Module name	**Practical Aspects of Simulation**
Module number	CMS-TRK-Sim
Senior Lecturer	Prof. Dr. Michael Beitelschmidt michael.beitelschmidt@tu-dresden.de
Qualification objectives	Students are familiar with the basics of coupled simulation of systems in multiple physical domains and real-time simulation. Furthermore, students can deal with a commercial foot-and-mouth disease simulation program, create specifically autonomous models, perform simulation calculations and process and interpret results.
Contents	The content of the module is the modelling of systems in several physical domains, in particular the concept of flow and difference variables, principles of numerical time step integration of normal differential equation systems and differential algebraic equation systems, important aspects in real-time simulation of systems, modelling of multi-body systems in a commercial simulation tool, handling the simulation tool by autonomously constructing models, simulating them and interpreting results.
Forms of teaching and learning	The module includes lectures for 2 SWS, internships for 2 SWS and self-study. The language of the lectures and traineeships will be English.
Eligibility for participation	Knowledge of differential equalisation systems and modelling of physical systems at bachelor's level is required.
Usability	In the Masters Course Computational Modeling and Simulation, the module is an optional module in track computational engineering, to be selected in accordance with Annex 2 to the Specific Examination Regulations. The module cannot be chosen in the Master's Course Computational Modeling and Simulation if this or a module with substantially the same content from a Course with which the entry conditions under § 3 of the Studienordnung have been met has already been completed. The module provides the pre-requisites for the modules it designates under the pre-requisites for participation.
Conditions for the award of credits	Credits are awarded when the module test is passed. The module test consists of a 120-minute away day. The language of the test will be English.
Credits and marks	The module allows 5 credit points to be obtained. The module score corresponds to the test performance score.
Frequency of the module	The module is offered every winter semester.
Workload	The total workload is 150 hours.

Duration of the module	The module covers 1 semester.