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| <b>Module title</b>  |                          | <b>Abbreviation</b>  |
| <b>Methods for non-destructive Characterization of Materials and Components</b>  |                          | 11-ZMB-102-m01   |
| <b>Module coordinator</b>  |                          | <b>Module offered by</b>   |
| Managing Director of the Institute of Applied Physics  |                          | Faculty of Physics and Astronomy   |
| <b>ECTS</b>  | <b>Method of grading</b> | <b>Only after succ. compl. of module(s)</b>  |
| 3  | numerical grade          | --   |
| <b>Duration</b>  | <b>Module level</b>      | <b>Other prerequisites</b>   |
| 1 semester   | undergraduate            | Certain prerequisites must be met to qualify for admission to assessment. The lecturer will inform students about the respective details at the beginning of the course. Registration for the course will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew. |
| <b>Contents</b>  |                          |  |
| Principles of non-destructive material and component testing. Thermography. Neutron radiography. X-ray testing. Ultrasound. Optical testing, laser. Image processing.  |                          |  |
| <b>Intended learning outcomes</b>  |                          |  |
| The students have basic knowledge of the generation and interaction processes of different types of radiation (heat, X-ray, terahertz), particles (neutrons) or ultrasound waves with materials. They know the applied methods for the detection of radiation types, particles and ultrasound waves and are able to apply them to basic problems of material testing and characterisation.   |                          |  |
| <b>Courses</b> (type, number of weekly contact hours, language – if other than German)   |                          |  |
| V + R (no information on SWS (weekly contact hours) and course language available)   |                          |  |
| <b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)   |                          |  |
| a) written examination (approx. 90 minutes) or b) oral examination of one candidate each or oral examination in groups (approx. 30 minutes per candidate, for modules with less than 4 ECTS credits approx. 20 minutes) or c) project report (approx. 8 to 10 pages, time to complete: 1 to 4 weeks) or d) presentation/seminar presentation (approx. 30 minutes)<br>Assessment offered: When and how often assessment will be offered depends on the method of assessment and will be announced in due form under observance of Section 32 Subsection 3 ASPO (general academic and examination regulations) 2009. |                          |  |
| <b>Allocation of places</b>  |                          |  |
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| <b>Additional information</b>  |                          |  |
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| <b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)   |                          |  |
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| <b>Module appears in</b>   |                          |  |
| Bachelor' degree (1 major) Nanostructure Technology (2010)   |                          |  |