Valid from 2024.HS

Module description: Metrology Project

Module Code	t.BA.ET.PM1.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	ISC Signal & WCOM
Module Coordinator	Luciano Sarperi
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 Metrology Project module, students learn how to use measurement instruments (multimeters, oscilloscopes, function generators) and additionally acquire the communicative skills required in the workplace. These topics are learned in a project completed in this module.
Module Content	**The following topics will be dealt with on the basis of a project:** **Multimeter: Functionality, voltage and current measurement, internal resistance, measurement accuracy and measurement uncertainty** **Oscilloscope: Functionality, measurement of periodic signals and transient signals, averaging, math- function and grounding issues** **Function generator: Important test signals, source impedance** **Operational amplifier: Basic circuits and properties** **Project progress: Document and present** **Competing products: Analyse and evaluate own and external project documents**
Prerequisite Knowledge	

Learning Objectives (Competences)

Students...	Competencies	Taxonomies
...have an experienced handling of measurement instruments (multimeter, oscilloscope, function generator) for the measurement of voltages, currents, time-varying signals and have a basic understanding of frequency spectra and measurement uncertainty.	M, F	K3
...can recognize knowledge gaps and close them. Analyze and structure problems. Define and manage projects according to plan and act in the event of deviations. Evaluate project ideas according to meaningful criteria. Create requirement lists. Assess themselves realistically. Work in a team and learn to accept and express criticism.	SE, SO	K3
...can develop and analyse circuits with ideal operational amplifiers using negative and positive feedback.	F, M	K5
... can research different solutions and present the results. Analyse measurement reports and manuals, use them and create them yourself. Present project results.	M	K3

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Performance Assessment

End-of-module exam	Assessment	Length (min.)	Weighting	Form
oral exam	Grade	30	50	acc. to module agreement

Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
written exam	Grade	45	15	acc. to module agreement
written exam	Grade	45	15	acc. to module agreement
report	Grade	0	20	acc. to module agreement

Classroom Attendance Requirement

None

Learning material

- The documents are provided by the lecturers.

Comments