

ENERGY EDUCATION



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NEWSLETTER

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Developing Smart Energy Management training material

After setting up a Qualification description of a "Smart Energy Manager", our project team has entered the second phase of our project: designing and developing the training material which will enable our students to perform the tasks of the SEM expert. This training toolkit will be available as an Open Online Course in MOOC format.

Knowledge sharing via online tutorials

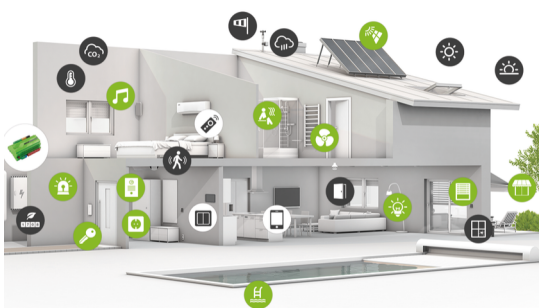
Teachers of our project shared their specific knowledge in SEM related areas via a set of online tutorials: training background of SEM experts and energy management in automation, thermal - and smart lighting installations. All topics are going to be part of the lessons included in the training toolkit.

Designing Lessons

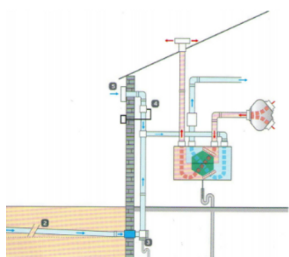
As the training toolkit will include both online training material and practical real-life student project, we designed a common lesson plan for all partners. This plan is based on the Project Based Learning (PBL) methodology, which enables students to work in teams and fosters their problem solving behaviours.

International Competition

Parallel to the toolkit lessons student groups will participate in an international competition starting January 2020. Student teams from Switzerland, Sweden, Germany, Basque Country and The Netherlands will take part. In each country students evaluate the energy consumption of a school building. Presenting a new Smart Energy product or innovative solution, they advise on how to reduce energy consumption suited to the building examined. Student groups in two different countries will present their ideas to each other online using the Sustainable Business Model Canvas and give each other feedback. For the students this is a great chance to use their English skills and exchange with young professionals from other countries as well as to create innovative ideas.



exchange efficiency rate:



$$\text{Eficiencia térmica} = \eta_t = \frac{t_E - t_S}{t_E - t_L}$$

E = Aire exterior
L = Aire local
S = Aire exterior salida recuperador

Potencia recuperada de calor sensible

$$P = m \cdot \Delta h_S$$

$$h_S = C_{pa} \cdot t + C_{pv} \cdot t \cdot x$$

$$P = V \cdot I \cdot \cos \phi$$

Teachers shared their lessons and slides in online tutorials.



In the competition international student groups will compete. They will present their ideas on how to reduce energy consumption using The sustainable Canvas Business Model.



Above: Visit to the university of Lulea
Below: Visit to Lulea Energi AB, local distributor of central heating and cooling.



ECVET Principles

Our Smart Energy Management Training Toolkit will be based on the requirements of the European Credit System for Vocation Education and Training ECVET. This system should provide transparency and comparability of trainings offered by the European VET schools. Our partner from Norway, expert in this field, is currently training our project team in the ECVET principles through online training lessons in MOOC format. At the end of the project, not only our team will become experts in ECVET, but others can also undertake the same journey and follow this online course about how to create new qualification frameworks and how to introduce ECVET for mobility projects and lifelong learning at school.

Second Partner Meeting

In June 2019 we met for our second partner meeting in Lulea, Sweden. Apart from the enriching discussions about how to progress in our project, we made some very interesting visits of the surrounding companies:

We visited the Technical **Research Department of the University of Lulea** and learned about energy related training programs and their latest research activities.

An expert of the local distributor of central heating and cooling, **Lulea Energi**, welcomed us at their head quarter in Lulea and gave us an interesting insight into their challenges of distributed heating systems in extreme climate, as winters in Lulea can be very cold. We learned, that the heat is derived mainly (for 97%) from gas of the steel production factory of SSAB, supported by a few other plants (oil and biofuel).

Another **expert in Energy Management of Lulea Kommun** gave us a presentation about their management system which controls the energy consumption of about 300 buildings in Lulea. As wood industry is very important in Sweden, we also met an **entrepreneur and expert in drying wood**, who is working on improving the control and management on the different phases during the drying process of wood.

We were also lucky to meet the Head of Adult Education of Lulea Kommun, Mrs. Birgitta Nilsson and learned about their projects to integrate migrants into the training classes and to match people with companies.

Last but not least: We got a charming and tast insight into the Swedish coffee culture of *fika* and enjoyed the tradition of free public access to the country side where putting up a fence isn't allowed.



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