

Project Erasmus+ CONN'COR  
no. 2024-1-FR01-KA220-HED-000250882  
WP4: Strengthening cooperation with Ukrainian  
universities and use its experience of working  
and implementing projects under difficult conditions

Activity R4.4 Sharing experience in running projects and teaching students in difficult conditions



## The Energy Sector of Ukraine from the Perspective of Teaching Electrical Engineering Disciplines During Wartime

Wednesday 5<sup>th</sup> of March 2025 at 2PM on MSTeams

[https://teams.microsoft.com/l/meetup-join/19%3ameeting\\_NDg2MDUzMTUtYjg5YS00MDIhLTlZmMtNTZhZmMyNmFmNTk5%40thread.v2/0?context=%7b%22Tid%22%3a%227631cd62-5187-4e15-8b8e-ef653e366e7a%22%2c%22Oid%22%3a%2201cd6a19-7fda-4d9e-968e-d2cb474a6e61%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_NDg2MDUzMTUtYjg5YS00MDIhLTlZmMtNTZhZmMyNmFmNTk5%40thread.v2/0?context=%7b%22Tid%22%3a%227631cd62-5187-4e15-8b8e-ef653e366e7a%22%2c%22Oid%22%3a%2201cd6a19-7fda-4d9e-968e-d2cb474a6e61%22%7d)

### Abstract

In the face of unprecedented challenges, Ukraine's energy sector has become a critical arena for innovation, resilience, and adaptation. This lecture explores how the realities of war have impacted energy infrastructure and how electrical engineering education is evolving to address these pressing challenges.

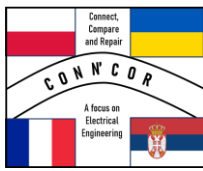
### Key Topics:

- The current state of Ukraine's energy sector, its vulnerabilities, and the impact of wartime destruction.
- Emergency restoration efforts, decentralized power solutions, and long-term strategies for energy stability.
- The evolving role of electrical engineers in crisis response and energy security.
- Curriculum adaptations to teach resilience, cybersecurity, and emergency energy solutions.

This lecture will offer insights into the essential role of engineers in energy restoration and the importance of education in preparing future professionals to meet real-world challenges. Join us to learn how Ukraine's experience is shaping the future of electrical engineering education in wartime and beyond.

**Audience:** Educators, electrical engineering students, and energy professionals interested in understanding the intersection of education and crisis-driven innovation.

#EnergySector #ElectricalEngineering #Ukraine #WartimeEducation #EnergyResilience  
#RenewableEnergy #CrisisInnovation



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### **Detailed plan of the lecture:**

#### **1. Introduction**

- Ukraine in Wartime
- The role of electrical engineers in maintaining and restoring power infrastructure
- Challenges faced due to wartime destruction and instability

#### **2. The Current Situation in the Energy Sector of Ukraine**

- Overview of Ukraine's energy sector (main energy sources, production, and distribution)
- Dependence on different types of power generation (nuclear, thermal, hydro, renewable)
- The effects of war on energy production and distribution

#### **3. The Condition of Ukraine's Energy Infrastructure**

- Key energy facilities and networks (power plants, substations, transmission lines)
- Level of destruction and vulnerabilities

#### **4. Impact of Damage on the Power Supply System**

- Consequences of damaged power plants and grids
- Power outages and their effect on civilian and industrial sectors
- Emergency response mechanisms and blackout management strategies

#### **5. Measures to Restore and Stabilize Power Supply**

- Immediate emergency restoration efforts
- Use of decentralized power sources (diesel generators, battery storage, microgrids)
- Long-term strategies: grid modernization, smart grid technologies, renewable energy integration

#### **6. Teaching Electrical Engineering Disciplines in Wartime Conditions**

- Adapting the curriculum to current energy challenges
- Practical case studies: how engineers restore and maintain power under crisis conditions
- Remote learning solutions and hands-on experience under constraints

#### **7. New Topics for Teaching Electrical Engineering**

- Wartime energy resilience and emergency power solutions
- Grid protection and cybersecurity in conflict zones
- Innovations in energy storage and distribution for high-risk areas

#### **8. Conclusion**

- The critical role of electrical engineers in energy security
- The importance of adapting education to real-world energy challenges
- Encouraging students to contribute to energy restoration and future resilience