

FACULTY:	Institute of Technology and Education
FIELD OF STUDY:	Materials Science and Engineering
COURSE TITLE:	Methods and Techniques of Materials Testing I
LECTURER'S NAME:	dr hab. inż. Witold Gulbiński, Univ. Prof.
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ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2014/2015
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1 st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Mechanical characterization of materials (yield strength, Young's Modulus, stress-strain relation). Hardness concept. Static and dynamic methods of hardness measurement. Nanohardness. Shear strength and toughness testing - Charpy V-notch impact test, Fatigue resistance of steels, High temperature creep. Thickness of coatings – mechanical, optical and magnetic testing methods, Adhesion of coatings – stretch test and other methods. Surface geometry characterization – contact and non-contact profilometry. Friction and wear test. Electrical properties of materials – resistivity, carrier mobility and concentration, Hall constant measurement methods. Magnetic properties of materials – magnetic permeability and susceptibility, Curie temperature of ferromagnetic. Corrosion resistance testing. Crystalline structure of materials – X-ray diffraction – structure and phase composition determination.
ADDITIONAL INFORMATION:	-

Witold Gulbiński, 14.05.2014