Hochschule Konstanz
University of Applied Sciences

Course number: MECH-330
Dynamic Systems I
Study level: Bachelor / Undergraduate

Prof. Dr. Marcus Kurth

Language of instruction: English
ECTS Credits: 8

A study of mathematical modeling of mechanical, electrical, hydraulic and multidiscipline engineering system using bond-graph-technique, yielding state space equations. Derivation of the Equations of Motion (EOM) of single Degree of Freedom (SDOF) and 2DOF using Lagrange Equation and/or Newton Second Law (NSL). Determine transfer functions response for first and second order systems. A study of linear mechanical vibrations for SDOF and 2DOF systems, and of their vibration isolation. Determine characteristic equation, stability eigenvalues of systems. Develop computer code in order to simulate, analyze real engineering systems in the time and frequency domain using Matlab/Simulink.

Grading will be based on a comprehensive final examination.