

Department	SciTec
Degree programme	SI
Module name	Physical Materials Diagnostics
Module number	SciTec.2.195
Study and Examination Regulations	ER-version 38 (of 21.03.2018), ER-version 39 (of 23.07.2019), ER-version 41 (of 16.07.2021)
Compulsory/ compulsory optional/ optional module	Compulsory module
Module coordinator	Prof. Dr. Steffen Teichert, Dr. Lutz Wilde
Module content	Overview on typical methods of physical materials analysis with special emphasis on tool setups; Selection of methods: SEM, XRD, SPM, MS, ES, synchrotron experiments
Learning objectives	The students acquire knowledge on the most important methods of physical materials analysis. They understand the physical background of the methods as well as the technical basics of the corresponding tools. The students get an overview on the fields of application of the physical material analysis methods. Furthermore, they also gain knowledge on the technical and physical limitations of the methods.
Course type (lecture, seminar, exercises, practical course)	3 L – 0 S – 0 E – 1 P
Recommended literature	<ul style="list-style-type: none"> ▪ Surface Analysis: The Principle Techniques J. C. Vickerman, Wiley –VCH ▪ Microstructural Characterization of Materials, D. Brandon, W.D. Kaplan, Wiley-VCH ▪ Introduction to Diffraction in Materials Science and Engineering, A.D. Krawitz, John Wiley & Sons
Learning materials	lecture notes
Method(s) of instruction/ media being used	lecture and practical course
Level/ category	Master (category: 2)
Which semester (winter/ summer term)	winter term
Which semester during the programme	1
Requirements for attendance, necessary knowledge	experimental physics, basics of materials science
Assessment (written/ oral test, paper, etc.)	Written examination (90 minutes), course achievement: certificate for practical course
ECTS credits	6
Work load in:	180 h of total work load, therefrom <ul style="list-style-type: none"> ▪ 60 h of presence at university ▪ 120 h of self-study
Usability of this module	The module is closely connected to solid state physics, materials science and measurement engineering.
Frequency of offer	Every study year
Duration of module	1 semester
Place/ room	Ernst-Abbe-Hochschule Jena - University of Applied Sciences Jena
Time	According to schedule
Language(s)	English