Courses in English
Course Description

Department	03 Mechanical, Automotive and Aeronautical Engineering
Course title	**Dynamics for Engineers**
Hours per week (SWS)	4
Number of ECTS credits	5
Course objective	Review of underlying mathematical Priciples. Review of single degree of freedom systems. Kinetics and Kinematics of 3D rigid bodies. Numerical Methods. Multiple degree of freedom systems. Multidimensional Oscillations. Applications for engineering problems.
Prerequisites	Mechanics III
Recommended reading	Principles of Dynamics, by Greenwood Donald, 1988 Prentice Hall, Inc.
Teaching methods	Course lecture equivalent to its German counterpart. Example problems treated in Class.
Assessment methods	written exam
Language of instruction	English
Name of lecturer	Prof. Wolfsteiner
Email	peter.wolfsteiner@hm.edu
Link	
Course content	Course content 0. Introduction 1. Underlying mathematical principles (Vectors & Matrices) 2. Mass Moments and Products of Inertia of mechanical systems 3. Transformations (Euler, Direction Cosine, Quaternions) 4. Kinematical treatment of point masses 5. 3D rotation of rigid bodies 6. 3D translation and rotation of rigid bodies 7. Numerical Simulation with Matlab 8. Vibrations 9. Gyroscopic Motion 10. Automotive and Aerospace Applications
Remarks	