Course: Electrical Drive Technology — credits: 5

Course code	ELVH17GEA
Name	Electrical Drive Technology
Study year	2022-2023
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	A. Hoogerwerf
Modes of delivery	Lecture Practical / Training
Assessments	Electrical Drive Technology - Assignment

Learning outcomes

- Determine the influence of voltages and frequencies on magnetic behaviour for each component, as well as magnetic losses.
- Determine the parameters of transformers and draw vector diagrams for transformer circuits.
- Determine parameters of direct-current machines with a shunt or series field using a given torque/speed curve, as well as draw the torque/speed curve from given parameters.
- Determine the point of operation of synchronous machines in a static situation, using given parameters, as well as determine parameters from measurements.
- For asynchronous machines, determine the relationship between given parameters in an equivalent-circuit diagram and the torque/speed curve.
- For asynchronous machines, interpret torque/speed curves regarding starting, stopping, controlling speed combined with given load curves of machines.

Content

- Magnetic phenomena in electrical machines. Behaviour of soft and hard magnetic materials and their losses.

- Structure of 3-phase systems and their vector diagrams.

- The following technical components:
- 1 and 3-phase transformers
- Direct-current machines with shunts and series winding
- Synchronous machines
- 3-phase asynchronous motors

-Topics that will be covered for each component:
- Parameters, descriptive formulas and equivalent-circuit diagrams
- Construction and structure
- Torque/speed curves in static situations for rotating components
- Methods of starting and stopping rotating components
- Interaction with loads and frequency converters while starting, stopping, and controlling.

Included in programme(s)

Electrical Engineering Major Electronics
Electrical Engineering Major Mechatronics

School(s)

Institute of Engineering

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