

Module description: Transportation Project 2			
Module Code	t.BA.MO.PM2.24HS		
ECTS Credits	4		
Language of Instruction/Examination	German		
Organizational Unit	ICP		
Module Coordinator	Kurt Pernstich		
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.		
Module Characteristic	Type 4* 4 lab lessons per semester week and half-class		
Module Description	In the basic project 2 you extend the quarter car model from the first semester to three degrees of freedom including a suspension and model some driving dynamics scenarios. Central to this project are project planning and team work.		
Module Content	<ul style="list-style-type: none"> In the Foundations Project 2, you will extend the Quarter Car model from the first semester and create an extended vehicle dynamics simulator with 3 degrees of freedom including the suspension. You create the free body image for a vehicle that can move in horizontal and vertical direction, as well as rotate around a horizontal axis. From the free body image, you create a model with which you simulate a simple driving dynamics scenario, for example the influence of bad shock absorbers on driving comfort or braking distance or the energy consumption on a given mountain route. 		
Prerequisite Knowledge			
Learning Objectives (Competences)	Students...	Competencies	Taxonomies
	After the completion of the Basic Project 1 you can analyze and display measurement and simulation data (digital skills)	F, M	K4, K5, K6
	... apply and improve the basics of project management in a project.	SE, SO, M, F	K3, K4
	... work on a project as a team, actively shape team behavior, and reflect on it.	SE, M, SO	K4, K5, K6
	... expand your social and self-competence, and develop a personal and reflective working technique.	SO, SE	K5
	... transfer knowledge from specialized foundational subjects and apply it within the context of a project.	M, F	K3
	... break down a project task into sub-problems that can be solved using computer support (computational thinking)	F, M	K4
	... create a comprehensive dynamic model and either research appropriate model parameters or determine them through measurement	M, F	K3, K4, K5
	... perform an optimization of model parameters and estimate the limits of applicability	F, M	K3, K4, K5, K6
	... carry out simulations and evaluate, interpret and present the results in a clear and concise manner.	M, F	K3, K4, K5, K6
... convincingly describe the measurements, the model and the simulations in a technical report	F, M	K4, K5	

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Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form
	report			75	acc. to module agreement
	Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
	written + oral			25	acc. to module agreement
Classroom Attendance Requirement	None				
Learning material					
Comments					