

SUCCESS CASE 14.2025

**Professional MSc in
«Modern Electricity
Distribution Networks –
HEDNO»**

ΕΠΑΓΓΕΛΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
ΣΥΓΧΡΟΝΑ ΗΛΕΚΤΡΙΚΑ ΔΙΚΤΥΑ ΔΙΑΝΟΜΗΣ
ΔΕΔΔΗΕ



ΠΑΝΕΠΙΣΤΗΜΙΟ
ΔΥΤΙΚΗΣ ΜΑΚΕΔΟΝΙΑΣ

CONTEXT AND CHALLENGES

HEDNO S.A. (Hellenic Electricity Distribution Network Operator S.A.), as the sole **Distribution System Operator (DSO)** in Greece, is a critical organization in the country's energy landscape. Its key operational metrics include:

- Managing a **250,000 km electricity network** that serves over **8 million customers**.
- Holding **distribution network assets** valued at €4.8 billion (undepreciated).
- Employing **5,820 permanent staff**, primarily electrical engineers and electrotechnicians.

Despite the availability of undergraduate and postgraduate programs in electrical engineering offered by Greek universities, none sufficiently address or focus on the unique technical and operational aspects of **electricity distribution networks**. Moreover, the operation of these networks is not covered at any level of the Greek education system. As a result, HEDNO faces a significant challenge in sourcing a workforce with the required skills for direct integration into its operations.

To address this issue, HEDNO operates two specialized training schools that provide structured programs to both new hires and existing staff, certified under **ISO 17024**. These programs are tailored to internal technical guidelines, regulations, and laws, ensuring participants gain the foundational knowledge and skills to work safely and efficiently.

Simultaneously, HEDNO is undergoing a **comprehensive transformation**, modernizing the grid through the adoption of **new technologies, tools, and processes**. This modernization necessitates not only internal development and upskilling initiatives but also partnerships with reputable academic institutions to upskill electrical engineers while offering opportunities for internationally recognized credentials.

THE SOLUTION

To meet the increasing demand for specialized knowledge aligned with the company's modernization goals, HEDNO has partnered with the **University of Western Macedonia (UOWM)** to establish a **Professional Postgraduate Program (PPP)** titled “**Modern Electric Distribution Networks – HEDNO**”. This program, Greece's first PPP of its kind, leverages the provisions of **Law 4957/2022** and aims to connect industry needs with the academic community.

OBJECTIVES

The postgraduate program is designed to:

- Enhance the professional qualifications of HEDNO's electrical engineers.
- Provide advanced, specialized knowledge tailored to the evolving requirements of electricity distribution networks.
- Strengthen HEDNO's operational capacity to modernize its grid and meet future energy challenges.

PROGRAM STRUCTURE

- **Duration:** 14 months, culminating in an internationally recognized **Master of Science (MSc)** degree.
- **Curriculum:** A comprehensive mix of coursework, workshops, and a thesis project.
- **Locations:** Classes are held biweekly at UOWM facilities and HEDNO's training centers in **Anixi (Attica)** and **Florina**.

LECTURERS AND INDUSTRY COLLABORATION

- Each course is co-taught by **UOWM faculty** and senior **HEDNO executives**, ensuring a balanced perspective that bridges theory and practice.
- Guest speakers, including leading industry experts, regularly contribute, while field visits to relevant companies and infrastructure enhance practical learning.

ADMISSIONS

The program admits 55 participants per cycle, allocated as follows:

1. **40 HEDNO employees** nominated by the company.
2. **10 graduates** from recognized universities in relevant disciplines.
3. **5 additional participants** selected by UOWM in alignment with HEDNO's criteria.



SPECIALIZATIONS

Participants select one of two specializations at the beginning of the second semester:

1. Specialization 1:

- Focused on preparing engineers for the operation and management of **modern distribution networks**.
- Topics include integration of **distributed generation** and **energy storage technologies** (e.g., batteries, electrification).

2. Specialization 2:

- Designed for advanced training in **next-generation smart grids**.
- Topics include **dynamic pricing, demand-side management, microgrids, and cybersecurity**.

DIPLOMA THESIS

- The thesis, completed during the third semester, focuses on applied research addressing **HEDNO's operational challenges**.
- Research topics are defined in collaboration with academic supervisors and HEDNO management.
- Projects involving laboratory work adhere to strict safety protocols and are closely supervised.

PROGRAM EVALUATION

The effectiveness of the PPP is reviewed semi-annually by both HEDNO and UOWM to ensure alignment with organizational and strategic goals.

KEY ACHIEVEMENTS

- **Positive Feedback:** Participants report high satisfaction levels, increased motivation, and no dropout cases in the first year.
- **Research Outputs:**
 - Publications in **peer-reviewed conferences** and **high-impact journals (SCIMAGO Q1–Q3)**.
- **Knowledge Dissemination:**
 - Public lectures by distinguished speakers.
 - Workshops focused on global best practices.
- **Knowledge Repository:** Creation of a comprehensive database for HEDNO's technical expertise, fostering institutional memory.

- **R&D Development:** The program has cultivated a culture of **research and development (R&D)** within HEDNO.
- **Corporate Social Responsibility (CSR):** Contributes to the professional growth of HEDNO employees and external graduates, reinforcing HEDNO's CSR commitments.

CRITICAL SUCCESS FACTORS

The program's success is driven by:

1. **Academia-Industry Collaboration:** Seamlessly integrating academic and industry expertise to tackle practical challenges.
2. **Government Support:** Leveraging legislative frameworks to facilitate industry-academic partnerships.
3. **Model Initiative:** Setting a benchmark for similar programs in the energy sector.
4. **Knowledge Creation:** Combining academic theory with technical expertise to meet operational needs.
5. **Career Advancement:** Enhancing participants' career prospects within and beyond HEDNO.

NEXT STEPS

To build on the program's success, the following initiatives are planned:

- **Institutionalization:** Expand and establish the program as a permanent fixture in HEDNO's workforce development strategy. The first cohort is nearing completion, and plans for the second are underway.
- **Research Expansion:** Develop additional thesis topics aligned with HEDNO's technical challenges.
- **Advanced Certifications:** Introduce new certifications, such as:
 1. Installation and maintenance of **electric vehicle charging stations (AC & DC)**.
 2. Energy management for **prosumers** using the KNX protocol.
- **Program Expansion:** Open the postgraduate program to employees from other electricity providers and **international participants**, particularly targeting European DSOs.

By fostering continuous learning, strengthening industry-academic ties, and addressing workforce challenges, this program positions HEDNO as a leader in the modernization of electricity distribution networks.

