

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-202	Urban Energy Flows	C	2.	Prof. Dr. Wolfgang Dickhaut

Subject Area	Duration
Fundamentals and Methods	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)
<ul style="list-style-type: none"> Knowledge of simple calculation approaches for energy needs and demands in complex urban systems. Knowledge of dynamics and interdependencies of energy demand and supply sides in urban contexts. Understanding of a city as a system (system dynamics) and the role of energy as the driving force (motor) of it, its energy models and balances. Ability to construct energy balances for different fields of energy use (heating, electrical power, transport) and to access magnitudes of energy end uses.
Contents
<ul style="list-style-type: none"> Basics on energy demand and supply (forms of energy, conversions, efficiency etc, balancing, visualization etc) and the interdependencies between different energy systems/ grids. Introduction into energy flows in cities (areas of energy use (domestic, industrial, public) providing data on energy qualities and quantities. Energy use and demand due to (thermal) comfort needs (heating, cooling ventilation) in residential and non-residential buildings. Energy demand of public services and due to mobility needs. Using renewable energies in an urban environment (techniques and contributions). Modelling and visualisation of urban energy flows. Methods to define priorities in urban energy saving strategies (strategic planning targets).
Recommended Literature
Varying
Teaching and Learning Methods
Lecture (complemented by tutorial and 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

Previous Knowledge / Conditions for Participation (in form and content)
Awareness of energy needs in Cities and of urban and architectural planning and building procedures (Content)
Applicability of Module
The successful completion of this module is required for the attendance of the module REAP-M-Mod-204 Project II.
Frequency of Offering
Summerterm

Course Language
English

Update: 30.09.16