Valid from 2025.HS

Module description: Manufacture

Module Code	w.MA.XX.MANF.23HS
ECTS Credits	3
Language of Instruction/Examination	English
Module Description	The module builds on the general principles of operations management, i.e., the design and control of efficient material and resource flows for the generation/production of products and services. Operations management in a circular economy setting is even more challenging due to the design, planning, and implementation of the circularity of the material flows. Additionally, the production layout and manufacturing technologies require companies to be more flexible due to lower batch sizes and increased product variety. In case-based settings, the module addresses the complete production cycle from (raw) materials, efficient and timely production, to disassembly, refurbishment, re-use, and re-generation, including quality assurance, traceability issues, and viable cost structures. The module includes international issues of operations management for both business-to-business (B2B) and business-to-consumer (B2C) products and services, including facilities and production planning, operational aspects of inventory planning, use of Big Data, financial implications, and legal and organizational issues. Students will have an opportunity to engage with traditional production companies as well as start-ups of new circular economy products and services.
Organizational Unit	Zurich CTR f Sustainability Leadership
Module Coordinator	Jörg Agarico
Deputy Module Coordinator	Matthias Ehrat
Program and Specialization	• Circular Economy Management
Legal Framework	Academic Regulations MSc in Circular Economy Management dated 02.06.2022, Appendix to the Academic Regulations for the degree program in Circular Economy Management, first adopted on 23.09.2022
Module Category	**Module Type** Compulsory
Prerequisite Knowledge	Students need a basic knowledge and understanding of operations management, production cycles, and operation costs.
Contribution to Program Learning Objectives (by the concerned Module)	• Professional Competence • Methodological Competence • Social Competence • Self-Competence

Module description: Manufacture

Contribution to Program Learning Objectives

Professional Competence
- Knowing and Understanding Content of Theoretical and Practical Relevance
- Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance
- Evaluate Content of Theoretical and Practical Relevance

Methodological Competence
- Problem-Solving & Critical Thinking
- Scientific Methodology
- Work Methods, Techniques, and Procedures
- Information Literacy
- Creativity & Innovation

Social Competence
- Written Communication
- Oral Communication
- Teamwork & Conflict Management
- Intercultural Insight & Ability to Change Perspective

Self-Competence
- Self-Management & Self-Reflection
- Ethical & Social Responsibility
- Learning & Change

Module Learning Objectives

Students...
- will understand the complexities and drivers of moving from a linear to a circular production and operations management with more circular material flows.
- can analyze and implement case-based production and operation models in a new circular setting, including cost and revenue implications.
- are able to link production technologies to the requirements of circular operations management models.

Module Content
- Principles of operations management.
- Links between circular economy guidelines, design, and production/operations models.
- Operations management incorporating the R10 framework (repair, recycle, …)
- Environmental and material impact.
- Financial aspects – cost and revenue.
- Case-study-based analysis and evaluation.

Links to other modules

This module is linked to the following modules:
- w.MA.XX.BMCE.23HS
- w.MA.XX.SCVC.23HS
- w.MA.XX.MES.23HS
- w.MA.XX.SSEC.23HS

Digital Learning Resources
- Reader
- Teaching Materials

Methods of Instruction
- Case Studies
- Lecture

Social Settings Used:
- Group Work

Type of Instruction

	Classroom Instruction	Guided Self-Study	Autonomous Self-Study
Lecture	28 h	8 h	
Excercise	-	-	
Project Work	-	-	
Seminar	-	-	
Total	**28 h**	**8 h**	**54 h**

Module description: Manufacture

Performance Assessment

End-of-module exam	Form	Length (min.)	Weighting
Written exam	open book	60	100.00
Permitted Resources	Free choice calculator	With dictionary	

Others	Assessment	Format	Length (min.)	Weighting
Talk/oral presentation	Pass/Fail	Gruppenarbeit	15	0.00

Classroom Attendance Requirement

Other

Students are required to participate in the excursions.

Compulsory Reading

Recommended Reading

- Recommendations will be given in class.

Comments