



eseia Reference Handbook for Sustainability in Education and Training

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eseia Education and Training Programme: Overview

What are the needs?

eseia experts have been heavily involved in designing the [EC SET Plan Education and Training Roadmap](#), which has looked at education and training provision as a vital element in the implementation of low carbon technologies. This initiative has identified the following skills development needs:

- more **practice-oriented training**;
- more **business – education – research interaction** (knowledge triangle); i.e. need to have industry involved in course design from the outset;
- **systems integration**, i.e. ‘joined up thinking of a system to enable whole integration including: design, implementation, maintenance performance and post occupancy evaluation’;
- **cross-cutting courses** which deal with the entire value chain;

eseia proposes that by launching the [eseia Education and Training Programme](#) innovative solutions will be created filling the gap in skills development training.

Vision

Establish eseia as a leading provider for practice-oriented education and training in renewable energies by 2020.

Objectives by 2015

- Initially launching with 3 courses in 3 different Member countries in 2013, the **eseia Education and Training Programme** will grow to **10 courses by 2015** to form a cohesive eseia programme with joint certification and academic recognition
- 60 participants in 2013 growing to **200 participants from 10 different countries** by 2015

Target Groups

The **eseia Education and Training Programme** is aimed at the following groups:

- Post-graduate students (PhD, Master’s)
- Professionals, Business executives, Practitioners
- Experts, Policy-makers

eseia will strive for diversity balance in its programme regarding choice of participants and lecturers. (e.g.: Gender Balance, country balance, sector balance (science-business-politics), age balance).

Topics

eseia will focus the topics of the **eseia Education and Training Programme** on the eseia strengths and expertise. This covers a wide span of renewable technologies, from energy efficiency & usage, energy provision to energy intelligence and energy integration as detailed in the eseia expertise platforms.

eseia Education and Training Programme: Methodology

Methodology

The **eseia Education and Training Programme** works along the following methodology and distinguishes itself from others by the following:

1. **Thinking out of the box** – taking participants beyond their current limits by providing a novel, cutting-edge and interdisciplinary programme;
2. **High-quality knowledge transfer between European regions** by international top experts;
3. **Peer to peer exchange** of experience and business solutions by providing interactive and collaborative programming;
4. **Systemic and interdisciplinary promotion of a holistic view** of technological systems;
5. **Targeting practitioners** outside academia and linking together the business and research with policy to support decision making;
6. **Focusing on hands-on training** with business and industry to provide real chances for implementation.

Course format

This methodology will be implemented in the **eseia Education and Training Programme** in the following three courses formats:

1. **eseia International Hands-On Summer Schools** – Through its university members, eseia offers two week intensive training courses for excellent post-graduate students. The aim of the eseia International Summer Schools is to present a comprehensive overview of green tech, economic and social developments in the thematic area of sustainable energy innovation. The eseia courses provide project-oriented interdisciplinary mini-workshops designed to the needs of the participants, one-to-one expert exposure and the opportunity to test new tools and methods and their adaptation in practice on local sites visits.
2. **eseia International ON SITE Student Camps** - eseia companies offer 4-day total immersion ON SITE student camp for postgraduate students to train their conceptual skills for designing energy solutions by exposing them to the case of a real site. This innovative new training model allows for students and equally practitioners to be involved in an interdisciplinary design exercise which will tap on the business and technical knowhow of the site and the creative potential of the postgraduate students and their university teachers. These wicked teams will come up with new sustainable solution pathways, evaluate their potential impact and best of all will get a real chance for implementation.
3. **eseia Inter-Regional Training Workshops for Decision-Makers** – Three-day Training Workshop for key staff from regional authorities hosted by eseia research organizations in cooperation with industry. Regional decision-makers, i.e. from metropolitan regions, will compare their strategic sustainable development options and come up with new pathways on the basis of an overview of recent trends and forecasted technological and business developments. These courses will use a special foresight methodology that will involve decision-makers actively and provide a tool for them to develop solutions to meet their own strategic developmental goals. Special emphasis will be placed on participation models that will allow for reduction of complexity in joint planning and implementation with societal players.

eseia International Summer School, 14-17 July 2014

„Smart Metropolitan Regions of Tomorrow“: Content and Sustainable Methodology

CONTENT

As the focal points for future growth, demographic changes and innovation, cities play an essential part in developing our capacity and capability for sustainable energy transitions. However, planning for sustainable energy systems and fostering a smart and efficient management of natural resources requires a regional approach to effect systemic shifts and a lasting societal change in attitude.

The eseia ISS 2014 programme aims to cover the fundamental aspects and to reveal solutions in the quest for **smart innovations to the energy challenge** facing cities, metropolitan and regional centers, and communities. The Summer School will address all these perspectives from multiple angles:

1. Policy Governance angle: EU sustainable energy policy and multi-level governance; urban and metropolitan strategic planning, political economy for sustainable energy systems.

- Setting the frame of the EU Climate and Energy Policies package 2020, with a view to 2030 and 2050 Energy Roadmap, and making a link with international agreements and innovation
- Gaining a practical understanding of the multi-level governance mechanism and the key principles associated with strategic regional approach to sustainable energy use; outlining the concerns and issues associated with energy governance, and exploring innovations in areas such as energy and water use at multiple levels of governance;

2. Socio-economic angle: New business and financial models for sustainable energy and to realise future energy savings; social drivers for our transition towards sustainable futures.

- New business models for developing robust sustainable energy systems and providing innovative energy services to consumers;
- A new low-carbon and sustainable development paradigm on the ground: The active role of metropolitan regions in the energy transition; socio-ecological systems, our ‘Dependency path’, external drivers and incentives for change.

3. Design angle: Design and (landscape) architecture real world practice for coherently integrating environmentally-friendly energy systems in complex planning environments;

- Designing the Sustainable Smart Metropolitan Regions of Tomorrow: Natural resource planning and management from a landscape, big scale (metropolitan regions) perspective for delivering integrated green energy systems to support the development of urban communities;
- Strategies and tools for integrating sustainable design concepts in energy systems, transport and mobility, construction management and procurement, environmental performance and building life-cycle assessment, retrofitting plans for climate change, water treatment plants, green materials and other facilities at regional scale supported by public participation of local communities;
- Optimization methodologies for systems integration. Communities are a system of systems with a great deal of variables; mathematical tools are needed to help decisions in an optimized way.

4. Technological angle: High-tech green electricity and heating production and consumption systems, climate control; blue, green, grey and white regional infrastructure facilities;

- Delivering high-tech, sustainable and energy efficient electricity and heating production and consumption systems; technological breakthroughs for renewable energy applications and for various urban infrastructures, including white infrastructural systems, e.g. Smart Grids;

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- New end-uses/capabilities of bioresources, innovative materials and conversion processes.

A cross-cutting angle on **EU Project Management** will cover ways to develop, write and manage a project proposal.

- Practical guide on how to write, develop and manage a successful EU-funding proposal, from planning, to completion and review: intelligence in call text reading, idea creation, consortium building, writing and paperwork, implementation and evaluation.
- Introduction to Horizon 2020, Excellent Science.

Sustainable METHODOLOGY

The eseia ISS programme embraces and connects different disciplines related to **smart innovations to the energy challenge in cities and metropolitan regions**, using interdisciplinary methods. This implies that, while every lecture is themed around one specific innovation angle, it also integrates and interacts with other fields of study. The focus is also on hands-on activities across academia and industry, with the objective to offer participants a diversity of skillsets and perspectives that they can use for improving their individual projects. The ultimate aim is to enable the summer school attendants to acquire tools and skills necessary to address innovative business solutions.

Strongly interactive lectures

This two-week International Summer School consists of strongly interactive lectures in the morning and early afternoon, structured in **slots of 90 minutes each**, followed by workshops and discussions:

1. **Lectures**, aimed at keeping you abreast with the latest scientific findings, while also analysing practical applications in the field (90 minutes)

One method of tapping into interdisciplinary resources and expertise on Smart metropolitan regions is through interactive lectures. The lectures bring together the skills and knowledge of international experts from the academic and research environment, as well as professionals from the public realm and the commercial world. All lectures address and connect different innovation angles of sustainable energy systems in cities and metropolitan areas, allowing participants to stitch together different knowledge frameworks and to gain a multi-faceted understanding of the issues at stake.

2. **Workshops**, integrating the cross-sectorial knowledge and inter-disciplinary methods geared towards the area of interest of students (60-90 minutes)

Participatory methodologies are used for developing workshops that foster group work and a proactive involvement of all participants. The workshops are poised to contribute to your project improvement, and could have one or more of the following forms:

- networking, clustering and teambuilding among participants for accomplishing a given task
 - demand-driven project design and identification of needs, where the lecturer proposes an exercise that students have to approach according to their own individual project
 - study circles, where students from different disciplinary backgrounds are grouped together to study and tackle specific topics defined by the lecturer
3. **Discussions**, debates and Q&A session (30 minutes)

Project-based work

On a daily basis, during late afternoon, a time slot of **60 minutes** is dedicated to the participants' project-based work, under the guidance of our international experts and practitioners.

Craft a successful EU funding proposal

A specific module, under the coordination of EU experts, will cover the entire life cycle of turning ideas into an EU-funded project, and will provide participants with various tools for crafting marketable solutions and delivering successful innovations.

Professional visits

Professional visits form a major part of the course schedule, and are an excellent opportunity for networking and gaining first-hands on experiences.

1. Visit to the R&D Institute of the Transylvania University of Braşov, developed through a 25M EUR Structural Funds project (2009 – 2013). Located in the new **Green Energy Independent University Campus – GENIUS**, the Institute is home to 27 research centers that work towards excellence in research and developing novel innovative high-tech products for sustainable energy. The Institute hosts also international M.Sc. and Ph.D. programmes, and fosters global cooperation with companies and networking.
2. One course will be hosted at the **Viessmann Company** premises, one of the leading international manufacturers of heating, cooling and climate control technology. This visit will confer you direct contact with a company promoting sustainability.
3. The first weekend will include a visit to one of the largest PV parks in Europe, Ucea de Sus Solar PV Park in Braşov County.

Social activities and field trips

The work of the summer school attendants will be rewarded with sufficient time to develop new friendships and various social activities in the historic setting of Braşov, the jewel of Southern Transilvania and of the Romanian Carpathian Garden. They will have the opportunity to visit the Bran Castle, also known as Dracula's Castle, the medieval city of Braşov and its surroundings. Hiking and village-to-village trips could be organized to the top of the Fagaraşi Mountains (2400m), on the Trasfagaraşan breathtaking road.

Quick Summary of the Summer School

General info: The eseia ISS takes place from 14-27 July 2014, in the Solar House of the Campus of the [Transylvania University of Braşov](#). Our instructors and applicants come from a diverse set of countries and fields (last years' attendees: from Brazil, Switzerland, Indonesia, the Netherlands, etc.).

Academic Recognition: 3 ECTS and an Attendance Certificate will be awarded to you on completion of the course (a total of 75 hours, 40 course hours and 35 hours of preparation and follow-up).

Class format: Hands-on experience conferred through lectures, case studies, group work and discussions, project preparation guided by experts, professional visits. You will also take part in an exciting social and cultural program.

Participation: Your active participation is expected, such as in presentations, course and group work.

Course approval: The students must have completed the following required assignments: introduction of their project idea on the first training day, and final presentation of their improved project proposal at the end of the summer school.