Electric, Hybrid & Fuel Cell Powertrains

Elective module (M EHFP) · Master Engineering Systems · track Automotive Systems

Coordinating lecturer: Ad Oomen

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Professional task

Understand, analyse and contribute to innovations in electric, hybrid and fuel cell powertrains.

- Analyse innovative powertrains on performance, energy efficiency, environmental sustainability, costs and other relevant aspects.
- 15 EC / 420 hours of study load.
- Entry: the compulsory modules Applied Control and Systems Modelling.

Theory

- The physics required for analysing powertrains.
- Working principles of the powertrain, its subsystems and components.
- Modelling powertrains with grey-box models.
- Control aspects of powertrains: optimising energy efficiency in hybrid systems.
- Physical implications of concept choices.

Project

- You implement the theory in a modelling project with the appropriate level of detail.
- The model shows the powertrain layout, the relations between components and the powertrain output.
- Validation with experimental data.

Units of study and products

Unit	EC	Professional products
Theory	7.5	Model and report (model assignment)
Capita Selecta	2.5	Presentation
Minor Project	5	Project plan, report and presentation

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Final qualifications addressed

- C1 Analysing and defining problems · C2 Design · C3 Testing
- C4 Managing work processes · C5 Conducting research
- C6 Communication and collaboration · C7 Professional development