Valid from 2024.HS

Module description: Product Development for Systems Engineering 4

Module Code	t.BA.ST.PM4-EN.19HS
ECTS Credits	4
Language of Instruction/Examination	English
Organizational Unit	IMS
Module Coordinator	Duncan Webster
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	Product development in the context of systems engineering 4
Module Content	• Methodical, structured development process, concept process, solution finding, creation of concept variants, evaluation, real and virtual model creation, system integration, basics of electromechanical transducers, modal analysis (FEM and experimental), basics of fiber-plastic composites, use of additive manufacturing processes for rapid prototyping of mechatronic products.
Prerequisite Knowledge	

Learning Objectives (Competences)

Students...	Competencies	Taxonomies
Conceptional implementation of a development project for a mechtronic component or system, advanced understanding of application of simulation methods (fe-method), fundamentals of methods of the product development process (VDI 2206, VDI 2221, use-value analysis, FMEA, creativity methods), integration of simulation tools in the product development process, integration of actuators and sensors, signal analysis, multi-functional materials (piezoelectric mateials for actuator and sensor application, fundamentals of fiber reinforced materials for energy efficient structures, functional prototyps with additive manufacturing.	SO, M, F	K2, K3, K4
The students apply the methodical development process with emphasis on the concept phase for a mechatronic product. They deepen the applied knowledge in the field of systems engineering by doing a semester project in teams of max. 9 students. At the same time the non-technical skills are also trained.	SO, M, F	K2, K3, K4

Performance Assessment

End-of-module exam	Assessment	Length (min.)	Weighting	Form
report	Grade		100	acc. to module agreement

Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
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Classroom Attendance Requirement	None
Learning material	
Comments	