Module Descriptor Form

Civil and Environmental Engineering

CL994 - Circular Economy And Transformations Towards Sustainability

Module Code	CL994	**Module Title**	Circular Economy And Transformations Towards Sustainability				
Module Registrar	Giesekam, Dr Jannik J						
Other Staff Involved							
Credit Weighting	10	**Semester**	2	**Elective**	Yes	**Academic Level**	5
Pre-requisites							
Required for							

Module Format and Delivery (hours):

Lectures	Tutorials	Assignments	Labs	Private Study	Total
22	3	55	0	20	100

Educational Aim

This module aims to:

This module initially introduces the circular economy as a framework for the development and management of a sustainable 'waste-as-resource' economic system in which production is designed to be restorative and resilient. The implications of the concept for research, policy, business practices and societal transformations towards sustainability are subsequently explored in detail through a mix of theory, case studies, individual and group project work. This includes consideration of the role of innovation and knowledge production; social trends and consumer behaviour; conservation and sustainable use of energy and material resources; climate change and environmental sustainability; and the design of business models that maximise product life and value retention. The module proceeds to cover a range of contemporary challenges in the practical application of circular economy principles within different sectors , incorporating presentations from leading practitioners in the field.

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Syllabus

This module will teach the following:

The module will be taught using a combination of lectures, workshops, case studies and presentations by leading practitioners. The module is flexibly designed to accommodate a range of contemporary issues relating to the circular economy with some year to year variations in the expertise of guest speakers. The final lecture slot of the module is reserved for content based on student requests about contemporary debates in Weeks 1-6 (e.g. 2022 covered the emerging application of Science Based Targets within corporate sustainability, 2023 discussed sustainability assessments and the potential for material reuse on a large local redevelopment, Buchanan Galleries).

The key topics covered by the module over a ten-week teaching period include the following:

Week 1: Foundational concepts for sustainability and the circular economy
Week 2: A systems approach to circular economy analysis
Week 3: Life cycle assessment
Week 4: Circular economy business models
Week 5: Public policies for a circular economy
Week 6: Cities and local stakeholders in the circular economy
Week 7: A circular built environment
Week 8: Critical materials in a circular economy
Week 9: Public attitudes and engagement with the circular economy
Week 10: Current debates in the circular economy

Learning Outcomes

On Completion of the module, the student is expected to be able to:

LO: 1	Understand circular economy principles as an effective heuristic to aid analysis of issues relating to sustainable development and be able to identify and investigate challenges envisaged in the transition to a more circular economy
LO: 2	Challenge models of the economy based on linear thinking; engage in systems thinking; appreciate a broad and holistic view of policy and business models, and demonstrate a competence for problem solving, problem appreciation and reframing
LO: 3	Identify and critically evaluate opportunities to use waste as an economic good and as the basis for commercially, socially and environmentally profitable business initiatives through the application of creative design; as well as the range of business opportunities arising from repair, reconditioning and remanufacturing activities
LO: 4	Understand the role of individuals and communities in the making and operation of the circular economy

(UK SPEC suggests no more than 4 learning outcomes per module. Statements must be broad and be syllabus free and link in with the intended learning outcomes on the programme specifications.)

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Assessment of Learning Outcomes - Criteria

Learning Outcome: **1**

	Criteria
1	Demonstrating an understanding of the concept of the circular economy in relation to the concepts of sustainability and sustainable development
2	Demonstrating an understanding of the dynamics of a transition to the circular economy in terms of the related socio-cultural, economic, political and technological developments

Learning Outcome: **2**

	Criteria
1	Demonstrating analytical, critical and systemic thinking in discussion of contemporary applications of the circular economy

Learning Outcome: **3**

	Criteria
1	Demonstrating the capability to identify and explain the system conditions that facilitate and inhibit opportunities for viable business involving zero-waste activities; and appraising the scope for sustainable business in repair, reconditioning and remanufacturing activities
2	Demonstrating creativity and innovation in identifying and evaluating business opportunities for generating value from waste

Learning Outcome: **4**

	Criteria
1	Engagement in case studies of how changes in the behavioural trend of individuals and communities as consumers and producers impact the economy-environment nexus, and how policy intervention could be designed to influence behaviour and create the socio-cultural circumstances conducive for a transition to a more circular economy

Assessment Method(s) Including Percentage Breakdown and Duration of Exams

To Pass the module, students need to gain a summative mark of: 50%

Description	Semester	Start Week	Duration	Weight	Submission Week	Linked Criteria
Assignment 1: Policy brief	2	1		25%	6	
Assignment 2: Group coursework	2	1		35%	8	
Assignment 3: Individual report	2	1		40%	11	

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Principles of Assessment Feedback

Principle 1. “Assessment and feedback practices promote effective student learning”

All assignment briefs follow a clear template and instructions are available from the outset of the course with staggered dates for submission, maximising the opportunity for students to manage their workload and incorporate feedback into subsequent work. Assignments are a mix of individual and group work drawing upon different assessment methods.

Principle 2. “Assessment and feedback practices are appropriate, fair, and transparent”

The assessment criteria are clearly stated at the outset of the course and within instructions for each of the assignments. All of the assignments employ skills the students may use in a professional context. The grading and feedback is based solely on the students’ submissions and judged against the stated marking criteria. Students will have opportunities through optional tutorials to further explore prior examples and improve their performance.

Principle 3. “Assessment and feedback practices are clearly communicated to students and staff”

All assignment briefs are available from the outset of the course and follow a clear template detailing purpose, weighting, timing etc. Students will be made aware of submission and electronic feedback dates in Week 1 and reminded each week of upcoming deadlines. One-to-one discussions of feedback will be available on request. Regular on-demand office hours are also maintained for informal interactions. All related policies and procedures are signposted on the course myplace page and referenced in assignment instructions.

Principle 4. “Assessment and feedback practices are continuously reviewed”

Lecturers engage regularly with students and class reps about how the semester is going, including, but not limited to, assessment. Mid- and end-of-term opportunities for student feedback are included via questionnaires, with changes made in response to mid-term feedback set out in Week 7 and end-of-term feedback incorporated into the subsequent year’s approach.

Additional Information

Resit Procedure

Submission of resit assignment prior to commencement of the August exam diet. The resit assignment will be an essay based around a contemporary circular economy question discussed during the course. Assignment instructions will be issued via myplace and email following the exam board.

Recommended Reading

No compulsory texts or purchases required. A general reading list for the module is hosted through the library and each week’s topic has a prioritised list of optional further reading on the class Myplace page.

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Module Timetable

Week	Semester 1	Semester 2
0		
1		
2		
3		
4		
5		
6		Submission 25%
7		
8		Submission 35%
9		
10		
11		Submission 40%
E		

Date of Last Modification

06-11-2025