

Department	SciTec
Degree programme	SI, WT
Module name	<b>Materials for Sensors and Electronics</b>
Module number	<b>SciTec.2.223</b>
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	optional compulsory module
Module coordinator	N.N., Prof. Dr. Jörg Töpfer
Module content	<ul style="list-style-type: none"> <li>▪ Dielectrics, pyro-, piezo- und ferroelectrics and applications, inhomogeneous materials and composites, smart materials,</li> <li>▪ charge transport in solid state materials and applications,</li> <li>▪ magnetic properties of dia-, para- and ferromagnetic materials,</li> <li>▪ permanent magnets, soft magnets, magnetic recording media, XMR technologies.</li> </ul>
Learning objectives	Fundamental understanding of concepts, physics and applications of new electronic, dielectric and magnetic materials. Insight into the current research in the area of new materials for electronics and sensors.
Course type (lecture, seminar, exercises, practical course)	4 L – 0 S – 0 E – 1 P
Recommended literature	<ul style="list-style-type: none"> <li>▪ M.E. Lines, A.M. Glass, Principles and Applications of Ferroelectrics (Oxford University Press, 2001)</li> <li>▪ N. Spaldin, Magnetic Materials (Cambridge University Press, 2003)</li> <li>▪ R. O’Handley, Modern Magnetic Materials (J. Wiley, 2000)</li> <li>▪ actual publications (are provided).</li> </ul>
Learning materials	Hand-outs, publications, lab instructions.
Method(s) of instruction/ media being used	Lecture and laboratory.
Level/ category	Master (category: 2)
Which semester (winter/ summer term)	Summer term
Which semester during the programme	2
Requirements for attendance, necessary knowledge	Solid State Physics
Assessment (written/ oral test, paper, etc.)	written examination (90 minutes), course achievement: successful attendance of practical course
ECTS credits	6
Work load in:	180 h of total work load, therefrom <ul style="list-style-type: none"> <li>▪ 75 h of presence at university</li> <li>▪ 105 h of self-study</li> </ul>
Usability of this module	Research Internship and Master Thesis in the field of the module.
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