Course: Power System Design — credits: 10

Course code	ENDH20PSD
Name	Power System Design
Study year	2026-2027
ECTS credits	10
Language	Dutch, with parts in English
Coordinator	A. Hoogerwerf
Modes of delivery	Education
Assessments	Elektrische aandrijvingen - Assignment Power System Design - Assignment

Learning outcomes

- The student can calculate the energy and powers related to energy conversion.
- The student can calculate the effective voltages and currents in energy networks.
- The student can apply the law of induction to deduce the characteristics of generators and transformers.
- The student can calculate the currents, voltages, and power of 3-phase electricity networks.
- The student can describe the components comprising an electricity network and knows the functions and characteristics of these components.
- The student can design an electricity network based on user specifications.

Content

- Different energy sources (fossil fuels, renewable energy, nuclear energy, cogeneration)
- The relationship between different types of energy (kinetic energy, heat, electric potential energy) and the energy conversions.
- Electric work, power, electric and mechanical power in AC and DC networks
- Power factor, active power, idle power, and apparent power in 1 and 3-phase networks.
- Applications of the law of induction for the basic components of an electricity network (generators and transformers),
- Transport and distribution of electricity (different types of electricity networks, lines and cables, transformers, protection)
- Network simulations (load-flow calculations, short-circuit calculations)

Included in programme(s)

Electrical Engineering

School(s)

Engineering, Life Sciences & ICT

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