FACULTY OF ELECTRICAL ENGINEERING

SUBJECT CARD

Name in Polish:	**Podstawy inżynierii materiałowej 2**
Name in English:	**Fundamentals of Materials Engineering 2**
Main field of study (if applicable):	**Electrical Engineering**
Specialization (if applicable):	
Level and form of studies:	**1st level, part-time**
Kind of subject:	**obligatory**
Subject code:	**ELR041262**
Group of courses:	**NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):			20		
Number of hours of total student workload (CNPS):			54		
Form of crediting:			crediting with grade		
For group of courses mark (X) final course:					
Number of ECTS points:			2		
including number of ECTS points for practical (P) classes :			2		
including number of ECTS points for direct teacher-student contact (BK) classes:			1.40		

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Has a basic knowledge of the physical and chemical phenomena occurring in materials under the influence of exposure electrical, thermal, mechanical
2. Has a basic knowledge of the properties, structure and technology of materials and range of applications in the construction of electrical engineering
3. Has a basic knowledge of conductive materials, semiconductors, dielectrics and magnetics
4. Student properly and effectively applies laws and rules of physics to the qualitative and quantitative analysis of physical phenomenon with engineering character

SUBJECT OBJECTIVES

C1. Obtaining the knowledge necessary to understand the basic properties of electrical materials
C2. The development of ability to use basic measurement techniques to study the properties of electrical materials
C3. The acquisition of basic practical skills of measuring instruments service
C4. Promoting of cooperation in the group and activity in teamwork

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

relating to skills:

PEK_U01 Student is able to apply learned principles and laws of physics to the analysis of physical problems, can plan and safely carry out measurements and develop the results

PEK_U02 Student is able to measure properties of the materials used in electrical engineering

relating to social competences:

PEK_K01 Student has awareness of the responsibility for the own and team work, he can act as a team to achieve a common task

PROGRAMME CONTENT		
Form of classes - laboratory		**Number of hours:**
Lab 1	Introduction: requirements and method of crediting. Presentation of the safety rules of work in the lab. The division into groups	2
Lab 2	Investigation of dielectrics resistivity	3
Lab 3	Determination of dielectric permittivity and dielectric loss factor.	3
Lab 4	Electric strength measurements	3
Lab 5	Investigation of magnetic properties of electrical sheets samples	3
Lab 6	The study of the mechanical properties of insulating materials.The study of thermal properties	3
Lab 7	Correction and supplementing classes. Laboratory assessment	3
	Total hours:	**20**

TEACHING TOOLS USED
N1. Checking the student's preparation for classes in the form of short tests and questions
N2. Carring out measurements using laboratory equipment
N3. Analysis of test results
N4. Development of measurement results in a report
N5. Consultation

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT		
Evaluation *F – forming (during semester)* *P – concluding (at semester end)*	**Educational effect number**	**Way of evaluating educational effect achievement**
F1(L)	PEK_U01 PEK_U02 PEK_K01	Checking and evaluation laboratory preparation
F2(L)	PEK_U01 PEK_U02 PEK_K01	Assessment of reports from research
P(L)	P=0,5F1+0,5F2	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Podstawy inżynierii materiałowej. Laboratorium. Oficyna Wyd. Politechniki Wrocławskiej 2005

SECONDARY LITERATURE:

[1] Celiński Z., Materiałoznawstwo elektrotechniczne, Oficyna Wyd. Politechniki Warszawskiej, Warszawa, 2005
[2] Blicharski M., Wstęp do inżynierii materiałowej, Wyd. AGH, Kraków, 2003
[3] Kolbiński K., Słowikowski J., Materiałoznawstwo elektrotechniczne, WNT, 1988

SUBJECT SUPERVISOR

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
ELR041262 - Fundamentals of Materials Engineering 2
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **Electrical Engineering**

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)	Subject objectives	Programme content	Teaching tool number
PEK_U01	K1ETK_U06 K1ETK_U07	C.1 C.2 C.3 C.4	Lab2 Lab3 Lab4 Lab5 Lab6 Lab7 Lab8 Lab9 Lab10	N.1 N.2 N.3 N.4 N.5
PEK_U02	K1ETK_U08	C.1 C.2 C.3 C.4	Lab2 Lab3 Lab4 Lab5 Lab6 Lab7 Lab8 Lab9 Lab10	N.1 N.2 N.3 N.4 N.5
PEK_K01	K1ETK_K05	C.4	Lab1 Lab2 Lab3 Lab4 Lab5 Lab6 Lab7 Lab8 Lab9 Lab10	N.1 N.2 N.3 N.4 N.5