This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N 656760

International Summer School 2017

"Thinking out of the box: Balancing of bio-resources and energy production"

Dubrovnik, Croatia

26 June – 1 July 2017

University of Zagreb

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N 656760

Introduction

The eseia ISS 2017 program aims to cover fundamental aspects and to reveal solutions in the quest for **innovations in the biorefinery framework** converting underexplored biomass into biofuels and chemicals. This Summer School will help you to think out of the box when developing your career on any topics relating to biomass and waste to energy and industrial products. Top scientists and practitioners will focus on bringing you insights from various angles and help you and your project to develop.

Enhance your own project ideas by using cutting edge tools under the supervision of experienced experts. Meet people with similar interests and start networking effectively!

General info

The eseia ISS takes place from 26 June-1 July 2017, in the Centre for Advanced Academic Studies, University of Zagreb, 20000 Dubrovnik, Don Frana Bulica 4, Croatia. The fee for the summer school is €620 and will cover the lectures, board and lodging from 25 June – 1 July. Costs and organization of arrival and departure is in the responsibility of the participants. A certificate of attendance will be handed upon completion of the course.

Class format

Hands-on experience conferred through lectures, case studies, group work and discussions, project preparation guided by experts and professional visits. Participants also have the opportunity to visit two power plants, namely the Dubrovnik Hydroelectric Power Plant and the Wind Power Plant in Rudine, near Dubrovnik. The official language of the course is English.

Target Groups

International master and Ph.D. students, young post-doc researchers, and practitioners and professionals from industry and governmental organizations.

Social life in Dubrovnik

Its rich history, geographic location, mild climate and traditional hospitality and excellence in tourism makes Dubrovnik one of the best tourist destinations in Europe.

Application procedure

Applicants should prepare a short motivation letter, CV and if applicable, an abstract of their recent work or project elated to this year's summer school topic. Application deadline: 31 May 2017
Register now online on www.etp.eseia.eu or directly through this link.

Venue:

Centre for Advanced Academic Studies
Ul. don Frana Bulića 4
20000, Dubrovnik
Croatia

Contact:

For further information please contact eseia:
Tel.: 0043 -316 873 5281 / E-mail: office@eseia.eu

ISS 2017 Programme – 26 June – 1 July 2017

Session		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Morning	9:00	Opening Ceremony, Welcome and Introduction	Boosting Innovation: InnoEnergy's *Innovation Readiness Level* Tool ***Joan-Marc Joval,*** *InnoEnergy*	Biotechnological Aspects of Biofuels Production ***Prof. B. Šantek,*** *University of Zagreb*	Energy planning ***Ass. Prof. G. Krajačić, N. Duić,*** *University of Zagreb*	Development and operation of power systems ***Assoc. Prof. Andrej F. Gubina***, *University of Ljubljana*	Visit hydro- (HE Dubrovnik) and wind power (VE Rudine)
	10:00	Introduction of Participants and Poster Presentation	Biorefinery concept ***Dr. Luís C. Duarte,*** *LNEG*				
	11:00						
	12:30	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
Afternoon	14:30	Bioresources definition, characteristics and potential ***Prof. M. Narodoslawsky***	LCA of bioresource value chain ***Prof. M. Narodoslawsky***	Computer aided biorefinery process design ***Dr. Luís C. Duarte,*** *LNEG*	Smart Bioenergy, Bioproducts and Services for a Sustainable Future ***Prof. Lothar Fickert,*** *TU Graz*	Green EU economy in the context of sustainable development ***Assoc. Prof. Maarten Arentsen***, *University of Twente*	Departure
	15:30			Analysis and Synthesis of the Biorefinery Process ***Dr. Sandor Bartha,*** *Green Energy Romanian Innovative Biomass Cluster*			
	16:30						
Sunset session	18:00	"Opportunities for Young Researchers under Horizon 2020" **Richard Wheeler**, eseia	Student Group Work	Student Group Work	Student Group Work	Students presentations	
Dinner	20:00	Welcome drinks	Individual Contacts with Lecturers about Own Projects	Individual Contacts with Lecturers about Own Projects	Individual Contacts with Lecturers about Own Projects	Individual Contacts with Lecturers about Own Projects	

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N 656760

Intended Learning Outcomes (ILOs) of the Lectures

1. **Bioresources definition, characteristics and potential**
   Prof. M. Narodoslawsky

Participants will understand the specific structure of bio-resource value chains and be able to identify the most important parameters of bio-resources with regard to their logistic and technological utilisation.

2. **Boosting Innovation: InnoEnergy's Innovation Readiness Level Tool**
   Joan-Marc Joval, InnoEnergy

This lecture provides a perspective on the dimensions, other than the technological, coming into play when bringing to maturity an innovation aiming at penetrating the sustainable energy market. When understanding these dimensions, The participants should be able to assess which elements are missing in their ideas, develop them to be structurally integrated in their projects, and develop better innovative ideas, services, processes and products that respond more efficiently to societal and market needs.

3. **Biorefinery concept**
   Dr. Luís C. Duarte, LNEG – National Laboratory of Energy and Geology

Participants will have a good working knowledge of biorefinery basic concepts and understand the main scientific, technical, political and economic constrains that prevent the biorefinery development in the past and relate it to the current situation.

4. **LCA of bioresource value chain**
   Prof. M. Narodoslawsky

Participants will be able to critically review ecological evaluation methods and apply them to bio-resource value chains.

5. **Biotechnological Aspects of Biofuels Production**
   Prof. B. Šantek, University of Zagreb

Participants will understand the biotechnological aspects of bio-ethanol, bio-butanol and bio-gas production, as well as the functioning of tubular bioreactors in biotechnology.

6. **Computer aided biorefinery processes design**
   Dr. Luís C. Duarte, LNEG National Laboratory of Energy and Geology

Participants will be familiar with the engineering of key processes, equipment and technical operating procedures.

7. **Analysis and Synthesis of the Biorefinery Process**
   Dr. Sandor Bartha, Green Energy Romanian Innovative Biomass Cluster

Participants will be able to design and evaluate same material balance scheme for a multiple component process used in biorefinery applications.

8. **Energy planning**
   Ass. Prof. G. Krajačić, N. Duić, University of Zagreb

Participants will understand energy planning of smart energy systems with a high share of renewable sources. Overview of energy planning tools for modelling of energy transition will be provided.

9. Smart Grids, Smart Meter and Smart Efficiency for a Sustainable Future

Prof. Lothar Fickert, TU Graz

Participants will be familiar with advantages and challenges of smart grid technologies and how this will lead to increase of energy efficiency.

10. Development and operation of power systems

Assoc. Prof. Andrej F. Gubina, University of Ljubljana

Participants will understand the concepts of the long-term security of power supply and power system operation under electricity market conditions. In particular, the Ancillary Services provision like control of frequency and voltage will be highlighted, including using renewable energy sources.

11. Green EU economy in the context of sustainable development

Assoc. Prof. Maarten Arentsen, University of Twente

Participants can critically work with the conceptual and the operational notion of sustainable development, and understand and are familiar with the basics of the EU biobased economy and the global and continental trade in biomass.