

Module description: Electronics Project 2					
Module Code	t.BA.ET.PM4-EN.19HS				
ECTS Credits	4				
Language of Instruction/Examination	English				
Organizational Unit	ISC Signal & WCOM				
Module Coordinator	Patrick Rennhard				
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	Students develop an electronic device, from the idea through to building a prototype.				
Module Content	<ul style="list-style-type: none"> Doppler-radar, FM-CW-radar, MIMO-radar, metal detector, time-of-flight sensor for distance and gestures, communication via ultrasound or a similar project 				
Prerequisite Knowledge	<ul style="list-style-type: none"> Builds on the three previous project modules 				
Learning Objectives (Competences)	Students...	Competencies	Taxonomies		
	Communication (½ SWL) * Write a design concept report for decision makers * Compile a user manual for lay persons * Oral demonstration of the prototype * Language of instruction and documentation is English	M	K1, K2, K3		
	Technical (3 SWL) * Design, realisation, testing and documentation of electronic circuits * Design, realisation, testing and documentation of microcontroller software * Implementation of signal processing algorithms (fft, ...) * If suitable: interface to smartphone and app programming * Extension with own (special) function	F	K2, K3, K4		
	Methodological, project management, self/social and business skills (½ SWL) * Reproducing results in a way that is appropriate for the target group, with decision-makers and laypersons as the target audience * Manage Quality - deadlines - costs * Focus on developing own objectives and discussing them with the team	SO, SE	K1, K2, K3		
Performance Assessment	End-of-module exam	Assessment	Length (min.)	Weighting	Form
	oral exam	Grade	20	40	
	Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
	electronically <i>Video documentation</i>	Grade		20	
	Report <i>Design concept</i>	Grade		20	
	Demonstration <i>Demonstration to verify the HW function</i>	Grade		10	
	Demonstration <i>Demonstration to verify the FW function</i>	Grade		10	

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Classroom Attendance Requirement	None
Learning material	
Comments	During the semester a prototype of an electronic device is built. This module is held in English and accompanied by a communication lecturer. These skills contribute to the module grade with a weight of about 1/4.