

Engineering Tripos Part IIA, 3E11: Environmental Sustainability & Business, 2023-24

Module Leader

[Prof Lucia Reisch](#) [1]

Lectures

[Prof Lucia Reisch](#) [1]

Lab Leader

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Timing and Structure

Lent term

Content

[\[Full syllabus document on moodle\]](#) [2]

This course will explore the challenges and opportunities presented for businesses and markets attempting to integrate and promote more environmentally and socially sustainable practices. Sustainable markets demand fundamental realignment of business practices and system-wide innovation with today's global challenges, such as climate change, biodiversity loss, plastic and chemical environmental pollution, and inequality in access to safe and healthy workplaces. This course will explore the challenges and opportunities for businesses to develop, integrate, and promote more environmentally and socially sustainable practices, processes, and policies. Since businesses are embedded in more comprehensive social, economic, technological, and ecological systems that heavily influence what can (and should) be done by the individual company, we also study these systems.

These dimensions are discussed under ESG (Environmental-Social-Governance), a framework that has gained momentum in the past years in product/service and capital markets. While the 'E' has long dominated the corporate sustainability agenda, today, many businesses also aim to deliver on the 'S' and the 'G' equally, expanding the scope from planet to people, politics, profits, and governance issues.

This is the backdrop for this course. In the eight sessions, we will explore the concepts, frameworks, and models available for businesses to develop managerial solutions for more sustainable markets. We will examine strategies, approaches, and tools for managing environmental and social sustainability (so we cover a broader scope than the course title suggests). We will learn about the positive and negative, intended, and unintended impacts businesses have on the sustainability of markets, societies, and stakeholders (such as employees, consumers, and people along global supply chains). We will assess opportunities for change within a business's operations, ranging from better products to better processes and policies.

Overview of Course Sessions

Session 1 (18/01/24): What is at stake – and why sustainable business conduct matters.

Session 2 (25/01/24): Sustainability as a system condition: Doing business in times of climate change, within planetary boundaries.

Session 3 (01/02/24): Can commerce mimic nature? The promises of a circular economy.

Session 4 (08/02/24): How to manage, measure, and monitor corporate sustainability: Is ESG still valid?

Session 5 (15/02/24): Driving sustainability through strategy: A case from the automotive industry.

Session 6 (22/02/24): Innovation for sustainability: What does it need to thrive and scale?

Session 7 (29/02/24): How to promote greener organisations with behavioural insights? Factoring in the human factor

Session 8 (07/03/24): Sustainable Engineering through digitisation: Do the benefits outweigh the costs?

Aims

Students will gain an understanding of the following key areas:

- Businesses as actors in the system view of the 'Doughnut Economy'.
- The motivation of corporations to go beyond 'The business of business is business' and what Sustainable Engineering can mean.
- The dimensions of 'Environment-Social-Governance' and how to select, measure, and monitor respective sustainability goals.
- The tools and strategies for corporations to develop viable, sustainable business practices and processes (with real-world examples from the automotive industry).
- The practical challenges and opportunities facing businesses in integrating sustainability into their operations and value chains.
- The policies that governments and the regulatory environments can implement to promote more sustainable business practices.

The skills gained in this course include (but are not limited to) fostering the ability to

- Know and apply different approaches to measure ecological footprint and handprint
- Understand and evaluate tools of ESG management
- Assess critically sustainability metrics, business reporting and information, and the sustainability strategies of corporations; detect Greenwashing and Whitewashing
- Apply a 'behavioural lens' to promote behaviour change in organisations
- Learn how to use scientific literature and write academic essays

Further notes

Teaching Methods

Pre-class assignments discussed in class, including online games and simulations; interactive lectures; guest talks from external experts; cases and examples.

Coursework

Your grade will be determined **by exam only**. The university exam takes place at the end of May and will last 1.5 hours. There will be *three* questions, of which *two* must be answered. You will receive more guidance on the exam during class and supervision. *Please check Moodle for example questions from recent years.*

In addition, you may submit coursework on this module as one of the eight pieces of required IIA coursework by 15 March 2024. The coursework consists of an academic essay of max. 2,000 words. The topics will be provided at the beginning of the course. The coursework is your chance to get personalised feedback and develop your essay-writing skills. *Please check Moodle for an information sheet on Coursework and Essays.*

Full Technical Report:

Students won't have the option to submit a Full Technical Report for this module.

Booklists

Please refer to the Syllabus PDF and Moodle

Examination Guidelines

Please refer to [Form & conduct of the examinations](#) [3].

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Links

[1] <mailto:lr540@cam.ac.uk>

[2] <https://www.vle.cam.ac.uk/mod/resource/view.php?id=18798391>

[3] <https://teaching.eng.cam.ac.uk/content/form-conduct-examinations>