

Protection of electrical power systems

Subject area: Electrical Engineering

University: DTU
Level: BA3, BA4, MA1
Teaching mode: hybrid: some students participate online, other students attend real-life
Instructor(s): Peter Jan Randewijk (petra@dtu.dk)

Short description

To provide the student with basic knowledge and skills regarding methods of protection against various types of faults that can occur on an electrical power system. This includes: General protection philosophy, Instrumentation transformers, Grounding, Over current - (definite time and inverse definite time), Zone and Backup -, Distance -, Pilot -, Bus -, Transformer -, Capacitor bank -, Generator - and Motor protection

Full description

<https://kurser.dtu.dk/course/62700>

Learning outcomes

A student who has met the objectives of the course will be able to:

- * Understand the possibilities and limitations of different principles of protection
- * Be able to pick a suitable principle of protection
- * Be able to select and do relevant calculations for use with setting up of protection gear
- * Have an understanding of how relays and other protection devices work
- * Have an understanding of how relays and other protection equipment are set up and tested
- * Be able to pick current transducers and voltage transducers for use with relays and other equipment
- * Understand principles for determination of fault type
- * Have an understanding for the practical implementation of strategies of protection

General information

Contact hours per week: 4
Total workload: 125 (in student hours for the whole course)
ECTS credits: 5

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| Language: | English |
| Course start date: | 01 September 2022 |
| Course end date: | 22 December 2022 |
| Add. info about start date: | |
| Weekly teaching day/time: | Thursdays, 08:00-12:00 |
| Time zone: | CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic) |
| Further information: | |
| Prerequisites: | Power System Course(s) that taught basic load flow analysis and fault calculations |
| Activities and methods: | Lectures, Group work, Lab-work, Self-study, Exercises |
| Presence on campus: | Lab equipment and engineering software programs accessible via VPN connection |

Final examination

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| Form: | oral |
| Date: | |
| Location/format: | TBA - between 5/12 2022 - 22/12 2022 |
| Re-sit possibility: | yes |
| Transcript available: | end of semester |
| Add. info/requirements: | Will use OneNote for online students to draw schematics/pictures during the oral examination. |

Registration

To register for this course, follow the registration requirements of your **home university** as specified here: www.euroteq.eu/courses-registration.

Administration

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| Number of places: | 12 |
| Minimum participants: | N/A |
| Internal course code: | 62700 |

Contact: Institute for Engineering Technology

This course is part of the EuroTeQ Engineering University joint course catalogue 2022/2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit www.euroteq.eu or get in touch with the above-mentioned point of contact.