Course title: BUILDING MATERIALS II

Course Basic Information	
Academic Unit:	**Faculty of Civil Engineering and Architecture**
Course title:	**BUILDING MATERIALS II**
Level:	**Bachelor**
Course Status:	**Obligatory**
Year of Study:	**II-(second)-Semester (III)**
Number of Classes per Week:	**2+2**
ECTS Credits:	**6**
Time /Location:	**According to Timetable**
Teacher:	**Prof.Dr. Naser Kabashi**
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Course Description:	Concrete such Building material, types and properties of fresh and hardening concrete. Examinations the properties of Concrete according the Standards EN. Mortars such building Materials, properties and applications. Steel, properties and applications. Reinforced steel-examinations and classifications according the EN. Aluminum such light metal, properties and applications. Advantages and disadvantages of metals in constructions. Wood, properties and applications in Civil Engineering works. Bituminous Materials, properties and applications. Thermo and Hydro insulations materials in civil engineering works.
Course Goals:	Ability the students for new knowledge of building materials, testing and evaluations of properties in scope of applications in civil engineering works.
Expected Learning Outcomes:	*-to know the building materials in scope of applications* *-to evaluate the properties of building materials; include the physic and mechanical properties* *-to apply the proper materials in proper positions of structures* *- to improve the materials in scope of technological development*

Student Workload (should be in compliance with student's Learnign Outcomes)			
Activity	**Hours**	**Day/ Week**	**Total**
Lectures	2	15	30
Theory/ Lab Work/Exercises	2	15	30
Practical Work	4	2	8
Preparation for intermediary test	4	2	8
Consultations with the teaher	1	10	10
Field Work	4	2	8
Test, seminar paper	2	2	4
Homework	2	4	8
Self-study (library or home)	4	3	12
Preparation for final exam	8	2	16
Assessment time (test, quiz, final exam)	2	2	4
Projects, presentations, etc.	2	1	2
Individual research work			
Total			**150**

Teaching Methods:	-Lectures presentation and demonstration of practical applications

	-Numerical and laboratory exercises -Seminars with proposal topic -Discussions during the lectures -Group work
Assessment Methods:	Limit of passing the exam: 55 % Presence in lectures and exercises: 15% Individual assignments completed in class 5%; Individual assignments completed at home 10%; Evaluations the tests: 15 % Final Exam: 55%.
Primary Literature:	N.Kabashi- Materialet Ndertimore I (dispense) Fisnik Kadiu: Teknologjia e Materialeve te Ndërtimit
Additional Literature:	N Kabashi: Materialet Ndertimore(Ligjerata +Ushtrime) Neil Jackson and Ravindra K. Dhir: Civil Engineering Materials K.van Breugel: Simulation of hydration and formation of structure in hardening cement-based materials Schaffler/Bruz/Schelling: Bausstofkunde A.M.Neville: Properties of Concrete Zijad Pasic: Staklo u gradjevinarstvo

Designed teaching plan		
Week	**Title of the Lecture**	**Title of Exercise**
Week 1:	Concrete, constituents and properties: • Prepare the concrete mix • Advantages and disadvantages comparing with other materials	Procedures for examining the properties of concrete-Laboratory Equipment
Week 2:	Properties of fresh concrete • Consistency of fresh concrete • W/C ratio • Porosity of fresh concrete • Bulk density	Examination of physical properties of concrete: • Concrete mixing Consistency assessment
***Week 3*:**	Properties of hardening concrete • Concrete samples, preparations, curing and types of samples • Examinations of Compressive Strength • Determinations the Class of Concrete	Sample unit preparation, maintenance and examination concrete unit: Compressive strength and quality assessment of concrete
Week 4:	Mortars, properties and applications • Type of mortars • Examinations of properties the mortars	Preparation of samples and examination of mortar samples: • Bending examination Pressure examination
Week 5:	Applications the mortars • Ready mix mortars , types and properties • Different ways of apply in walls	Classification and evaluation of different types of mortars-examples
***Week 6*:**	Steel, such building material • Technological process of production • Examinations of main properties the steel	Examination of properties and mechanics of steel: • Tensile strength Percentage extension
Week 7:	Examinations of mechanical properties: • Tensile strength • Ductility • Corrosion	Examination of steel properties: • Classification of reinforcement based on mechanical properties Examples of calculation

Week 8:	Wood , such building Material, properties • Main properties of wood • Examinations the physics and mechanical properties • Effect of humidity in Mechanical properties	Examination of wood properties: • Effect of moisture on mechanical properties Resistance to parallel and normal compression in fibers
Week 9:	Types of wood production • Compressed wood boards • Laminated wood • Protection of wood under different environmental conditions	• Parallel and normal tensile strength in fiber Bending resistance of wood
Week 10:	Bituminous Materials, properties and examinations • Examinations of mechanical properties of bituminous • Grade of bituminous material	Examination of bitumen's: • Degree of penetration • Degree of mitigation • Ductility Frass test
***Week 11*:**	Asphalt concrete • Production the asphalt concret • Types of asphalts • Properties of asphalt	Asphalt design and preparation of the mixture in the laboratory
***Week 12*:**	Hot Mix Design of asphalts • Granulometry for different types of aspalt • Preparations the sample of Asphalt • Evalautions the properties of asphalt	Preparation of samples for laboratory examination: • Compacting • Marshal test Volume measure
***Week 13*:**	Examinations the Asphalts –ready asphalts • Taking the samples from ready asphalt • Evalautions the asphalt using the in situ taking samples	Evaluation of asphalt parameters examined in the laboratory
***Week 14*:**	Hydro insulations materials, properties and applications • Hydro insulations materials in Bituminous base • Hydro insulations materials in polymer base • Practical applications	Examinations of waterproofing materials: • Tensile strength Elongation and cleavage
***Week 15*:**	Thermo Insulation materials, properties and applications • Examinations the density • Examinations the thermal conductivity -λ	Examinations and evaluation principles of properties for thermal insulation materials: • Density • Parameters i permeability: λ

Academic Policies and Code of Conduct
We start and finish class on time. *Tools used during class must be cleaned and stored away at the end of class.* *Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.* *Laptop and tablet computers are not allowed* *Other activities such as checking personal e-mail or browsing the Internet are prohibited.* *Ethic Code is applicable in time of lectures and exercises*