



# TREATY



**DISSEMINATION ACTIVITY OF THE  
PROJECT AT THE TECHNICAL TRAINING  
COURSE "TECHNOMAY 2024"**

**Nurturing deep tech talents  
for clean and sustainable  
energy transition.**

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# THE TECHNICAL TRAINING COURSE "TECHNOMAY 2024"

On May 20-31, on the initiative of the Dmytro Motornyi Tavri State University of Agricultural Technology, the engineering and technical training course "TechnoMay 2024" took place.



A wide range of scholars, scientists, educators, and engineers from all over Ukraine are invited to participate. Among the partners who actively participated in the organization of the event are higher education institutions of Ukraine: Kherson National Technical University, Lviv National Environmental University, Chernihiv Polytechnic National University, National University of Life and Environmental Sciences of Ukraine.

➤ [Learn more](#)

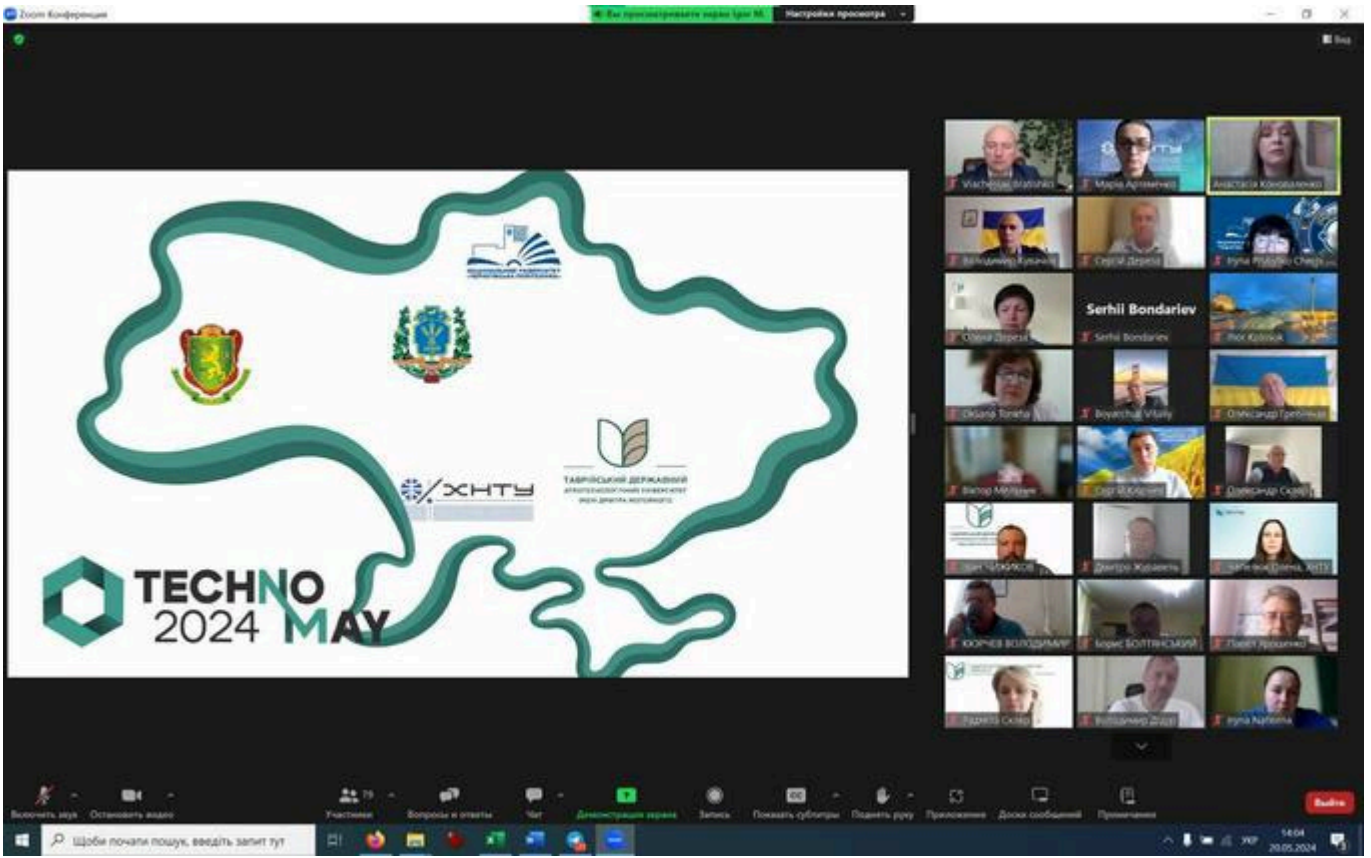
## THE TECHNICAL TRAINING COURSE "TECHNOMAY 2024"

### *The aim of the course:*

The course aims to become a theoretical and practical addition to the knowledge and skills of specialists in the field of modern engineering. Every day for two weeks, engineering and technical teachers bring their vision, and train participators in a cycle of seminars, and master classes.

➤ [Learn more](#)





## YURII ROMASEVICH REPORT OPENED THE SESSION



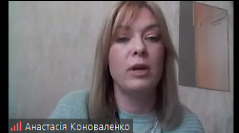
### Сучасні методи оптимізації та їхнє застосування у задачах робототехніки і системах штучного інтелекту

**Юрій Ромасевич**

д.т.н., професор кафедри конструювання машин і обладнання, заступник декана з наукової роботи факультету конструювання та дизайну НУБіП



Низкая пропускная способность сети



Анастасія Коноваленко

Вход

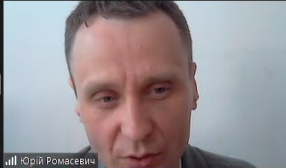
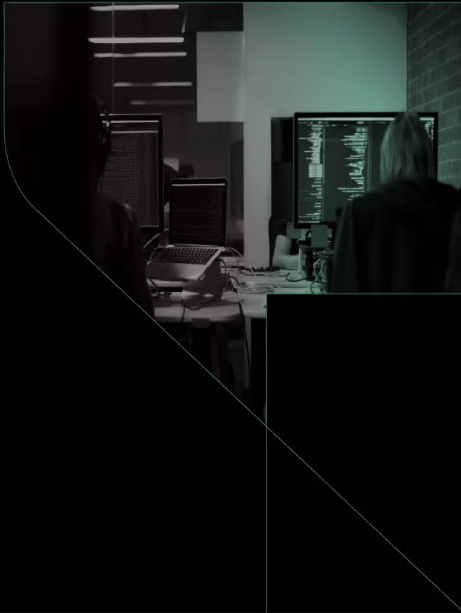
# YURII ROMASEVICH REPORT

Zoom Конференція | Вы просматриваете экран Юрия Ромасевича | Настройки просмотра

Запись

**TREATY**

**MODERN OPTIMIZATION METHODS**



Спонсоры: EIT Climate-KIC, Funded by the European Union, EIT HEI Initiative at DTU

Включить звук | Начать видео | Участники (106) | Вопросы и ответы | Чат | Демонстрация экрана | Запись | Показать субтитры | Поднять руку | Приложения | Доски сообщений | Примечания | Выйти

14:56 20.05.2024

Zoom Конференція | Вы просматриваете экран Юрия Ромасевича | Настройки просмотра

Запись

**TREATY** **EIT HEI Initiative** **DTU**

**Optimization Methods**

- Introduction to optimization problems
  - What is a model?
  - Which model is the best?
  - What is an objective function?
  - What is a constraint?
  - Feasible solution and region
- Single-objective optimization problems
  - Fundamental concepts of single-objective optimization
  - Linear programming
  - Mixed-integer linear programming
  - Non-linear programming
- Multi-objective optimization problems
  - Necessity of using multi-objective optimization
  - Fundamental concepts of multi-objective optimization (efficient, efficient frontier, and dominance)
  - Pareto optimality
  - Noninteractive approaches
    - Basic approaches
    - No-preference approaches
    - A priori approaches
    - A posteriori approaches
  - Interactive approaches
    - Selection of the final solution by using a fuzzy satisfying method
    - Conservative methodology
    - Distance Metric Methodology
- Optimization Lab in MATLAB and GAMS
  - Techniques for solving single-objective optimization problems
    - Stochastic methods
      - Particle swarm optimization
      - Harmony search algorithm

**Certificate of Achievement**

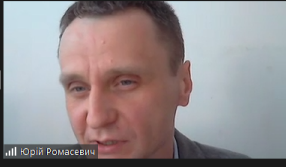
**Yuriy Romasevych**

Has Participated and Successfully Completed the "Optimization Methods for Energy System Studies" course, held by EIT HEI Initiative and Organized by the Technical University of Denmark, from April 2023 to April 12th.

Ahmed Alshabaneh  
Ahmed Alshabaneh, Senior Researcher  
April 10, 2024

**TREATY**

Metaheuristic optimization algorithms PSO and HS



Включить звук | Начать видео | Участники (107) | Вопросы и ответы | Чат | Демонстрация экрана | Запись | Показать субтитры | Поднять руку | Приложения | Доски сообщений | Примечания | Выйти

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# YURII ROMASEVICH REPORT

## THE SCIENTIFIC WORK SUPPORT WITHIN TREATY

### *TREATY activities:*

Part of the TREATY project is the transfer of knowledge and expertise on different scientific research from NULES to the other partner institutions, which aims to establish structures that will strengthen the links of education and research with the industry, setting the ground for the creation of a comprehensive ecosystem that will nurture and guide aspiring entrepreneurs.

➤ [Learn more](#)

## YURII ROMASEVICH REPORT

The report “Modern methods of optimization and their application in problems of robotics and artificial intelligence” by professor Y. Romasevich opened the session. Professor Y. Romasevich demonstrated the technology of using artificial neural networks to control the movement of robot systems, to plan trajectories of their movement, and to predict the dynamics of the movement of robotic systems. Nevertheless, the main emphasis in the report was given to metaheuristic methods of optimization (particle swarm optimization PSO, differential evolution DE) and their application for solving optimization problems in engineering.

Professor Y. Romasevich also stressed the contents of the optimization course, provided by the HEI-TREATY project participations (DTU) and gave the basic information about TREATY goals.

## RESULTS OF THE COURSE

The complete version of the information about TechnoMay course is available at the following links:

<http://www.tsatu.edu.ua/technomay-2024-prohrama-pidvyschennja-kvalifikaciji-na-temu-suchasna-inzhenerija/>

<https://sites.google.com/tsatu.edu.ua/technomay2024>

➤ [Learn more](#)

[treaty-project.eu](http://treaty-project.eu)



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