



Co-funded by the
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Module: Conservation of Energy- Household Energy management

Program: BSc in Architecture

Class year: fourth

Course: Ecology of Architecture

Module coordinator: Sara Amare Gebremeskel

Module description

The module is a sub-module for the course “Ecology of Architecture” under the BSc program in Architecture, which is to be delivered for 4th-year students. The module deals with household energy consumption, energy conservation and energy management. It gives an understanding of households’ energy dependency, monthly energy expenditure and perspectives on green energy with a supportive local case study conducted on condominium housing energy management under the Erasmus+ SES project. It helps students to have a broader understanding of condominium housing and their energy management on household level. It gives exposure to site visits, debates with condominium dwellers about their challenges as an essential process to understand their practices of energy management. It also provides an understanding of the residents’ perspectives on green energy, strategies for green energy and how to apply those strategies in condominiums. Students will deliver design proposals on how to apply strategies of energy zero and energy plus in these particular settings. The teaching methods include theoretical lectures, consultations and site visits. The expected outcomes are design proposals on how to apply strategies of energy zero and energy plus in condominium housing. The

module was successfully delivered from November 29 to December 27, 2018 for a batch of 31 students at the level of BSc in Architecture.

Learning Outcomes

After completion of this module:

- Students will have an understanding of energy consumption, energy conservation and energy management.
- Students will have a new and detailed perception of energy management at household level in condominiums. Site visits and debates with condominium residents about their challenges are essential to understand their day-to-day energy usage.
- Students will be able to understand dwellers' perspectives on green energy and develop strategies on how to apply such technologies on condominium sites.
- Students will deliver design proposals on how to apply strategies of energy zero and energy plus in condominiums.

Student Workload

On average, a student is expected to spend a total of about 24 hours (1 ECTS) for this module spread over 5 weeks (summing up class time, reading time and time for projects). There are 9 hours of lectures and demonstrations (about 3 hrs. per week for 3 weeks) and 15 hours of design proposal including site visits (about 7-8 hours per week for 2 weeks).

Module Structure

This module under the course "Ecology of Architecture" contains three major topics:

- Households' fuel dependency
- Monthly average energy expenditure and the
- Residents' perception on green energy

Prerequisites (*requirement for participation*)

Students need to have passed the "Ecology of Architecture" course

Assignments

Class activities correspond to each of the three major topics cited above. The main student project of this module investigates how to apply Energy zero and Energy plus strategies on the case areas of different condominium sites. Students are supported by counseling ahead of their submissions. They are requested to prepare three to four posters to present the study area as well as their proposals for the application of energy zero and energy plus strategies in this area.

Grading

In addition to the class activities, the main student project of this module investigates how to apply Energy zero and Energy plus strategies in the case areas of selected condominium sites. One week is given for this project. Grading also takes an exam on each of the three respective topics as cited above into account.