Eseia International Online Summer School 2024
16th — 27th September 2024

Net Zero Solutions for Climate Friendly Energy Production

Arranged by
North Savo Energy Cluster partners in Finland
and together with ESEIA (European Sustainable innovation alliance) network in Europe.

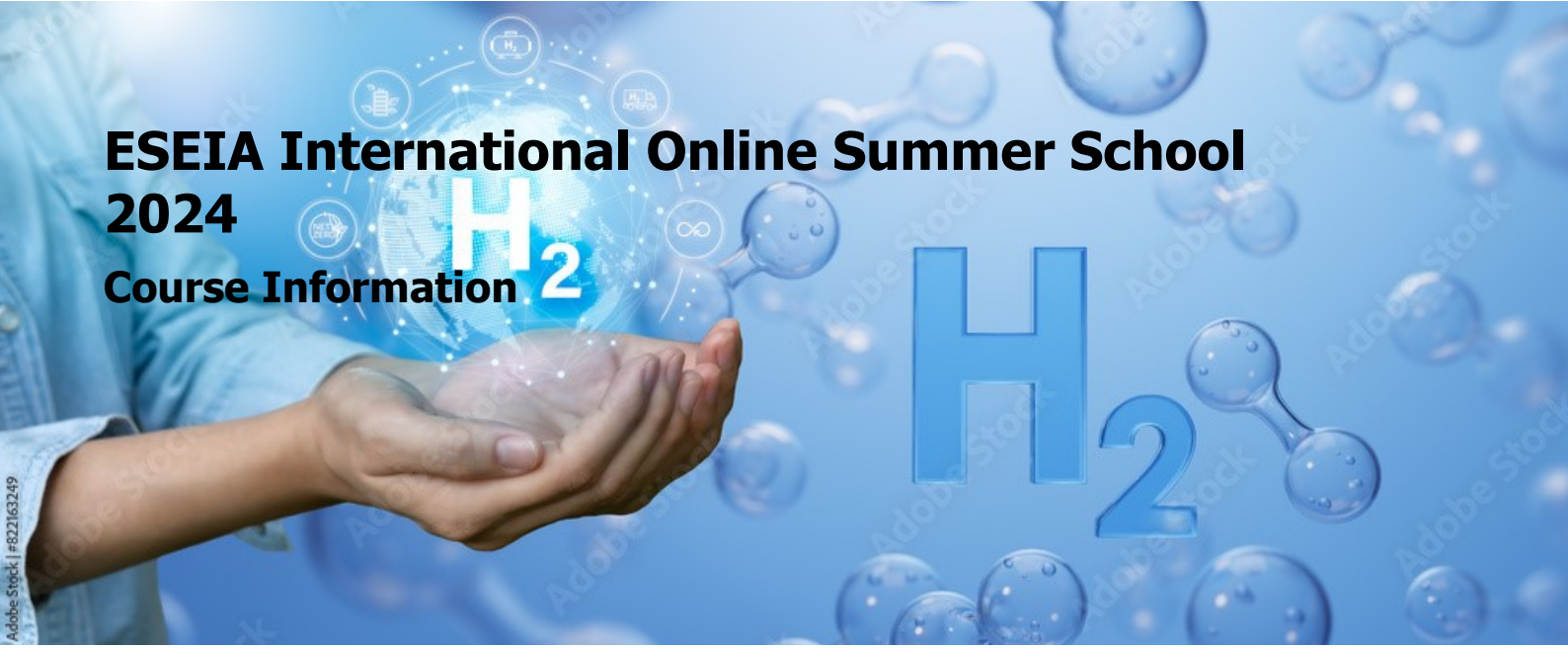
ESEIA
European Sustainable Energy Innovation Alliance

SAVONIA
University of Applied Sciences

Pohjois-Savon liitto

ENERGY CLUSTER
NORTH SAVO

Co-funded by the European Union



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Course Information

Objectives

Net zero solutions will have an important role in future energy systems when aiming to carbon neutrality for stopping the global warming.
Students will receive comprehensive overview of solutions aiming to net-zero suitable to use both in energy consumption and production sectors.

After completing the course:

- student have a clear understanding of the content and aim of future fossil free scenario and he or she is familiar with the measures with which it is possible to achieve these goals
- student knows also how apply them in work life context and he or she has ability to plan research projects that serve the goals of the fossil free scenario.

Teaching Methods

The Summer School 2024 is on-line course arranged in September 2024 during weeks 38 and 39.

The course is evaluated based on activity on the course and the returned assignment (with grading scale passed (P) – failed (F))
The results of group work assignment should be presented 27.9.2024.

Learning material

The material will be given via Moodle during the course. The Moodle environment for this course will be open for introduction on 09.09.2024.
It will be given an overview of different net zero solutions (Clean energy production, CCUS and synthetic fuel production, Energy efficient utilization of energy in buildings, Balancing energy production and utilization, Decarbonization of mobility).

Practical training and working life connections

- A part of lectures (related to different net zero solution technologies) are given by representatives of industrial companies.
- The topics of group works have working life connections.

Students use of time and load

- the on-line course is arranged during weeks 38 and 39
- the lectures are given during week 38 daily from 3.00 to 6.00 pm (EEST time)
- week 39 is reserved for group works (supervise is given daily from 3.00 to 6.00 pm EEST time)
- 27.9.2024 from 3.00 to 6.00 pm (EEST time) is reserved for presentation of group works.

Prerequisites

Higher education degree.
The official language of the course is English.

Registration

Registration will be open 1.8.2024—**15.9.2024** on the following site:
Please register HERE if you dont't have Finnish personal identification number. If you have Finnish personal identification number please register HERE .

Fee info

Participation in the Summer School is free of charge, but attendants are responsible for covering all other possible costs.

Organizer

The course will arranged together with North Savo Energy Cluster partners in Finland and with ESEIA (European Sustainable innovation alliance) network in Europe.

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Programme

1st week (38): 16.9.—20.9.2024, 2nd week (39): 23.9.—27.9.2024

	Lecture topics (week 38)				
EEST time	**Monday 16.9.2024**	**Tuesday 17.9.2024**	**Wednesday 18.9.2024**	**Thursday 19.9.2024**	**Friday 20.9.2024**
from 3.00 pm to 6.00 pm	Fossile free scenarios & Overview of Horizon Europe funding for Net Zero Solution Research Projects	Clean energy production	Energy efficient utilization of energy	Balancing renewable energy production and utilization	Decarbonization of mobility
15.00—16.00 (3 pm-4 pm)	Welcoming and opening speech RDI Manager Jarno Ruusunen, Savonia UAS Introduction to the Course (participants' presentation) Senior RDI Specialist Markku Huhtinen, Savonia UAS	Carbon capture, storage and utilization for production of synthetic fuels Director Teemu Nevalainen, Sumitomo SHI FW Energia	Zero energy buildings Prof. Nuno Domingues, ISEL/ Portugal	Energy storage technologies Manager Ashok Krishnan, Sumitomo SHI FW Energia 15.30 Case study, Electricity boiler/Energy Storage Managing Director Sanna Kytömäki HLV, Hyvinkään lämpövoima	Challenges, oportunities and solutions for passenger road fleets Prof Nuno Domingues, ISEL/ Portugal Dr. Eng. Gonçalo Gonçalves, Carris
16.00—17.00 (4 pm-5 pm)	Introduction to fossile free scenarios Prof Himanshu Himanshu, TH Köln	Production of synthetic fuels Business Development Manager Ville Nikkanen, Andritz	Energy Communities Lecturer Teija Honkanen, Savonia UAS 16.30 Building AI energy control system Mohammed Mokcheha	Sand storage Polar Night Managing Director Pekka Passi, Vatajakoski Energy 16.30 Case study (Savon Voima Joensuu) Business Manager Kari Anttonen, Savon Voima	Finavia COO Henri Hansson, Finavia 16.30 Zero Emission Marine General Manager Sustainable fuels Kaj Portin, Wärtsilä
17.00—18.00 (5 pm-6 pm)	Overview of Horizon Europe funding for Net Zero Solution Research Projects: "How to make a winning proposal" Richard Wheeler	4GDH Developing district heating: 4GDH, sector-coupling and stakeholder involvement Executive Director Katja Kurki-Suonio, FinDHC	Use of Battery Technology in Wind power Plants Senior Lecturer Olli-Pekka Kähkönen, Savonia UAS	Promotion and development energy efficiency in buildings in Finland Leading Expert Harri Heinaro, Motiva	Smart mobility solutions in urban regions (decarbonisation of mobility) Prof. Mario Hirz TU Graz,
	Group works (week 39)				
	Monday 23.9.2024	**Tuesday 24.9.2024**	**Wednesday 25.9.2024**	**Thursday 26.9.2024**	**Friday 27.9.2024**
Supervise is given from 3.00 pm to 6.00 pm	Orientation to group works	Group work	Group work and peer review	Group work	Presentations of group works