Syllabus		
Faculty:	**Faculty of Geosciences**	
Name of study program:	Materials and Metalurgy	
Department:	**Materials and Metalurgy**	
Level:	**Bachelor**	
The code of subject:	110.M **Physics II**	
Subject:	**Physics II**	
Subject Status:	Compulsory	
Semester:	Summer	
Total hours:	3+2	
ECTS:	7	
Schedule / Hall		
Academic year:		
Professor:	Prof.Asoc.Dr. Nazmi Hasi	
Assistants:	PHD.Candidate Arber Zeqiraj	
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BRIEF CONTENT OF SUBJECT	Basic knowledge of physics II.	
AIMS	• To teach the student to physical sizes and their measurements • Enabling students to formulate laws, postulates and path of physical phenomena. • Training activities independent researcher in the field of natural phenomena. • The physics of electricity, and the magnetization. Physics of materials, physics of the atom and the nucleus of an atom	
EXPECTED LEARNING OUTCOMES	• To understand the basic phenomena and physical laws. • Provides convenience to the subjects that use physical laws. • To solve physical problems	
PROGRAM	**Weeks**	Topic and Readings
	Week - I	Electricity: Electrical Charges, Conductors and isolators,Culon' s law, quantization and maintenance of electrical load
	Week - II	Electric fields, Gauss law, electric potential energy and electric potential, electric capacity, electric energy field

	Week- III	Electricity: Electrical Resistance, Omm's Law, Electrical Circuits
	Week - IV	Magnetization.Magnetic field of power element and electrical's load in motion,
	Week - V	The movement of charged particles in the magnetic field, interaction of currents, some practical applications
	Week - VI	Electromagnetisms: Faraday's law of induction, Alternative currents, generator, transformator
	Week- VII	Electromagnetic waves, Geometrical optics, Physical Optics
	Week - VIII	Introduction to the physics of atomic and molecular structure, materials science, chemical bonds, crystal structures, symmetry and defects, amorphous structures, mechanical properties of materials
	Week - IX	Electronic structure of materials, The orbital hybridization and spatial structure of biopolymers, The wave functions of the system Bozone- fermions, Paul's principle.
	Week - X	Accompanying properties of materials, electrons and holes, influence of crystal structure (fonon's, transportation of electricity of soliton's and polaron's onekuazidimensional, semiconductors and conductors and their application classification)
	Week - XI	Superconducting properties of materials:Londonov's and Ginzgurg-Landau's Theory and Josefson's microscopic connections , superconductor and classification, characterization and their application.
	Week - XII	Dielectric properties of materials: The relation of Klauzius-Mosotiev, polarizability theory, dielectric strength, dielectric classification, characterization and implementation.
	Week- XIII	The magnetic properties of materials Regulation weak and strong magnetic macroscopic structure of the magnets, the magnets (classification, characteristics and implementation)
	Week - XIV	The nucleus of the atom: The composition and the electric charge of the nucleus, dimensions and shape of the nucleus, and energy measures of core connectivity, nuclear forces
	Week - XV	Decomposition radioactive Time of semi decomposition, breaking conservation laws radioactive types of radioactive decomposition, detection of radiation, nuclear reactions, nuclear reactors

LITERATURE	Basics Literature: 1. Fizika , Dr.Shukri Klinaku, Prishtinë, 2014 2. Dr. Skender H. Skenderi & Dr. Rashit Maliqi, Fizika për studentët e fakulteteve teknike, Prishtinë, 2005. 3. Dr. Skender H. Skenderi & Dr. Rashit Maliqi, Përmbledhje detyrash nga Fifika, Prishtinë. 4. Dr. Skender H. Skenderi & Dr. Rashit Maliqi, Ushtrime interaktive dhe laboratorike nga Fizika, Prishtinë Literatura plotësuese: 1. Joel L. Lebowitz, Boltzmann's entropy and time's arrow, Physics Today **46** (2013) 2. Halliday & Resnick, Fundamentals of Physics 11th edition 2018, https://www.wiley.com/en-us/Fundamentals+of+Physics%3A+Extended%2C+11th+Edition-p-9781119306856 4. Greiner W. Classical Mechanics.. Point Particles and Relativity (Springer, 2003) 5. D. Raković, *Fizičke osnove i karakteristike elektrotehničkih materijala* (Akademska misao, Beograd, 2000) 6. L. A. Gribov, S. P. Mushtakova, *Kvantovaya himiya* (Gardariki, Moskva, 1999) 7. L. A. Gribov, *Ot teorii spektrov k teorii himicheskih prevraschenii* (URSS, Moskva, 2001) 8. D. Raković, Lj. Turković, S. Krstić, *Savremeni materijali i tehnologije* (Grosknjiga, Beograd, 1997). 9. D. Raković, P. Osmokrović, N. Arsić, *Elektrotehnički materijali. Zbirka zadataka* (Akademska misao, Beograd, 2003). 10. Sistemi ndërkombëtar i njësive, SI, Skender Skenderi, Prishtinë, 2005
TEACHING METHODOLOGY	Direct teaching (through explanation, practical exercises and numerical examples). Teaching through demonstration and Experiment. The learning through projects, research works on the ground. Self research

Contribution to student workload (which should correspond to student learning outcomes 1 ECTS credit = 25 hours)			
Activity	**Hours**	**Day/Week**	**Total**
Lectures	3	15	45
Exercise sessions - theoretical	2	15	30
Field exercises			
Practical work			
Consultation with the professor / assistant	1	15	15
Colloquiums / seminars	2	2	4
Independent tasks (work)	1	4	4
Student self study time (in library or at home)	4	15	60
Final exam preparation	7	1	7
Time spent in assessment (tests, quizzes, final exams)	2	3	6
Projects, presentations, etc.	2	2	4
Total			**175**

EVALUATION

Evaluation methods [according to the Statute and Regulation of UMIB Studies]	
Tests	20%
Practical test during exercises	
Seminary work (in word)	20%
Interpretation and presentation of seminary work	20%
Tasks and essays during the semester	
Final exam	40%

ACADEMIC POLICIES	• To give students an understanding of the fundamental principles of physics and their application to everyday life and technology • To develop an appreciation of physics as a human endeavour, thereby enriching the students' experience of life • To provide a reasonably broad perspective of physics, thus developing an understanding of the physical environment and of how human beings interact with it •To provide a general education in physics for all students, whether or not they proceed to further studies in physics • To develop the ability to observe, to think logically, and to communicate effectively • To develop an understanding of the scientific method • To develop an appreciation of physics as a creative activity, using informed intuition and imagination to create an understanding of the beauty, simplicity and symmetry in nature.