

Module Description Propulsion Systems

Name of module:	Propulsion Systems
Keywords:	Electric and Electrified Propulsion Systems
Module number:	Not compulsory
Target groups:	3- 7 semester exchange students
ECTS Credits:	4
Language of instructions:	English
Module owner:	Prof. Dr.-Ing. Michael Auerbach
Last update:	July 22nd, 2021

Extent of work (hours)

Workload	Contact hours	Self-Study	Exam Preparation
80	40	20	20

Prerequisites:	<ul style="list-style-type: none"> • Basic knowledge on engines, electrical drives and gearboxes • Basic knowledge in mechanical design • Basic knowledge in electrical engineering
Total target:	The course gives an insight on current and future technologies for propulsion systems by exploring electric, electrified and classic propulsion systems.
Module contents:	<p>Part 1 Basics on components</p> <ul style="list-style-type: none"> • Vehicle performance: Demands for drivelines • Propulsion Systems Basics • Electrical Systems • Gearboxes and Components • Combustion Engines • Powertrain Simulation using Matlab/Simulink <p>Part 2 Powertrain Development</p> <ul style="list-style-type: none"> • ICE-driven Propulsion Systems • Hybrid Propulsion Systems • Pure Electric Propulsion Systems
Reference material:	Lecture notes
Offered:	Winter semester
Relevance for other study programmes:	Electrical Engineering, Mechatronics

Submodules and assessments

Type of instruction/ form of learning:	Lectures, practices and exam preparation
Duration:	12 weeks: September/October – December
Hours per week:	4
Aims, learning outcomes:	See above
Estimated student workload:	40
Type of Assessment:	Midterm and final exam written examination 90 min., graded
Number of participants:	Due to the limited number of participants, please register in advance by email to: kremena.daneva@hs-esslingen.de