

POST-ACADEMIC COURSE

TRANSMISSION GRIDS, HVDC AND UNDERGROUND CABLES

20 JANUARY 2025 – 12 MAY 2025



GHENT
UNIVERSITY



TRANSMISSION GRIDS, HVDC & UNDERGROUND CABLES

20 JANUARY 2025 – 12 MAY 2025

Transmission grids are rapidly evolving due to the rise of renewable energy sources and the key role of electrification in the energy transition. In Europe, energy generation from offshore wind continues to increase, with an installed capacity that will reach 300 to 450GW by 2050. Additional transmission capacity is vital to bring electric power onshore and to main load centres. With the reinforcement and expansion of the transmission grid, underground cables come into the picture as a viable solution, gaining public acceptance as opposed to overhead lines. Furthermore, high voltage direct current (HVDC) systems are being considered and under construction worldwide to expand the electric power system and to accommodate the integration of renewable energy sources.

This course offers a balanced introduction to transmission grids and its components, with a focus on vital technologies for future grids: underground cables and HVDC. By the end of this course, participants will have a solid understanding of the transmission grid, its challenges, and emerging solutions.

🔊 TARGET AUDIENCE

⇒ This course is aimed at engineers that want to reorient and power system professionals that want to broaden their knowledge. You will dive into the latest advancements in transmission systems, learn from industry experts, and understand the key technologies shaping the future of power systems.

🔊 LECTURERS

⇒ Jef Beerten (KU Leuven), Johan Beets (Omicron), Thierry Capelle (Nexans), Geraint Chaffey (KU Leuven), Wim De Smet (Elia), Hakan Ergun (KU Leuven), Michael Kleeman (KU Leuven), Didier Liemans (Nexans), Rick Loenders (KU Leuven), Amauri Martins-Britto (KU Leuven), Ralf Meier (NKT), Johan Rimez (Elia), Dirk Van Hertem (KU Leuven), Koen Van Peteghem (Pauwels Trafo), Lieven Vandeveld (Ghent University), Joachim Vermunicht (KU Leuven) & Stefaan Vleeschouwers (Hitachi).

🔊 PROGRAMME

⇒ MODULE 1: POWER SYSTEMS AND BASIC CONCEPTS

This module introduces the fundamentals of power systems, covering generation, loads and transmission grids.

⇒ MODULE 2: UNDERGROUND CABLE SYSTEMS

This module delves into the intricacies of cable technology, transmission line theory, and cable auxiliaries like cable joints..

⇒ MODULE 3: PROTECTION, PLANNING AND OPERATION

This module introduces key concepts for the safe and continuous operation of transmission grids.
With hands-on workshops in the EnergyVille labs.

⇒ MODULE 4: HVDC INTRODUCTION AND TECHNOLOGY

This module gives a general and technical introduction to HVDC, intended for participants with a wide range of backgrounds.

🔊 PRACTICAL

⇒ **Fee:** price per module (modules 1 and 3 can't be followed separately) -> € 625,- | All (4) modules -> € 2.250,-

⇒ **Reduction for multiple subscriptions, PhD students, members of Flux50 & partners of Etch.**

⇒ **Location:** Odisee Brussels, Ghent University (UGain, Zwijnaarde), Energy Ville 1 (Gent), National Control Centre Elia (Brussel).

This course is a collaboration between UGain and Etch, the Energy Transmission Competence Hub of EnergyVille.