts of buildings and the construction process, their monitoring and evaluation.</li> <li>• Eco-design philosophies and logics (<i>for example, low-impact development, biomimicry etc.</i>)</li> <li>• Building project management tools and methods (<i>for example, the RIBA Plan of Works etc.</i>).</li> <li>• Technical aspects of planning from drawings (<i>at the scale of an individual building or small group of buildings</i>).</li> <li>• Regulatory and legal arrangements and requirements for sustainable building construction (<i>for example, Building Regulations, CDM, relevant environmental protection legislation, procurement routes etc.</i>)</li> <li>• Sustainable building voluntary codes and standards (<i>which could include BREEAM, LEED, AECB, Passivhaus, Living Building Challenge, Soft Landings etc.</i>).</li> <li>• The design and construction management team (<i>including, for example, professional disciplines, roles and responsibilities, contractual arrangements, codes of conduct and ethics</i>).</li> </ul>		

## Learning Outcomes for the module

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.

### 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.

### 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.

### Skills for life and work (general skills)

4. Effectively communicate circular building principles and practice clearly to both specialist and non-specialist audiences.
5. Take personal responsibility to reflect critically on learning experiences in order to inform self-development and confidence.

### Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

The factual content of the module is taught through lectures, seminars, practical workshop, presentations, and tutorials, and throughout this process an active exchange of views and opinions is encouraged. Both theoretical and practical aspects are covered.

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 Internet-based lectures (of the onsite lectures), situation related practical exercises, seminars and tutorials.

All students also have access to Moodle discussion boards and Skype seminars, where they can meet with their peers and a tutor to discuss any academic issue.

Lectures onsite and through DL 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. <b>Case Study</b> (2,400 words max. Or equivalent)	<b>80%</b>	<b>1,2,3,5</b>
2. Presentation (600 words equivalent)	<b>20%</b>	<b>4</b>

**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

<b>Indicative learning and teaching time</b> <b>(10 hrs per credit):</b>	<b>Activity</b>
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

