Module Card

Master Resource Efficiency in Architecture and Planning
HCU Hamburg

Module Number	Module Name	Type (C/CE/E)	Semester (proposed)	Module Coordinator
REAP-M-Mod-302	**Technologies for Sustainable Water Resource Management**	**CE**	**3.**	**Prof. Dr. Wolfgang Dickhaut**

Subject Area	Duration
Resources, Technologies and Environment	1 semester

CP (according to ECTS)	Contact Hours/Week (SWS)	Self-study
5 CP (= 150 h workload)	3 (= 31,5 h contact time)	118,5 h

Objectives and Contents

Objective of Qualification (competencies)

- Knowledge of different technologies in sustainable decentralised domestic wastewater and faecal sludge and rainwater management.
- Skills development: dimensioning, perception, assessment and decision making in the field of sustainable decentralised domestic wastewater, faecal sludge and rainwater management.

Contents

- Technologies for a sustainable decentralised domestic wastewater and faecal sludge management:
  - Technologies, e.g. grey water treatment, water toilets with liquid/solid separation, dry toilets, membrane filtration, biogas plants, DEWATS, Faecal Sludge emptying and transportation technologies.
  - Integration of wastewater and faecal sludge management in urban/ settlement planning.
  - Integration of wastewater management in the planning of individual buildings and sites.
  - Wastewater and faecal management – examples and assessment criterion in the selection of technologies in developing countries.
- Technologies for decentralised sustainable rainwater management:
  - Technologies, e.g. Rainwater infiltration technologies, e.g. surface, trench, gulley and trench, shaft, Water evaporation, Decentralised retention, Rainwater usage, Planted roofs, Rainwater treatment, e.g. soil filter. ◦ Integration of rainwater management in urban/settlement and landscape planning.
  - Integration of rainwater management in the planning of individual buildings and sites.
  - Rainwater management – examples and assessment criterion in the selection of technologies in developing countries

Recommended Literature

- Hoyer, Jacqueline / Dickhaut, Wolfgang / Kronawitter, Lukas / Weber, Björn; Water Sensitive Urban Design – Principles and Inspirations for Sustainable Stormwater Management in the City of the Future; Jovis Verlag, 2011
- United Nations Environment Programme, 2008, Every Drop Counts Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency
- SUSTAINABLE SANITATION AND WATER MANAGEMENT TOOLBOX; http://www.sswm.info/
- Elizabeth Tilley, Lukas Ulrich, Christoph Lüthi,Philippe Reymond and Christian Zurbrüg; Compendium of Sanitation Systems and Technologies; EAWAG; 2014; www.sandec.ch/compendium .
- English translations of significant publications of the DWA Set of Rules, 52 DWA-Standards and Guidelines, 6 DWA-Topics and various brochures in pdf format (single user) - Edition April 2016
- ICLEI; SWITCH Training Kit _ Integrated Urban Water Management in the City of the Future; 2011
- BORDA; Decentralised Wastewater Treatment Systems (DEWATS) and Sanitation in Developing Countries; 2009
- Strande, L., Ronteltap, M. & Brdjanovic, D. (Eds.) (2014). Faecal Sludge Management: Systems Approach for Implementation and Operation. IWA.
- Tayler, K. (2018). Faecal sludge and septage treatment - A guide for Low and Middle Income Countries.

Teaching and Learning Methods

Lecture (complemented by seminar discussions, individual student inputs for specific subjects), Plenum, excursions occasionally

Exam(s)

Precondition of Examination	
regular participation, successful completion of student report and oral presentation	
Type of Examination	Duration of Examination (if written or oral exam)
Term paper (S), Presentation (R).	

Composition of Module Mark
S, R = 100%

Additional Information

Previous Knowledge / Conditions for Participation (in form and content)
Successful completion of the module REAP-M-Mod-203 is required (in form)
Applicability of Module
Students have to select 2 modules of the block “Resources, Technologies and Environment” to attend REAP-M-Mod-309 Project III.
Frequency of Offering
Each winter term
Course Language
English

Valid from: WS 15/16	Update: 26.11.2020