



Energy efficiency of buildings 3 (Short Version Part 3)

(Resource ID: 373)

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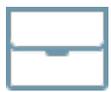
This teaching resource is allocated to following University:

UL - University of Limerick

Institution:

University of Limerick

<http://www.sustainicum.at/en/modules/view/373.Energy-efficiency-of-buildings-3-Short-Version-Part-3>



Individual work



**11 to 30
students**



**Up to 3 lecture
units**



English, Shqip

The teaching resource outline Energy efficiency of buildings (Short Version Part 1, 2 and 3) describes the draft of a teaching resource consisting of 3 parts, that has been developed to teach students about creating plans and implementing them to create energy efficient buildings, while also coping with the realities of building protocols, as well as investment firms who do not want energy efficient buildings as they are too expensive to build. These teaching resources will incorporate but are not limited to the following methods: Problem Based Learning, Case Study Teaching, Bingo, Researching, Field Work and a Discussion The set describes three independent teaching resources, which are designed to be completed one after another (but not necessarily), these include: 1.

Problem Based Learning – Which building is the most energy efficient? 2. Bingo and Interview with Stakeholders 3. Fieldwork The outline “Energy efficiency of buildings (Short Version Part 1, 2 and 3) is based (and slightly modified) on the Teaching Resource, “Energy performance assessment of the residential building stock” The original teaching resource was split into several parts to make it more feasible to introduce new components and teaching methods into lectures that have not been introduced before. This allows lecturers to introduce new ideas and teaching methods without effecting the overall flow of the original lecture material. All parts do not need to be completed.

Part 3 – Fieldwork

The students will get the opportunity to visit a building site where the energy efficiency company is working. They will shadow the builders and get the opportunity to get first-hand experience of creating an energy efficient building. Afterwards, the students will research new methods online and create an outline of new innovative sustainable management strategies that the building company could consider to use when trying to increase the efficiency of the building and thus, help the environment. The group will be present their outlines and the winning group would the opportunity to get work experience with the building company for the summer.

Main Text:

The aim of teaching resource to estimate the number of buildings in the national housing stock represented by each building type and their energy performance. This will be achieved through interviews with the stakeholders, Problem Based Learning (students will be presented with the problems) and of course through class and field work. After doing all the field work and calculation of the energy performance of the chosen typologies, students should propose methods and instruments of how to improve the performance of the whole building. The knowledge proposing such measures will come from the collaboration with the private stakeholders dealing with energy efficiency material.

The building types would be selected based on particular construction periods, sizes of buildings and used material. Also any regional variations would be highlighted. After doing all the field work and calculation of the energy performance of the chosen typologies, students should propose

methods and instruments of how to improve the performance of the whole building or a single apartment. The knowledge proposing such measures will come from the collaboration with the private stakeholders dealing with energy efficiency materials.

The idea of this resource is to improve the existing knowledge of the students, inhabitants and local/ central government, providing a powerful means for the assessment of the energy performance of individual buildings and groups of buildings.

This teaching resource aims to give students tools and instruments related to the energy performance of buildings. This teaching resource will help students learn how to calculate the energy performance of a building, how to calculate the amount of money we spend every year on heating and cooling, how much it will cost to insulate a certain building typology, will learn about the building typology in Albania, the way of constructing, the indoor comfort and the passive techniques on how to reduce the energy consumption, etc.

Teaching Tools & Methods



Excursion

Integration of Social Stakeholders

During the class, building companies will have an active role in sharing their practical knowledge to the students. On the other hand, students will have direct contact with products and people dealing with them. During this class, the collaboration with stakeholders is crucial, because businesses need a general idea of the energy situation in Albania and students will learn a lot from this collaboration, including the opportunity of work experience.

Strength

- Students learn to work in a team
- Students learn to solve real-life relevant problems
- Active learning experience for students
- Mutual learning for students and business stakeholders
- Students think about their own opportunities as architects in the context

of global change

Weakness

- Confidentiality problems – students may be inclined to disclose information to competitors.
- Stakeholder must agree to discuss their own business plan and real business life problems with students.

Learning Outcomes

- Participate in the fieldwork method
- Create an outline to increase efficiency
- Appreciate the importance that energy efficiency has on helping the environment

Relevance for Sustainability

Retrofitting an existing building can oftentimes be more cost-effective than building a new facility. Since buildings consume a significant amount of energy, particularly for heating and cooling, and because existing buildings comprise the largest segment of the built environment, it is important to initiate energy conservation retrofits to reduce energy consumption and costs, thus improving sustainability and Energy Performance.

Related Teaching Resources

No specific previous knowledge / related resources required

Preparation Efforts

Medium

Preparation Efforts Description

Visit to building company and various building types.

Access

Free

Assessment

Submission of a method outline of innovative strategies that can be used by the building company to increase energy efficiency of the buildings they are working on.

Credit/Certification Description

Credit for the submission of a method outline of innovative strategies that can be used by the building company to increase energy efficiency of the buildings they are working on.

Sources and Links

Original Teaching Resource - <http://sustainicum.at/en/modules/view/277>

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