



FACULTY: ENVIRONMENTAL ENGINEERING

COURSE TITLE: Energy efficient buildings and indoor air quality

Number of contact hours: 60

Duration: 1 semester (fall)

ECTS credits: 6

Programme description: This course comprises lectures, projects, computer simulations and seminar. It covers the aspects of energy efficient building structures and the main factors that influence building energy efficiency. The main topics of the course are listed below:

- Energy efficient building structures
- Heat losses in buildings
- Thermal bridges and their influence on the building energy efficiency
- Heat gains in buildings
- Windows and their thermal transmittance
- Energy demand of buildings

Course type: lectures (20), computer simulations (15), project (15), seminar (10)

Literature:

1. ISO 10211:2007 - Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations
2. ISO 14683:2017 - Thermal bridges in building construction - Linear thermal transmittance - Simplified methods and default values
3. ISO 10077-1:2006 - Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1: General
4. ISO 10077-2:2012 - Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 2: Numerical method for frames

5. ISO 13790:2008 - Energy performance of buildings - Calculation of energy use for space heating and cooling

Assessment method: test and practical computer calculations

Lecturer: Agnieszka Lechowska

Contact person: Agnieszka Lechowska