Department: 06 Applied Sciences and Mechatronics

Course title: Multibody Dynamics

Hours per week (SWS): 4

Number of ECTS credits: 5

Course objective: Students are able to derive the equations of motion of rigid multibody systems and will gather basic knowledge on computational aspects of the time simulation of such systems. Students are familiar with different approaches to setting up equations of motion and understand and can use different sets of coordinates used to describe the position of rigid bodies. Students can analyse linearised mechanical systems in terms of eigenmodes and eigenvectors.

Prerequisites: Bachelor in Mechatronics or Mechanical Engineering

Recommended reading:
- A. A. Shabana, Computational Dynamics, John Wiley and Sons, 2010

Teaching methods: Lessons with exercises and project

Assessment methods: 100% PA: PA

Language of instruction: English

Name of lecturer: Prof. Dr. Wiedemann

Email: simon.wiedemann@hm.edu

Link: 

Course content:
- coordinate systems transformations
- writing constraint equations
- understanding and using virtual kinematic quantities
- understanding and using work-energy principles
- understanding and using Lagrange's equations
- understanding and using eigenmodes and eigenvectors

Remarks: