

MODULE DESCRIPTION FORM

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CL994 CIRCULAR ECONOMY AND TRANSFORMATIONS TOWARDS SUSTAINABILITY

Module Registrar: Dr Jannik Gieseckam	Taught to range of courses: MSc Sustainability & Environmental Studies MSc Environmental Engineering MSc Environmental Entrepreneurship MSc Civil Engineering MSc Industrial Biotechnology MSc Sustainable Engineering: Renewable Energy Systems and the Environment MSc Satellite Data for Sustainable Development MEng Aero Mechanical Engineering MEng Civil and Environmental Engineering MEng Civil Engineering MEng Mechanical Engineering MRes Integrated Pollution Prevention & Control MRes Climate Change Adaptation		
Other Lecturers Involved: Guest speakers from industry, civil service and third sector	Credit Weighting: 10	Semester: 2	
Assumed Prerequisites: None	Compulsory class to: MSc in Sustainability & Environmental Studies MRes Climate Change Adaptation Optional to others listed above	Academic Level: 5	Suitable for Exchange: N

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	Total
20	4		6				40	30	100

Educational Aim

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 economic principles within different sectors, incorporating presentations from leading practitioners in the field.

Learning Outcomes

On completion of the module the student is expected to be able to

LO1 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;

LO2 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;

LO3 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.

LO4 Understand the role of individuals and communities in the making and operation of the circular economy.

Syllabus

The module will be taught using a combination of lectures, workshops, case studies and presentations by 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. 2021 covered the emerging application of Science Based Targets within corporate sustainability).

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 systems

Week 5: Public policies for a circular economy

Week 6: Key principles of sustainability in the bioeconomy

Week 7: Critical materials in a circular economy

Week 8: A circular built environment

Week 9: Public attitudes and engagement with the circular economy

Week 10: Current debates in the circular economy

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

LO1

C1 Demonstrating an understanding of the concept of the circular economy in relation to the concepts of sustainability and sustainable development

C2 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

LO2

C1 Demonstrating analytical, critical and systemic thinking in discussion of contemporary applications of the circular economy

LO3

C1 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

C2 Demonstrating creativity and innovation in identifying and evaluating business opportunities for generating value from waste

LO4

C1 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

The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

Principles of Assessment and Feedback

(within Assessment and Feedback Policy at: <https://www.strath.ac.uk/staff/policies/academic/>)

Please state briefly how these are incorporated in this module.

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.

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. Students will have opportunities through tutorials to incorporate feedback on drafts of reports and improve their performance. One-to-one discussions of feedback will be available on request. Regular on-demand office hours will also be maintained for informal interactions. All related policies and procedures are signposted on the course pages and alluded to 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.

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

	Examinations			Courseworks		Projects		
	Number	Month(s)	Duration	Weighting	Number	Weighting	Number	Weighting
					3	20% / 40% / 40%		
L/Outcomes					LO1, LO2, LO3, LO4			

Indicate which learning outcomes (L01, L02 etc) are to be assessed by exam/coursework/project as required.

Coursework / Submissions deadlines (academic weeks):

- 1 – 01/03/23 – Semester 2 Week 6
- 2 – 22/03/23 – Semester 2 Week 9
- 3 – 11/04/23 – Semester 2 at end of spring vacation prior to exam period

Resit Assessment Procedures:

Submission of resit assignment prior to commencement of the August exam diet.

PLEASE NOTE:

Students must gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of coursework. No marks from any previous attempts will be transferred to a new resit attempt.

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 myplace.

Additional Student Feedback

(Please specify details of when additional feedback will be provided)

Date	Time	Room No
Weeks 8 & 10	Scheduled lecture	As timetabled
All Thursdays	1-4pm	JW5.03 (on-demand office hours)

Session:

Approved:

Course Director Signature:

Date of Last Modifications:

(Updated May 2018)

MODULE TIMETABLE

Module Code:

CL994

Module Title:

Circular economy and transformations towards sustainability

Brief Description of Assessment:

Assignment 1 – Policy briefing note (worth 20% of the final mark). Students critique a policy, strategy or public programme intended to support the circular economy and prepare a short briefing note for a policy maker (parliamentarian or senior civil servant) of their choice.

Assignment 2 – Group project (worth 40% of the final mark). In groups of up to 6, students create a new circular business or bioproduct and produce a report detailing their business proposition, a SWOT analysis, the anticipated environmental benefits and make a comparison with a traditional linear market leader.

Assignment 3 – Individual report evaluating a self-transformation towards circularity (worth 40% of the final mark). Students make an intervention in their own life towards more sustainable and circular practices; design and implement a means of measuring, monitoring and evaluating the impacts; and critically reflect on the efficacy of their approach.

Assessment Timing:-

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment using the dropdowns provided. Dropdowns can be left blank. Add extra notes below the dropdowns.

Please note: Timings can and will change, this should only be used as a guide.

Semester One	W&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.

Semester Two	C&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Course work Set Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Course work Submit Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Course work Submit Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.