Course title: Automotive Mechatronics

Hours per week (SWS): 4

Number of ECTS credits: 5

Course objective: To give the student an appreciation of mechatronic systems to improve vehicular dynamics, handling and ride comfort. After taking this unit the student should be able to:
- Understand the basic working principles of mechatronic systems.
- Design a mechatronic system for a given task
- Describe the system boundaries for “Driver Assistance Systems”
- Compose existing and new “Driver Assistance Systems” on the basis of mechatronic systems

Prerequisites: Informatics for Engineers

Recommended reading:
- Automobilelektronik: Eine Einführung für Ingenieure (Vieweg+Teubner)
- Bussysteme in der Fahrzeugtechnik: Protokolle, Standards und Softwarearchitektur (Vieweg+Teubner)
- Elektronik in der Fahrzeugtechnik: Hardware, Software, Systeme und Projektmanagement (Vieweg+Teubner)

Teaching methods: Course lecture 2SWS, Laboratory 2SWS

Assessment methods: Exam 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. Markus Krug

Email: markus.krug@hm.edu

Link: 

Course content: Common automotive sensors and actors, driver assistance sensors (radar, lidar, ultrasonic, camera); control loop for mechatronic systems; control loop for driver assistance systems; system boundaries for driver assistance systems and legal aspects; system partitioning; functional safety judgment; functional design; developing test cases and verification techniques;