Course: Drivetrain Engineering — credits: 5

Course code	WBVB24DRE
Name	Drivetrain Engineering
Study year	2026-2027
ECTS credits	5
Language	English
Coordinator	B. Heikema
Modes of delivery	Education
Assessments	Drivetrain Engineering - Assignment

Learning outcomes

The student:

- solves kinematic problems of particles or rigid bodies, involving displacement, velocity, and acceleration, by using the relevant kinematic equations
- solves kinetic problems of particles or rigid bodies, involving forces and moments, by using the relevant equations of motion or the "principle of work and energy"
- calculates the required mechanical power and energy losses of a driven system
- translates the properties of a driven system into a load characteristic and selects an AC-motor based on information of the load characteristic and the desired speed and calculates the power consumption and efficiency
- translates a given three dimensional statically loaded assembly into schematic representations and Free Body diagrams (FBD) of the individual parts and determines the external and internal loads of the parts for statically determined and undetermined cases
- optimises the cross-sectional area of a three-dimensional loaded part (F.e. shaft) by fulfilling strength and stiffness requirements

Content

Various mechanical devices use moving parts to perform their functions. Product development then requires insight into kinetics, strength, stiffness, stability and specifying/selecting suitable machine parts. During this module, topics range from:

- modelling and quantifying loads, accelerations and velocities;
- energy/power requirements;
- Strength, stiffness and stability analyses;
- selecting AC motors with appropriate gear ratios.

Included in programme(s)

Mechanical Engineering VWO a 3-year variant

School(s)

Engineering, Life Sciences & ICT

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