

Electrical Instrumentation and Electrical Mobility

Location

Campus Offenburg, room B 219

Profile and objectives

Learning targets

- Application of the measurement methods, circuits and devices, which the student got to know in the lecture on measurement technology in the 1st semester, in the solution of measurement tasks.
- Selection of suitable measuring instruments for the respective measuring problem, so that the measurement is carried out as simply, as quickly as possible, as inaccurately as required with the lowest possible costs for time and equipment.
- Set, read, calibrate and adjust the devices correctly.
- Teamwork
- Clearly arranged recording of observations and measurement data
- Systematische und zufällige Fehler unterscheiden
- Differentiate between systematic and random errors
- Read and explain operating instructions and data sheets

Specifics

Students of the 2nd semester also have the possibility, under the supervision of the responsible professor or assistant, but without instruction, i.e. completely independently, to deal with all discussed circuits and measuring instruments and with their own metrological problems (circuits and instruments) in the metrological laboratory at leisure and with any amount of time, even outside the hours stated in the lecture schedule. In seminar papers (for students from the 4th semester) and final theses students can solve interesting metrological problems for which skills and imagination in the field of hardware and software are required.

Laborleiter

Prof. Dr.-Ing. Christian Klöffler

Laboratory assistants

Artur Root, M. Eng.

Dipl.-Ing. (FH) Bernhard Schwarz

Philipp Degel, M. Sc.

Internships and Tutorials

Contents of the experiments

- Measuring ohmic resistances as accurately as possible using current and voltage error circuits with given digital and analog multiple measuring devices.
- Writing and evaluation of characteristic curves with an x-y recorder

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11 Nov 2019 22:06:58

- Application of compensation measuring methods for powerless measurement of currents, voltages and resistances, also differential resistances.
- Resistance measurement with the DC bridge: Measurement of even very small resistances,
- Dimensioning of the bridge circuit with required accuracy and sensitivity.
- Getting to know the oscilloscope
- Measuring with the Oscilloscope