Vak: Design Engineering

credits: 5

Vakcode	WBVP23DE
Naam	Design Engineering
Studiejaar	2025-2026
ECTS credits	5
Taal	Engels
Coördinator	H.J. Grijpstra
Werkvormen	Onderwijs
Toetsen	Design Engineering - Schriftelijk, organisatie ToetsCentrum

Leeruitkomsten

The student:

- Can apply methodical design principles to systematically structure and guide the engineering design process.
- Can conduct user research to identify needs and incorporate them into the design strategy.
- Can select and dimension mechanical components such as bearings, shafts, and belts based on engineering standards and calculations.
- Can analyze and visualize product functionality using tools like functional decomposition and MEI diagrams.
- Can calculate and evaluate power transmission systems including belt, chain, and gear drives for mechanical applications.
- Can apply basic tribological knowledge to design plain and rolling bearings with suitable materials and lubrication methods.
- Can assess fatigue and stress concentrations to ensure safe and durable shaft designs under cyclic loads.
- Can interpret and apply basic electric motor data to select motors that meet specific torque, speed, and efficiency requirements.
- Can justify and defend design decisions using requirement lists, decision matrices, and performance analyses.
- Can iteratively improve a design through prototyping, testing, and incorporating feedback into the development process.

Inhoud

Design | Part of the Design & Engineering lectures, utilizing the "Design Handbook" (Zeiler). Upon completing this component, students will gain the ability to comprehend and apply methodical design principles, conduct user research, analyze product functionality, draft problem statements, visualize solutions through diagrams, objectively select the optimal solution, and effectively defend their design choices.

Engineering | Part of the Design & Engineering lectures, using "Machine Elements in Mechanical Design" (Mott).
Upon completing this component, students will acquire the skills necessary to design mechanical drive systems, select appropriate components, perform essential calculations, and troubleshoot potential issues. This knowledge will empower them to contribute to the creation of reliable and efficient mechanical systems in various engineering applications.

Opgenomen in opleiding(en)

Werktuigbouwkunde 3 jarige VWO route

School(s)

Instituut voor Engineering

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