Valid for 2022-23-24.HS

Module name: Circular Economy Management	
Module Code	n.MA.RE.CEM.23HS
Module Description	The real estate industry is responsible for tying up many resources, sometimes for decades. Therefore, in order to deal with the limited resources available in an economic and environmentally sound manner, changing from a linear to a circular real estate economy and the transition to sustainable building design, use and management is essential. Sustainability and circularity assessment is another tool for identifying, further refining and managing the impact of the built environment on the climate and on nature, also in the context of corporate, owner and user responsibility.
Programme and Specialisation	Master of Science in Real Estate & Facility Management (MSc REFM)
Legal Framework	Academic Regulations for the Master's Programme MSc REFM dated 01.08.2024, Appendix to the Academic Regulations for the Master's Programme, first adopted on 30.08.2011
Module Category	Module Type: Compulsory
ECTS	5
Organisational Unit	N Institute for Facility Management (IFM)
Module Coordinator	Prof. Dr. Matthias Haase (haam)
Deputy Module Coordinator	Heinz Bernegger (bgge)
Prerequisite Knowledge	Digital Transformation
Contribution to Programme Learning Goals (Affected by Module)	■ Specialised expertise ■ Methodological skills ■ Interpersonal skills ■ Self-competence
Contribution to Programme Learning Objectives	Specialised expertise ■ Understanding & knowledge of theory & practice-oriented content ■ Application, analysis, and linking of theory & practice-oriented content ■ Evaluation of theory & practice-oriented content Methodological competence ■ Problem solving & critical thinking ■ Scientific methods ■ Working methods, techniques & procedures ■ Information literacy ■ Creativity & innovation Social competence ■ Written communication ■ Oral communication ■ Cooperation in a team & conflict resolution ■ Interculturalism & empathy Self-competence ■ Self-management & self-reflection ■ Ethical & social responsibility ■ Learning & transformation
Module Learning Objectives	Students ■ understand the relationship between resource consumption and waste production, and can describe recent developments in the real estate industry. ■ can apply definitions and strategies for implementing the circular economy within their own contexts. ■ understand life cycle assessment principles, and can understand and describe a building "system" as an adaptable model with various life cycle layers. ■ can evaluate and interpret circular design / construction / use / operation principles for new and existing buildings, and apply them to projects. ■ are able to identify key factors that can be used to improve the circularity of both an existing building and one that is being planned. ■ understand both the environmental impacts of different product/building phases and the best environmental assessment methods, as well as the benefits of these methods. ■ understand different building certification systems and their criteria, especially with respect to waste prevention and resource conservation. ■ are familiar with quantitative indicators used to assess circularity and the potential for waste prevention, understand how these are reflected in certification systems, and are able to apply them. ■ gain practical experience in illustrating and optimising the circularity of products. ■ understand how circular economy compliant projects or properties can be procured. ■ have an overview of the current circular economy research and discourse. ■ can implement and further develop product labels and building assessment systems associated with the circular economy.

Module Content	■ Possibilities on converting existing linear economic systems into circular economy systems ■ Circular economy strategies and design options ■ Challenges surrounding circular economy systems in a real estate-related context ■ The building depicted in layers - separating systems in building construction ■ Energy or material focus? Closed-loop systems of the future ■ Principles of circular design / construction / use / operation ■ Methodological approaches and benefits of environmental assessment, including buildings ■ The effect on the carbon footprint at the portfolio level ■ Financial accounting for waste prevention and sustainable deconstruction ■ From waste to reusable material: recycling and reusable material management methods ■ Urban mining: Using current stockpiles as a material reserve ■ The Madaster Vision: Materials with identity ■ Developing your own sustainability and circularity certificates
Links to Other Modules	The content of this module is linked to the following modules: Strategies in Sustainability Built Environment Transformation Master's Thesis
Methods of Instruction	■ Lecture ■ Interactive instruction ■ Application Tasks ■ Case Studies ■ Exercises ■ Research-based learning ■ Literature review
Social Settings Used	
Digital Resources	■ Reader ■ Teaching videos ■ Practice and application exercises (with key) ■ Case studies (with key) ■ Livestream lectures ■ Laptop with Windows operating system

Type of Instruction	Classroom Instruction	Guided Self-Study	Autonomous Self-Study
Lecture	36 h	-	
Practical work	-	16 h	
Project work	-	-	
Seminar	-	-	
Total	**36 h**	**16 h**	**98 h**

Double teaching may occur. Double teaching is not included in the time planning.

Performance Assessment
For the following performance assessments, resubmission, respectively repeat exam, is offered in accordance with § 12 and § 12a of the study regulations for the Master's degree programme in Real Estate & Facility Management at the Zurich University of Applied Sciences.

End-of-module exam	Form	Length (min.)	Weighting
-	-	-	-
Permitted resources	-	-	

Others	Assessment	Length (min.)	Weighting
Report	Individual work	-	70.00 %
Presentation	Individual work	30	30.00 %

Classroom Attendance Requirement	Mandatory attendance: none, but recommended.
Language of Instruction/Examination	English. For students from German-language study programmes, the examination can be held in German.
Compulsory Reading	See the provided reading list
Recommended Reading	See the provided reading list
Comments	Last-minute adjustments to the module or assessments may occur.