Engineering Tripos Part IIA, 3E11: Environmental Sustainability & Business, 2022-23

Module Leader

Prof Lucia Reisch [1]

Lectures

Prof Lucia Reisch [1]

Lab Leader

Prof Lucia Reisch [1]

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. Sustainability demands fundamental realignment of business practices and system-wide inno- vation. There are two main strategic goals: Firstly, radically reduce the negative ecological im- pact of businesses to stay within planetary boundaries. Secondly, ensure that no one is left short of life's essentials by providing fair working conditions and investing in resilient supply chains. Third, successfully managing businesses' environmental and social impact calls for good governance and sustainability strategies aligned with the chosen business model.

These dimensions are discussed under ESG (Environmental-Social-Governance), a framework that has gained momentum in the past years, both 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. The global polycrisis – the pandemic, climate change, geopolitical conflicts, energy, and food crisis – and the disruptions caused present significant business challenges. Concepts such as the resilience of markets and corporations' envi- ronmental and social "license to operate" have gained importance for business success.

This course will examine concepts, strategies, approaches, and tools for managing environmen- tal and social sustainability. It will take a broader perspective than the course title suggests. This will help us see and evaluate positive and negative, intended, and unintended impacts, draw meaningful comparisons, and assess opportunities for change within a business's operations, supply chain, partners, and stakeholders. After taking this course, you will be able to understand the larger framework of systems and stakeholders in which business operations are embedded; to help organisations integrate environmental and social sustainability into their operations and develop more sustainable business processes and services for the future. You will also be able to apply a "behavioural lens" to how change within markets and societies happens.

Overview of Course Sessions

Session 1 (19.1.23): What is at stake – and why sustainable business conduct matters

Session 2 (26.1.23): Sustainability as a system condition: Doing business within planetary boundaries

Session 3 (2.2.23): Can commerce mimic nature? The promises of a circular economy

Session 4 (9.2.23): How to create positive impact: ESG strategy, measurement, and reporting

Session 5 (16.2.23): Driving sustainability through strategy: A case from the automotive in- dustry

Session 6 (23.2.23): Innovation for sustainability: What does it need to thrive?

Session 7 (2.3.23): How to promote greener organisations with behavioural insights-based tools?

Session 8 (9.3.23): Engineering for sustainability – The case of autonomous driving (Guest Lecture)

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 prac- tices 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 pro- mote 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
- Select and use tools of ESG management
- Critically evaluate sustainability metrics, reporting and information and the sustainabil- ity strategies of corporations, and detect Greenwashing
- Apply a "behavioural lens" and behavioural tools to promote behaviour change

Further notes

Teaching Methods

Interactive lecture sessions; pre-class short assignments; online games and simulations; case studies; guest lectures.

Coursework

Coursework

You may submit coursework on this module as one of the eight pieces of required IIA coursework (by March 15th). The coursework consists of an essay of max. 2,000 words. The topics will be provided on Moodle at the start of the term so that you can work during the term if you choose to write an essay

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://teaching24-25.eng.cam.ac.uk/content/form-conduct-examinations