International Conference on Smart Innovations in Energy and Mechanical Systems (SIEMS-2025)

May 12 – 14, 2025 - Zaporizhzhia, Ukraine

Conference Agenda

As a Speaker

The conference will be held in a hybrid format. You can attend in person in Conference Hall (room 513) at National University Zaporizhzhia Polytechnic or in the Virtual Hall.

Zoom will be used for the SIEMS-2025 Virtual Hall. Participants can join using either the browser version or the mobile app.

The link to the Virtual Hall is

Day 1 – May 12, 2025 – Monday:
https://us02web.zoom.us/j/82713533709?pwd=WcaxeZciw3lihWJwdPWbXM8OBM9tu4.1 ID: 827 1353 3709, Passcode: 2025

Day 2 – May 13, 2025 – Tuesday
https://us02web.zoom.us/j/85354601881?pwd=yHkzZqDnTl6KDRRtrVHgtCax3K8iYb.1
ID: 853 5460 1881, Passcode: 2025

Day 3 – May 14, 2025 – Wednesday
https://us02web.zoom.us/j/88395799831?pwd=mBaWs9GpKBb8xiXgjWLZZaLo8GFyUf.1
ID: 883 9579 9831, Passcode: 2025

All sessions are held at Ukrainian time (GMT+3).

As a Listener

SIEMS-2025 will be broadcast on National University Zaporizhzhia Polytechnic YouTube channel. Please visit the following link to watch the sessions: https://www.youtube.com/@nuzp_official. You can subscribe to the channel and be notified regarding the planned sessions.

Agenda

Day 1 – May 12, 2025 – Monday	
10^{00}–12^{00}	Opening Ceremony
12^{00}–13^{00}	Time for Lunch
13^{00}–14^{45}	Session 1 – Digital and Intelligent Manufacturing Engineering
14^{45}–15^{00}	Technical Break
15^{00}–17^{00}	Session 1 – Digital and Intelligent Manufacturing Engineering
Day 2 – May 13, 2025 – Tuesday	
10^{00}–11^{00}	Session 1 – Digital and Intelligent Manufacturing Engineering
11^{00}–12^{00}	Session 2 – Artificial Intelligence and Digital Technologies in Engineering
12^{00}–13^{00}	Time for Lunch
13^{00}–14^{45}	Session 2 – Artificial Intelligence and Digital Technologies in Engineering
14^{45}–15^{00}	Technical Break
15^{00}–17^{00}	Session 3 – Innovative Aerospace Technologies and Unmanned Aerial Vehicles (UAVs)
Day 3 – May 14, 2025 – Wednesday	
10^{00}–12^{00}	Session 4 – Modern Electrical and Energy Systems
12^{00}–13^{00}	Time for Lunch
13^{00}–14^{45}	Closing Ceremony

All sessions are held at Ukrainian time (GMT+3).

Day 1 – May 12, 2025 – Monday

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10^{00}–10^{15} Opening Ceremony

Viktor GRESHTA
Professor, Ph.D., Rector of National University Zaporizhzhia Polytechnic (Ukraine)
Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

10^{15}–12^{00} Keynote Session

Chair: Alina KAZUROVA
Ph.D., Associate Professor, Head of the Center for Internationalization and International Cooperation, National University Zaporizhzhia Polytechnic
Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

Ingmar KALLFASS
Prof. Dr.-Ing., Director of the Institute of Robust Power Semiconductor Systems, University of Stuttgart (Germany)

Krystyna GOMÓŁKA
Prof. Dr. hab., Gdańsk University of Technology (Poland)

Omer RANA
Professor, Dean of International for the Middle East, School of Computer Science & Informatics, Cardiff University (Wales, United Kingdom)

Stephan TRAHASCH
Prof. Dr., Rector of Offenburg University of Applied Sciences (Germany)

Oleksandr AZIUKOVSKYI
Ph.D., Professor, Rector of National TU Dnipro Polytechnic (Ukraine)

Yevgen SOKOL
DSc., Professor, Rector of National Technical University "Kharkiv Polytechnic Institute" (Ukraine)

Oleh SKYDAN
DSc., Professor, Rector of Polissia National University (Ukraine)

Larisa IVANCHENKOVA
DSc., Professor, Rector of Odesa National University of Technology (Ukraine)

Gennady OBORSKY
DSc., Professor, Rector of Odessa National Polytechnic University (Ukraine)

Volodymyr ONYSHCHENKO
DSc., Professor, Rector of National University "Yuri Kondratyuk Poltava Polytechnic" (Ukraine)

Anatolii MELNYCHENKO
DSc., Professor, Rector of National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)

Sergiy OKOVYTYY
DSc., Professor, Rector of Oles Honchar Dnipro National University (Ukraine)

Eugeniy TRUSHLIAKOV
DSc., Professor, Rector of Admiral Makarov National University of Shipbuilding (Ukraine)

Victor BILICHENKO
DSc., Professor, Rector of Vinnytsia National Technical University (Ukraine)

Mykola MYTNYK
Ph.D., Associate Professor, Rector of Ternopil Ivan Pului National Technical University (Ukraine)

Eduard KONDRATIUK
Ph.D., Chief Technologist, Ivchenko-Progress SE (Ukraine)

Igor ZOBENKO
Head of the Chief Technologist's Department, Motor Sich JSC (Ukraine)

Andrii KUTS
Ph.D., Associate Professor, Vice President of Zaporizhzhya Chamber of Commerse and Industry (Ukraine)

Eduard TROTSENKO
CEO INFOCOM LTD (Ukraine)

Oleksandr YURCHAK
Head of Ukrainian Cluster Alliance / CEO of Association of Industrial Automation of Ukraine (Ukraine)

Yuriy VNUKOV
DSc., Professor, Los-Angeles (USA)

Eric BECHHOEFER
Ph.D., CEO/Chief Engineer GPMS International Inc (USA)

Peter ARRAS
Dr. ing. Prof. h.c., Faculty of Engineering Technology, Department of machine building, KU Leuven (Belgium), Honorary professor, National University Zaporizhzhia Polytechnic (Ukraine)

12^{00}–13^{00}	***Time for Lunch***
13^{00}–14^{45}	***Session 1 – Digital and Intelligent Manufacturing Engineering***

Chair: Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)
Olena KOZLOVA
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

Surface and Corrosion Properties of SS 304 Alloy Processed by Ultrasonic Impact Peening, Submerged Laser Peening, Cavitation and Wet Shot Peening
Dmytro Lesyk, Hitoshi Soyama, Bohdan Mordyuk, Krishnan Raja, and Indrajit Charit

Improving the Physical-mechanical and Physical-chemical Characteristics of Synthetic Diamonds to Increase the Efficiency of Diamond Grinding Tools
Volodymyr Smokvyna, Halyna Ilnytska, Nona Oleinik, Grygorii Petasyuk, and Valerii Lavrinenko

Creating Wave Transmissions with a Flexible Magnetic Element and a Non-contact Magnetic Generator
Mykola Riabchykov

An Experimental Study on Vibration Excitation Conditions During Turning
Pavlo Tryshyn, Olena Kozlova, Natalia Chernovol, and Yuriy Vnukov

Modelling of the Amplitude Response of the Process of Thermo-deformation Treatment of Flat Surfaces of Machine Parts
Volodymyr Gurey, Ihor Hurey, Tetyana Hurey, Marian Bartoszuk, and Rostyslav Hera

14^{45}–15^{00}	***Technical Break***
15^{00}–17^{00}	***Session 1 – Digital and Intelligent Manufacturing Engineering***

Chair: Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)
Olena KOZLOVA
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

Enhancement of Surface-Layer Residual Stress Distribution and Surface Roughness in Ti-6Al-4V Components Using High-Speed Milling and Vibropolishing
Dmytro Pavlenko, Yuriy Torba, Igor Fedorov, Yevhen Vyshnepolskyi, and Larysa Tumarchenko

Impact of Overlapping Method on Cutting Forces and Surface Formation in End Milling of Thin-walled Parts
Serhii Kononenko, Sergey Dobrotvorskiy, Yevheniia Basova, Dmytro Trubin, and Rafał Talar

Feed Rate Influence Research on the Machined Surface Waviness Parameters in End Up Milling of Thin-Walled Parts
Sergey Dyadya, Mykhaylo Frolov, Serhiy Tanchenko, Vasyl Solokha, and Denys Yakhno

Simulation of the Forming Scheme during Deforming Broaching of Parts with Through Deformation

Yakiv Nemyrovskyi, Valentin Otamanskyi, Ihor Shepelenko, Oleksandr Melnyk, and Yaroslav Stepchyn

Surface Quality and Wear Behavior of Aviation Nickel Alloy After Wire-EDM and Ultrasonic Finishing

Bohdan Mordyuk, Oleksiy Podobnyi, Dmytro Pavlenko, Vadim Zakiev, and Dmytro Lesyk

Day 2 – May 13, 2025 – Tuesday

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10^{00}–11^{00} Session 1 – Digital and Intelligent Manufacturing Engineering

Chair: Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)
Natalia HONCHAR
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

Metrological Aspects of the Thermographic Study of the Turning Process
Gennadii Oborskyi, Volodymyr Goloborodko, and Liudmyla Perperi

Computational and Experimental Studies on Contact Interaction of Mock-up Samples of Complex-profiled Bodies
Mykola M. Tkachuk, Olena Zinchenko, Andriy Grabovskiy, Volodymyr Sierykov, and Anton Vasiliev

Reliability Assessment of Hoisting Mechanisms at Fuzzy Initial Information
Danny Shulman, Svetlana Kruzhnova, Olha Omelchenko, Nataliia Shaleva, and Oleksiy Omelchenko

11^{00}–12^{00} Session 2 – Artificial Intelligence and Digital Technologies in Engineering

Chair: Natalia HONCHAR
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)
Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)

New Neuro-mathematical Model to Optimize the Energy Distribution of Piston Engines in Hybrid Vehicles
Vitaliy Krivda, Ievgen Medvediev, Olha Sakno, Kostiantyn Kornilenko, and Dmitriy Muzylyov

Intelligent Forecasting for Renewable Energy Systems in Island Mode: a Machine Learning Approach
Yulii Horichenko, Anzhelika Parkhomenko, Carsten Wolff, Oleg Pozdnyakov, and Artem Tulenkov

Methods for Reducing the Dimension and Expanding the Functionality of Control Automata of Systems
Mykhailo Poliakov, Andrey Pirozhok, Anton Riabenko, and Olekcii Poliakov

12^{00}–13^{00} Time for Lunch

13^{00}–14^{45}	***Session 2 – Artificial Intelligence and Digital Technologies in Engineering***

Chair: Alina KAZUROVA
Ph.D., Associate Professor, Head of the Center for Internationalization and International Cooperation, National University Zaporizhzhia Polytechnic
Dmytro PAVLENKO
D.Sc., Professor, Head of the Aviation Engine Technology Department, National University Zaporizhzhia Polytechnic (Ukraine)

Synergy of Blockchain and Artificial Intelligence for Decentralized Smart Energy Management
Volodymyr Pavlenko, Ihor Ponomarenko, Oksana Morhulets, Dmytro Ponomarenko, and Dmytro Danylchenko

Web-based Control System for Laboratory Electromechanical Elevator Installation
Grygorii Diachenko, Ivan Laktionov, Dmytro Yakupov, Roman Borovyk, and Oleksii Yalanskyi

Consideration of the CVSS Base Metrics in Building a Mathematical Routing Model Concerning Route Vulnerabilities for Engineering Systems
Ganna Pliekhova, Serhii Neronov, Tetiana Volkova, Natalia Ptytsia, and Volodymyr Kuzhel

Prediction of Antifriction Characteristics of Epoxyfuran Coatings Using an Artificial Neural Network
Petro Stukhliak, Oleh Yasniy, Oleg Totosko, and Danylo Stukhliak

SMART Technologies for Greenhouse Climate Control
Mykhailo Zaluzhnyi, Olena Nazarova, Oleksandr Malyi, and Nataliia Furmanova

14^{45}–15^{00}	***Technical Break***
15^{00}–17^{00}	***Session 3 – Innovative Aerospace Technologies and Unmanned Aerial Vehicles (UAVs)***

Chair: Dmytro PAVLENKO
D.Sc., Professor, Head of the Aviation Engine Technology Department, National University Zaporizhzhia Polytechnic (Ukraine)
Alina KAZUROVA
Ph.D., Associate Professor, Head of the Center for Internationalization and International Cooperation, National University Zaporizhzhia Polytechnic

Methodology for Assessing the Efficiency of Generated UAV Flight Route Plans for Optimal Selection
Alina Artomova, and Ihor Artomov

Information Transmission Methods for Coordinating and Controlling UAV Swarm Flights
Iegor Sopov, Alina Artomova, and Hanna Miroshnychenko

Classification of Autonomous UAV Control Systems Review
Yevhen Shcheholskyi

Analysis of Modern Approaches to Approbation of Aircraft Parts Geometric Data Digitization by Reverse Engineering

Kateryna Maiorova, Ihor Lysochenko, Oleksandr Skyba, Artem Suslov, and Viktor Antonyuk

Technological Support for Reverse Engineering of Parts Using Additive Methods

Alexander Permyakov, Ihor Yakovenko, Yevheniia Basova, Tenhiz Hrdzelidze, and Oleksandr Jr. Permyakov

Day 3 – May 14, 2025 – Wednesday

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10^{00}–12^{00} Session 4 – Modern Electrical and Energy Systems

Chair: Alina KAZUROVA
Ph.D., Associate Professor, Head of the Center for Internationalization and International Cooperation, National University Zaporizhzhia Polytechnic
Olena NAZAROVA
Ph.D., Associate Professor, Head of the Children and Youth Scientific University of the National University Zaporizhzhia Polytechnic (Ukraine)

Investigation of Stator Voltage Oscillations in an Asynchronous Motor within a High-Frequency Specialized Electric Drive
Volodymyr Zinovkin, Oleksandr Solomakha, Yurii Krysan, Alina Kazurova, and Mykola Antonov

Modeling the Electrical Impedance of Spherical Piezoceramic Devices for Microelectronic Systems
Constantine Bazilo, Vitalii Andreiko, Victor Antonyuk, Iuliia Bondarenko, and Maksym Bondarenko

Peculiarities of Determination of Inductances of an Induction-Synchronous Electromechanical Converter in Short-Circuit Mode by 3D Field Simulation Methods
Mykhailo Kotsur, Dmytro Yarymbash, Igor Kotsur, and Yulia Bezverkhnia

Efficacy Evaluation of High-Power Dual-System Wind Turbines
Petro Andrienko, Dmitriy Alekseevskiy, Viktor Greshta, Olexander Blyzniakov, and Olga Nemykina

Methodology for Determining the Optimal Operating Mode of Energy Storage Systems in Industrial Enterprises
Alexander Shram, Kateryna Bratkovska, Yulia Liush, and Dmytro Politaiev

12^{00}–13^{00} Time for Lunch

13^{00}–14^{45} Closing Ceremony

Vadim SHALOMEEV
Professor, Ph.D., Vise-Rector of National University Zaporizhzhia Polytechnic (Ukraine)
Pavlo TRYSHYN
Ph.D., Associate Professor, National University Zaporizhzhia Polytechnic (Ukraine)