

Tárgytematika / Course Description

Construction Materials 1.

EKNB_EETA019

Tárgyfelelős neve /

Teacher's name: dr. Bozsaky Dávid

Félév / Semester: 2020/21/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/0/1

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The subject introduces students to the basic knowledge about materials used in building construction industry. It presents the physical, chemical and mechanical properties of building materials and deals with qualification methods. It introduces students to the Hungarian and European technical standardization systems. It intends to make future designers to choose and apply the technically and economically optimal material from the available variety of building materials.

TANTÁRGY TARTALMA / DESCRIPTION

Lectures

General information about the subject. Introduction, basic knowledge of material science.

Basic concepts of chemistry, chemical reactions. The micro- and macrostructure of materials.

Physical and chemical properties of building materials.

Types and material properties of stones and aggregates. Amelioration of aggregates.

Types and material properties of inorganic binders (lime, gypsum).

Types, properties and designation of cement.

Types and material properties of organic binders and asphalt.

Basic concept and components of concrete.

The basic knowledge about fresh and consolidated concrete. Standard designation of concrete.

Characterization, classification and basic properties of building metals.

Iron and steel production. The physical and mechanical properties of iron and steel.

The concept of building wood, the structure of wood. variety of wood and timber products.

Summary, classroom tests. Invited guest lecturer (optional).

Lab

Measurement and measuring Instruments.

Determination of physical, chemical and mechanical properties of building materials (mass, volume, density, bulk density, porosity). Determination of stress-strain curve and elastic modulus.

Standard qualification tests of stones and aggregates.

Standard qualification tests and designation of gypsum.

Standard qualification tests and designation of cement.

Standard qualification tests and designation of bitumen, modified bitumen and asphalt.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Evaluation

Students have 3 classroom tests during the semester. The 1st and the 3rd test have five-grade evaluation, the 2nd test has two-grade evaluation. Lab reports have two-grade evaluation.

Deadlines and remediation options

There is one remediation option for every classroom test. Depending on the timetable of the current semester, the date of the 1st classroom test is the 6-8th week of the semester, remediation is 2 weeks later (8-10th week of the semester). Depending on the timetable of the current semester, the date of the 2nd and 3rd classroom test is the 11-13th week of the semester, remediation is in the 14th week of the semester. Laboratory protocols can be submitted continuously during the semester, but their final submission deadline is the last day of the semester at 12:00.

Students who successfully completed classroom tests can take a preliminary exam in the last week of the semester. The student can receive offered grade based on the result of the preliminary exam and the grades of the classroom tests.

Terms of recognition

Participation in the lab session (more than one unauthorized absence is not allowed), successful completion of the classroom tests (minimum sufficient or satisfactory grades), submission of laboratory protocols by deadline.

A successful exam is required for recognition of the semester.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Obligatory reading

Molnár Viktor: Építőanyagok I, SZE, Győr, 2006

Molnár Viktor: Építőanyagok II, SZE, Győr, 2006

Recommended reading

Pankhardt Kinga, Kovács József: Építőanyagok. Terc Kft., Budapest, 2013

Balázs György: Építőanyagok és kémia. Műegyetemi Kiadó, Budapest, 2002

Bálint Julianna: Építőanyagok. Szaktudás Kiadó Ház Rt., 2000