

Module name	<b>Fundamentals of Kinematics and Kinetics</b>
Module number	Eul-MT-C-KIN, Eul-RES-C-KIN
Lecturer in charge	Prof. Dr.-Ing. habil. Thomas Wallmersperger Thomas.Wallmersperger@tu-dresden.de
Objectives	After completing the module, students will know analytical methods for analyzing rigid body movements, including the loads that cause them.
Contents	The contents of the module are kinematics of the point and the rigid body, kinetics of the rigid body in translation, kinetics of the rigid body in arbitrary motion, momentum and angular momentum balance including the intersection principle, static interpretation of momentum balances, free planar motion, oscillations of systems with different degrees of freedom, impact processes, Lagrangian equations of the second kind and spatial rotor motion.
Modes of teaching and learning	2 hours per week lectures, 2 hours per week exercises and self-study.
Prerequisites	The skills to be acquired in the module <b>Introduction to Analysis and Algebra, Calculus for Functions with Several Variables</b> and <b>Engineering Mechanics</b> are required.
Usability	The module is a compulsory module in the basic studies of the degree programmes Mechatronics and Renewable Energy Systems. It creates the prerequisites for the modules that list that module in the "Prerequisites" field.
Requirements for the award of credit points	The credit points are awarded when the module assessment is passed. The module assessment consists of a written exam of 120 minutes.
Credit points and grades	5 credit points can be obtained by the module. The module grade is the grade of the examination.
Frequency	The module is offered every winter semester.
Workload	The total effort is 150 hours.
Duration	The module takes one semester.