



International Winter School on:
*“AI-aided Methods for Multiscale Exergy
Analysis of Large Complex Systems”*



Constanta, Romania
Varna, Bulgaria
Bucharest, Romania

13-17 November 2023



Winter School Aim and Theme	Topics, Lectures and Lecturers
<p>The aim of the Winter School is to offer a holistic approach to the modelling, analysis, optimization and re-engineering of large complex systems and improvement of their energy efficiency based on a multiscale approach.</p> <p>The theme of the Winter School is to apply Exergy Analysis methods for the improvement of energy efficiency and the minimization of environmental impact of different systems starting from processes and equipment, large scale facilities up to regional and national economic systems. The systems that will be studied include Heat Exchangers, Fuel Cells, Batteries, Boilers, Solar Thermal Installations, District Heating Systems, Internal Combustion Engines, Maritime Vessels and National Economies.</p>	<p>Introduction to Exergy Analysis. Case Studies on Exergy Analysis of different Systems, Lecturer: Prof. Enrico Sciubba, PhD, Ovidius University of Constanta, Romania</p> <p>Multiscale Approaches to Energy Efficiency Analysis and Optimization, Exergy Analysis Case Studies on Internal Combustion Engines and Maritime Vessels, Lecturer: Prof. Eden Mamut, PhD, University of Bucharest, Romania</p> <p>Fuel Cells and Batteries: Fundamentals, Characteristics and Energy Efficiency, Lecturers: Prof. Ioan Stamatin, PhD, University of Bucharest, Romania & Cornelia Nichita, PhD, University of Bucharest, Romania</p> <p>Artificial Intelligence-aided Tools for Data Processing, Lecturer: Assoc. Prof. Gabriel Prodan, PhD, Ovidius University of Constanta, Romania</p>
<p>Members of Winter School Committee</p> <ul style="list-style-type: none"> ➤ Prof. Enrico Sciubba, PhD, Ovidius University of Constanta, Romania ➤ Prof. Eden Mamut, PhD, University of Bucharest, Romania ➤ Prof. Ioan Stamatin, PhD, University of Bucharest, Romania ➤ Assoc. Prof. Galina Ilieva, PhD, Technical University of Varna, Bulgaria ➤ Assoc. Prof. Gabriel Prodan, PhD, Ovidius University of Constanta, Romania ➤ Cornelia Nichita, PhD, University of Bucharest, Romania ➤ Laurentiu Oancea, PhD, Ovidius University of Constanta, Romania ➤ Prof. Roberto Melli, PhD, Ovidius University of Constanta, Romania ➤ Cornelia Nichita, PhD, University of Bucharest, Romania 	<p>Data Centers for Scientific Research and Engineering. Exergy Analysis Case Study on District Heating Plants, Lecturer: Laurentiu Oancea, PhD, Ovidius University of Constanta, Romania</p> <p>Building AI Applications. An Introduction to Expert Systems for Engineering, Lecturer: Prof. Roberto Melli, PhD, Ovidius University of Constanta, Romania</p>



Tentative program and schedule

	Monday November 13, 2023	Tuesday November 14, 2023	Wednesday November 15, 2023	Thursday November 16, 2023	Friday November 17, 2023
09:00 – 13:00 (4 hours)	Opening: Assoc. Prof. Galina lieva Prof. Enrico Sciubba Prof. Ioan Stamatina Prof. Eden Mamut	Expert Systems Prof. Roberto Melli	ExA 2 Prof. Enrico Sciubba	ExA of Heat Exchangers Prof. Enrico Sciubba	ExA of Maritime Vessel Prof. Eden Mamut
	ExA 1 Prof. Enrico Sciubba	Data Centers Dr. Laurentiu Oancea	ExA of Internal Combustion Engine I Prof. Eden Mamut	ExA of Heat Exchangers Prof. Enrico Sciubba	ExA of Thermal Plant Dr. Laurentiu Oancea
	ExA 1 Prof. Enrico Sciubba	AI in Energy & Maritime Engineering Assoc. Prof. Gabriel Prodan	Fuel Cells & Batteries I Prof. Ioan Stamatina & Dr. Cornelia Nichita	Fuel Cells & Batteries II Prof. Ioan Stamatina & Dr. Cornelia Nichita	ExA of National Economies Economy Prof. Enrico Sciubba
	Multiscale 1 Prof. Eden Mamut	AI in Energy & Maritime Engineering Assoc. Prof. Gabriel Prodan	ExA of Internal Combustion Engine II Prof. Eden Mamut	Fuel Cells & Batteries II Prof. Ioan Stamatina & Dr. Cornelia Nichita	ExA of National Economies Prof. Enrico Sciubba
					Closure