Courses in English
Course Description

Department	03 Mechanical, Automotive and Aeronautical Engineering
Course title	**Fundamentals of Computational Fluid-Dynamics**
Course number	
Hours per week (SWS)	4
Number of ECTS credits	5
Course objective	#1 gain knowledge about simple flow models, incompressible without friction, potential flow theory and their mathematical classifications #2 understand the use of modern CFD simulation tools, finite difference methods, transformation of a physical flow model into its discrete matrix representation #3 implementation of self-created case files for modern CFD software usage and interpretation of the results #4 gain an overview of relevant technical turbulence models
Prerequisites	
Recommended reading	
Teaching methods	Course lecture and applied computer laboratory
Assessment methods	Final Exam This course is equivalent to M-SP4-2 "Grundlagen numerischer Strömungssimulation" in the Mechanical Engineering Bachelor of Science Degree program
Language of instruction	English
Name of lecturer	Prof. Dr. Bjorn Kniesner
Email	bjoern.kniesner@hm.edu
Link	
Course content	#1 Mathematical analysis of physical flow processes #2 Classical flow analysis #3 Conservation of energy and mass in a discrete format #4 Numerical approximations of analytical models #5 Evaluation of different numerical solution methods #6 Realisation of CFD computer models#7 Numerical solutions of selected fluid dynamics phenomena #8 Final CFD Fluid Flow project
Remarks	