

Courses in English Course Description

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| 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 <ul style="list-style-type: none">• 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 Heiing 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 | <ul style="list-style-type: none">• 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 |