Course Description CiE

Course code: CE020 and MFB470

Course title : Mechanism Design and Analysis

Hours per week: 4

Semester: 4 (from 3 to 8 available)

ECTS points: 4

Course contents: introduction to mechanism design, modelling of rigid bodies and joints, discussion of topology (tree structures and closed loops), state variables and degrees of freedom (dof), transfer functions, design of simple planar mechanisms, introduction to parameter optimization, slider crank, four bar mechanism, kinematic analysis, frames and orientation matrix, position / velocity / acceleration, discussion of mechanism characteristics, graphical methods, dynamical analysis, equilibrium conditions, principle of virtual power, introduction to multibody programs, examples

Prerequisites: mechanical egineering, mathematics, modelling, simulation

Objective of the course / learning outcome: students will be able to understand the motion of mechanisms and to calculate the dof of a system, to set up the kinematic transfer functions of planar mechanisms, to calculate the input forces and torques, design and parameterise simple mechanisms

Further Reading:
- O. Wallrapp, *Mechanism Design and Analysis*, lecture notes, 2008
- H. Kerle, R. Pittschellis, B. Corves, *Einführung in die Getriebelehre*, B.G. Teubner
- A. Erdman, G. Sandor, *Mechanism Design*, Vol.I, Prentice Hall, 1984

Teaching methods: lecture, exercises in groups, projects

Assessment methods: project work, written exam

Lecturer: Simon Wiedemann

Email: simon.wiedemann@hm.edu

(**Link:** http://www.fh-muenchen.de/fb06/professoren/wallrapp/d_vorlesung_mda.html) kann sich noch ändern