

Course Sustainable Operations Management

Date:	13 November & 11 December 2019
Time:	10.00 – 16.00 h.
Location:	Utrecht
Course leaders:	Dr. Renzo Akkerman (WUR) and Dr. Tarkan Tan (TUE)
Days:	2
ECTS:	0.5 (attendance only) / 2 (attendance + assignment)
Course fee:	free for TRAIL/Beta/OML members, others please contact the TRAIL office
Registration:	www.gpoml.nl

Objectives

Sustainability has played an increasingly important role in operations management. The quantification of environmental impacts as well as their consideration in quantitative operations management methodologies, however, often leads to complex multi-objective optimization problems. The objectives of this course are:

- Understanding various aspects of sustainability for businesses
- Quantitative and qualitative comprehension of selected techniques for incorporating sustainability in operations management decision making
- Following the recent advances and trends in environmentally and socially responsible supply chains
- Ability to judge other work in this area and identify new research directions

Course description

In this course important principles, models, and techniques for the planning, analysis, and design of environmentally and socially responsible supply chains will be discussed. This course focuses on the challenges and opportunities of including sustainability considerations in quantitative operations management approaches. While business has one true bottom line –profitability- we will study how this can be achieved in an environmentally and socially responsible manner. In particular, we will focus on sustainable production and distribution of goods and services.

Upon successful completion of the course, the student should be familiar with analyzing and incorporating sustainability aspect in supply chain decision making processes, together with cost and service aspects.

The course includes an introduction to the main research areas within the field of sustainable operations management (e.g. green logistics, closed-loop supply chains), as well as an introduction to the main methodologies used to quantify sustainable performance (e.g. life cycle assessment, carbon footprinting). The course also includes a discussion of recent sustainability developments that have an impact on operations management (e.g. environmental regulations, corporate social responsibility, circular economy).

In the final part of the course, selected recent research examples will be presented and discussed, focusing on future research challenges and opportunities in the area of sustainable operations management.

Assignment

There will be an individual assignment for participants that go for the 2-ECTS option.

Program

Day 1	<p>Morning:</p> <ul style="list-style-type: none">- Introduction to Sustainable Operations Management (TT: 1hr)- Closed-loop supply chains (RA: 1hr) <p>Afternoon:</p> <ul style="list-style-type: none">- Green Logistics (TT: 2hr)- Life Cycle Assessment and carbon footprinting, part 1 (RA: 1.5hr)
Day 2	<p>Morning:</p> <ul style="list-style-type: none">- Regulations and their implications (TT: 1hr)- Social aspects, CSR, sourcing, and supply chain collaboration (TT: 1hr) <p>Afternoon:</p> <ul style="list-style-type: none">- Circular economy (RA: 1hr)- Life Cycle Assessment and carbon footprinting, part 2 (RA: 1.5hr)- Presentations by PhD students on assignment (1 hr)

Course material

- Textbook: Bouchery, Y., Corbett, C. J., Fransoo, J., and Tan, T. (2017), Sustainable Supply Chains: A Research-based Textbook on Operations and Strategy, Springer, ISBN 978-3-319-29791-0.
- A selection of scientific articles.

Methodology

Various methods for production planning, inventory planning, and transportation will be covered, such as mathematical programming and stochastic modeling, together with methods for sustainability assessment, such as life cycle assessment.

Prerequisite

The participating PhD students are expected to have an advanced background in quantitative operations management methodologies from e.g. a master's degree program in Operations Research, Applied Mathematics, or Industrial Engineering.