

1.	<b>Field of study</b>	<b>Materials Science and Engineering</b>
2.	Academic year of entry	2018/2019 (winter term)
3.	Level of qualifications/degree	first-cycle studies (in engineering)
4.	Degree profile	general academic
5.	Mode of study	full-time

**Module:** Materials for electronics and electrotechnics

**Module code:** IM1A\_MEE

**1. Number of the ECTS credits:** 3

<b>2. Learning outcomes of the module</b>			
<b>code</b>	<b>description</b>	<b>learning outcomes of the programme</b>	<b>level of competence (scale 1-5)</b>
IM1A_MEE_1	Acquiring the elementary knowledge about materials used in the electronic and electrotechnic industry, including the knowledge necessary to understand basic physical phenomena occurring in electronic components and circuits and also in their surroundings as well as methods for basic material parameters determination.	IM1A_W06 IM1A_W07 IM1A_W23	2 3 2
IM1A_MEE_2	Acquiring basic skills to obtain information (related to materials used in electronics and electrotechnics) from the literature, databases and other sources; the skill to integrate and evaluate it in the context of potential applications in electronics and electrotechnics. Acquiring the skill to perform simple measurements of selected material parameters and to prepare documentation related to an engineering task performance.	IM1A_U14	3
IM1A_MEE_3	Developing the awareness and understanding the need for development of modern technologies of materials for electronics and electrotechnics.	IM1A_K05	1

<b>3. Module description</b>	
<b>Description</b>	The Materials for electronics and electrotechnics module shall enable students obtaining competence in the field of methods for obtaining, properties, classification, and structure of materials used in electronics and electrotechnics as well as competence in the field of selecting those materials for appropriate applications.
<b>Prerequisites</b>	It is required to achieve effects of education of the modules: mathematics, physics, thermodynamics, crystallography, rudiments of the materials science, ceramics, metals and alloys as well as materials testing methods.

4. Assessment of the learning outcomes of the module			
code	type	description	learning outcomes of the module
IM1A_MEE_w_1	Credits based on an interview	Verification of the knowledge based on the lectures content, recommended literature and attended laboratory classes.	IM1A_MEE_1, IM1A_MEE_2, IM1A_MEE_3
IM1A_MEE_w_3	Reports on laboratory classes.	Assessment of mastering the skill in the field of independent testing selected physical material properties, of measurement results analysis as well as of the measurement uncertainty assessment.	IM1A_MEE_1
IM1A_MEE_w_4	Interview	Assessment of the awareness of the importance of professional behaviour, of professional ethics observation.	IM1A_MEE_2, IM1A_MEE_3

5. Forms of teaching						
code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
IM1A_MEE_fs_1	lecture	The lecture shall enable understanding the nature of relationships between the structure and electrical properties of materials and their choice for specific applications in the electronic and electrotechnic industry. The whole is illustrated with demonstrations and multimedia presentations.	25	The work with the recommended literature comprising independent acquisition of knowledge related to basic issues.	30	IM1A_MEE_w_1
IM1A_MEE_fs_3	laboratory classes	Practical classes consisting in performing measurements of basic electrical and magnetic properties of materials.	20	Preparation of theoretical basics and issues related to the specific exercise. Processing the test results, preparing a report.	15	IM1A_MEE_w_3, IM1A_MEE_w_4