

Department	SciTec
Degree programme	SI
Module name	Solid State Physics
Module number	SciTec.2.197
Study and Examination Regulations	ER-version 38 (of 21.03.2018)
Compulsory/ compulsory optional/ optional module	compulsory optional module
Module coordinator	Prof. Dr. Bernd Ploss
Module content	Bindings in solid materials, crystalline structure and crystallographic systems, diffraction and reciprocal lattice, Brillouin-zone, lattice vibrations, thermal properties, electron gas and band structure, semiconductors, superconductivity, dielectric properties of materials, ferroelectricity, magnetic properties.
Learning objectives	After completion of this module the students have a comprehensive understanding of the fundamental properties of condensed matter and of the essential experimental techniques. The students are able, to use the acquired relations and laws qualitatively and quantitatively to execute problems in the field of solid state physics.
Course type (lecture, seminar, exercises, practical course)	3 L – 0 S – 1 E – 0 P
Recommended literature	<ul style="list-style-type: none"> ▪ C. Kittel: Introduction to Solid State Physics (John Wiley & Sons, 2004) ▪ H. Ibach, H. Lüth: Solid-State Physics: An Introduction to Principles of Materials Science, (Springer-Verlag, 2003). ▪ H.P. Myers: Introductory Solid State Physics (Taylor & Francis 2009)
Learning materials	Handouts, revision notes.
Method(s) of instruction/ media being used	Lecture and tutorial.
Level/ category	Master (category: 2)
Which semester (winter/ summer term)	Winter term
Which semester during the programme	1
Requirements for attendance, necessary knowledge	Mathematics and Physics at the level BSc or BEng
Assessment (written/ oral test, paper, etc.)	Written examination (90 minutes)
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	Materials for Sensors and Electronics
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