phy631 - Advanced Metrology

Module label: Advanced Metrology
Module code: phy631
Credit points: 6.0 KP
Workload: 180 h
(Attendance: 56 hrs, Self study: 124 hrs)

Used in course of study:
- Master's Programme Engineering Physics > Pflichtmodule

Contact person:
- Walter Neu
- Björn Poppe
- Simon Doclo
- Martin Kühn

Entry requirements:

Skills to be acquired in this module:
The course in Advanced Metrology sets up a high level route enabling the students to acquire skills to allow them to operate effectively in the majors of Engineering Physics. This is achieved by provision of state-of-the-art technical and physical approaches covering broad aspects of advanced metrology within the context of Laser&optics, Biomedical physics & acoustics, and renewable energies. Demonstrate systematic knowledge across appropriate advanced metrology technologies, management and environmental issues to provide solutions for international industries and/or research organisations.

Module contents:
The module combines theory and practical applications of the fundaments of metrology in all majors.
- Fundamentals of Metrology
- Dimensional Measurement Systems
- Basic metrology operators including Association and Filtration.
- Optical Metrology and Instrumentation
- Surface and Nanometrology
- Machine Tool and Large Volume Metrology
- Process Measurement and Control
- Individual Project

Reader's advisory:
Recent publications on specific topics

Links:
Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: halbjährlich
Module capacity: unlimited
Modulelevel: ---
Modulart: je nach Studiengang Pflicht oder Wahlpflicht
Lern-/Lehrform / Type of program:
- Lecture: 4 hrs/week

Vorkenntnisse / Previous knowledge:

Examination:
- Time of examination
- Type of examination: 1 written exam or 1 presentation or 1 oral exam or 1 seminar paper

Final exam of module:

Course type:
- Course selection
  (Specialization Biomedical Physics)
  - Comment: 4.00
  - SWS: 2.00
  - Frequency: WiSe
  - Workload attendance: 28 h
- Course selection
  (Specialization Acoustics)
  - SWS: 2.00
  - Frequency: WiSe
  - Workload attendance: 28 h
- Course selection
  (Specialization Renewable Energies)
  - SWS: 2.00
  - Frequency: WiSe
  - Workload attendance: 28 h
- Course selection
  (Specialization Laser & Optics)
  - SWS: 2.00
  - Frequency: WiSe
  - Workload attendance: 28 h

Total time of attendance for the module: 140 h