

Environmental and Recycling Technology (M. Eng.)

Module – Number	733	Obligatory
Module name	Environmental and Sustainability Management	
Module coordinator	Dipl.-Ing. (FH) Jantje Samtleben	
Title	Environmental and Sustainability Management	
Title of examination	Environmental and Sustainability Management	
Semester	1st	
Course type	Lecture	English
Credit hours/ ECTS/ Workload	4/0/0	5 150
Formal Conditions	Bachelor of Engineering or Bachelor of Science degree	

1. Content and objectives

Content:

Strategic instruments of environmental management

Organization and environmental protection

Assessment of environmental protection investments

Operational issues of environmental management

Environmental management systems and environmental audit

Sustainability accounting

Material flow analyzes

Procedure for evaluating ecological and social impacts: selected approaches in ecological and sustainability accounting

Environmental cost management

Environmental controlling

Learning objectives:

Students are able to classify, apply and evaluate approaches to sustainability accounting. They are familiar with not monetary methods of ecological and sustainability accounting and are familiar with the documentation and analysis of environmental costs. They also know how to position strategic product programs, taking ecological and social aspects into account. In operational environmental management, students have knowledge of models for environmentally oriented production planning, transport and route planning as well as warehouse planning and can use these in practice in the relevant decision-making areas. You will be able to set up appropriate optimization theorems and select suitable solution methods or heuristics. After completing the module, the students are also familiar with elements of certification in the environmental and sustainability area. The students develop technical and methodological as well as system and social skills.

Literature: For preparation and follow-up the following textbooks are recommended:

1. Debnath, Somnath: Environmental Accounting, Sustainability and Accountability. Indien, SAGE Publications, 2019
2. Handbook of Sustainability Management. Singapur, World Scientific, 2012
3. Towards Life Cycle Sustainability Management. Niederlande, Springer Netherlands, 2011
4. Brady, John, et al. Environmental Management in Organizations: The IEMA Handbook. Vereinigtes Königreich, Taylor & Francis, 2013
5. Wang, L.: Handbook of Environmental Engineering: Integrated Natural Resources Management, Springer, 2021
6. Azapagic, A.; Perdan, S. (Hrsg.): Sustainable Development in Practice. Case Studies for Engineers and Scientists, John Wiley & Sons, Ltd., 2011, Print ISBN:9780470718711 |Online ISBN:9780470972847
7. Kurth; Oexle, Handbook of Recycling and Raw Materials Management, 2013
8. Sailer, Ulrich: Nachhaltigkeitscontrolling, 3. Auflage Stuttgart UTB GmbH, 2020, : 978-3-8252-5332-5
9. Müller-Christ, Georg: Nachhaltiges Management: über den Umgang mit Ressourcenorientierung und widersprüchlichen Managementrationalitäten, Handbuch für Studium und Praxis, 3. Auflage, Baden-Baden, Nomos, 2020, ISBN 978-3-8487-4956-0
10. Engelfried, Justus: Nachhaltiges Umweltmanagement Schritt für Schritt, Uni-Taschenbücher-GmbH, 2017, ISBN 978-3-8385-8671-7

2. Method(s) of instruction
Lecture
3. Requirements for attendance
There are no formal requirements for participation.
4. Usability of this module
This module is an obligatory module in the Master M. Eng. Environmental and Recycling Technology.
5. Requirements for assessment
Students need to pass the module examination, which encompasses all contents of the lecture. Type of examination: written examination with a duration of 90 min. Alternative types of examination are possible.
6. ECTS Credits
Modules are assessed by a module examination, which is credited by 5 credit points according to the ECTS (European Credit Transfer and Accumulation System).
7. Frequency of offer
The module is scheduled for the first academic year.
8. Workload
Course Participation = 50 h Preparation and follow-up (of the lecture) = 55 h Preparation for examination = 45 h The entire workload encompasses 150 hours, which equals 5 ECTS credit points.
9. Duration of module
The module is held within one semester.