

# 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 | <b>Technologies for Sustainable Water Resource Management</b> | <b>CE</b>     | <b>3.</b>           | <b>Prof. Dr. Wolfgang Dickhaut</b> |

| 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)  |
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| <ul style="list-style-type: none"> <li>• Knowledge of different technologies in sustainable decentralised domestic wastewater management and rainwater management.</li> <li>• Skills development: dimensioning, perception, assessment and decision making in the field of sustainable decentralised domestic wastewater management and rainwater management.</li> </ul> |

| Contents   |
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| <ul style="list-style-type: none"> <li>• Technologies for a sustainable decentralised domestic wastewater management:               <ul style="list-style-type: none"> <li>◦ Technologies, e.g. grey water treatment, water toilets with liquid/solid separation, dry toilets, membrane filtration, biogas plants, DEWATs.</li> <li>◦ Integration of wastewater management in urban/ settlement planning.</li> <li>◦ Integration of wastewater management in the planning of individual buildings and sites.</li> <li>◦ Wastewater management – examples and assessment criterion in the selection of technologies in developing countries.</li> </ul> </li> <li>• Technologies for decentralised sustainable rainwater management:               <ul style="list-style-type: none"> <li>◦ 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.</li> <li>◦ Integration of rainwater management in urban/settlement and landscape planning.</li> <li>◦ Integration of rainwater management in the planning of individual buildings and sites.</li> <li>◦ Rainwater management – examples and assessment criterion in the selection of technologies in developing countries</li> </ul> </li> </ul> |

| Recommended Literature  |
|---|
| <ul style="list-style-type: none"> <li>• 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</li> <li>• United Nations Environment Programme, 2008, Every Drop Counts Environmentally Sound Technologies for Urban and Domestic Water Use Efficiency</li> <li>• SUSTAINABLE SANITATION AND WATER MANAGEMENT TOOLBOX; <a href="http://www.sswm.info/">http://www.sswm.info/</a></li> <li>• Elizabeth Tilley, Lukas Ulrich, Christoph Lüthi, Philippe Reymond and Christian Zurbrüg; Compendium of Sanitation Systems and Technologies; EAWAG; 2014; <a href="http://www.sandec.ch/compendium">www.sandec.ch/compendium</a>.</li> <li>• 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</li> <li>• ICLEI; SWITCH Training Kit _ Integrated Urban Water Management in the City of the Future; 2011</li> <li>• BORDA; Decentralised Wastewater Treatment Systems (DEWATS) and Sanitation in Developing Countries; 2009</li> </ul> |

| Teaching and Learning Methods   |
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| Lecture (complemented by seminar discussions, individual student inputs for specific subjects). |

## 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) comprising report (R).  |   |

|                            |
|----------------------------|
| Composition of Module Mark |
| Exam grade                 |

**Additional Information**

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| 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  |