

Content of lectures:

1. Classification of building materials. basic terms. Choice of suitable material. Principles of material testing.
2. Basic physical properties – density, bulk density, porosity, granulometry.
3. Mechanical properties - tensile and compressive strength, ductility, Strength testing. fatigue of materials.
4. Deformation properties – deformations, stress-strain diagram, modulus of elasticity, hardness, adhesion, cohesion.
5. Hygric properties – moisture content, absorptivity, capillarity, frost resistance. Acoustic properties.
6. Thermal properties – thermal conductivity, thermal capacity, thermal resistance, thermal elongation, behavior in fire.
7. Hydraulic binders – cement, hydraulic lime, geopolymers. Production, properties, use.
8. Aerial binders – lime, gypsum, anhydrite. Production, properties, use.
9. Concrete –basic terms, components of concrete. Classification. Specification. Concrete mix design.
10. Reinforced concrete. Lightweight concretes. High performance concretes. Mortars.
11. Building stone and aggregates. Unburned clay. Ceramics – bricks, tiles, fireproof materials.
12. Metals ferrous and non-ferrous. Glass. Wood and wood-based materials.
13. Bitumens –asphalt and tar. Polymers – thermoplastic, reactoplastics, utilization in building industry.