Valid from 2024.HS

Module description: Bioeconomy / Materials

Module Code	w.MA.XX.BIMA.23HS
ECTS Credits	3
Language of Instruction/Examination	English
Module Description	In this module, students are introduced to the concept of bioeconomy, a transformation from a market-based petroleum economy to a market economy in which fossil resources are replaced by various renewable raw materials. The module covers forms of development and processing of renewable raw materials, for example, the chemical and packaging industry, as well as the description of new supply chains and business models. Natural cycles with and without anthropogenic influence and the foundations for raw materials and materials for a renewable economy are discussed.
Organizational Unit	CCR Ltg.
Module Coordinator	Christof Brändli
Deputy Module Coordinator	Selçuk Yildirim
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	
Contribution to Program Learning Objectives (by the concerned Module)	• Professional Competence • Methodological Competence • Social Competence • Self-Competence
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 description: Bioeconomy / Materials

Module Learning Objectives	Students... • should have knowledge of the key concepts of the bioeconomy. • should have know-how on which renewable raw materials could replace fossil raw materials. • should have know-how about the steps and processes for the production of renewable raw materials. • should have competencies in the evaluation of the influences of new materials on the functionalities and properties of the final product. • should have knowledge about the prerequisites and limits of the bioeconomy.
Module Content	• Introduction and basics of bioeconomy • Concept of mass balance • Introduction to platform chemicals • Raw materials from renewable sources • Biopolymers • Carbon capture and utilization • Recycling • Applications in the packaging industry
Links to other modules	This module is linked to the following modules:
Digital Learning Resources	• Reader • Teaching Materials
Methods of Instruction	• Lecture • Case Studies • Interactive Instruction • Literature Review Social Settings Used: • Group Work • Individual Work

Type of Instruction

	Classroom Instruction	Guided Self-Study	Autonomous Self-Study
Lecture	28 h	-	
Excercise	-	4 h	
Project Work	-	-	
Seminar	-	4 h	
Total	**28 h**	**8 h**	**54 h**

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
-	-	-	-	-

Classroom Attendance Requirement	100%
Compulsory Reading	
Recommended Reading	
Comments	