



Energy efficiency of buildings 2 (Short Version Part 2)

(Resource ID: 372)

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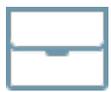
This teaching resource is allocated to following University:

UL - University of Limerick

Institution:

University of Limerick

<http://www.sustainicum.at/en/modules/view/372.Energy-efficiency-of-buildings-2-Short-Version-Part-2>



Individual work
Group 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 2 – Bingo and Interview with Stakeholders

Using what they learned from part 1, the students will then be asked to create their ideal energy efficient building, identifying key features to make the building a success. They will use this information to create their own version of sustainability bingo, that they will use when listening to the stakeholder. The stakeholder (owner of an energy efficient buildings company) will be invited to the lecture by the lecturer and will present the ideal features and additions that they put into buildings to make them more energy efficient. Students will relate these key features to their own identified from part 1 and will mark them off as the stakeholder mentions them. If certain features were not mentioned, this gives the students time to ask the stakeholders key questions as to why certain features were not added.

Main Text:

The aim of teaching resource is 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



Case study

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

- Suggest features of an energy efficient building
- Create a list of energy efficient features in a building
- Listen to the stakeholder and compare and contrast the energy efficient features in Bingo
- Prepare a set of questions for the stakeholders

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

Arranging a visit from a stakeholder

Access

Free

Assessment

N/A

Credit/Certification Description

N/A

Sources and Links

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

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