Courses in English
Course Description

Department	03 Mechanical, Automotive and Aeronautical Engineering
Course title	**Automotive Engineering, with lab**
Hours per week (SWS)	4
Number of ECTS credits	5
Course objective	Students • understand the requirements of cars and their components • learn how to describe, design, calculate and test vehicles and their main components • comprehend the power and energy demand of vehicles • learn about the characteristics of cars • are able to understand and set up development schedules • get to know various types of powertrain topologies and and comprehend how they affect the properties of the car • learn about different chassis concepts and the way they have an effect on the driving behaviour
Prerequisites	Mechanics I/II/III, Machine Components I)
Recommended reading	Handbook of Automotive Engineering, Braess Hans-Hermann, Seiffert Ulrich, SAE International, 2005 Handbuch Kraftfahrzeugtechnik, Braess Hans-Hermann, Seiffert Ulrich, Vieweg Verlag Bosch Kraftfahrtechnisches Taschenbuch, Reif, K., Dietsche, K.-H., Springer Fachmedien, Wiesbaden Fahrwerkhandbuch: Grundlagen, Fahrdynamik, Komponenten, Systeme, Mechatronik, Perspektiven;Bernd Heißing und Metin Ersoy (Herausgeber); Vieweg Verlag
Teaching methods	Course lecture 4 SWS
Assessment methods	Coordinated exam together with partial module F3031 according to the legal framework of the degree program in which this course is offered. Approved aides for the examination will be published by means of the examination announcement
Language of instruction	English
Name of lecturer	Prof. Dr.-Ing. Johannes Mintzlaff
Email	johannes.mintzlaff@hm.edu
Link	
Course content	• Main components of passenger cars • Complete vehicle: requirements, development process, package • Longitudinal dynamics: driving resistances, wheel load distribution, adhesion coefficient • Powertrain: topologies (conventional, hybrid, electric), elements of the powertrain, demand for energy and power • Chassis: tires, brakes, suspension, steering system • Body
Remarks	Time of involvement: Presence: 45h – self-study: 105h