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| | **UNIVERSITY OF EAST SARAJEVO**<br>Faculty of Technology Zvornik | |
| | ***Study programme:*** *Chemical Engineering and Technology* | |
| | Cycle I / Year IV | |

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| **Course title** | TECHNOLOGY OF BUILDING MATERIALS |
| **Department** | Department for Chemical Technology – Faculty of Technology Zvornik |

| **Course code** | **Course status** | **Semester** | **ECTS** |
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| 04-2-043-7 | Elective | VII | 5 |

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| **Teacher** | Dr Dragica Lazić, Full Professor |
| **Teaching assistant** | Dr Dragana Kešelj, Associate Professor |

| **Number of classes/ teaching workload (per week)** | | | **Individual student workload (in hours per semester)** | | | **Student workload coefficient $S_o$** |
|---|---|---|---|---|---|---|
| **Lectures** | **Auditory exercises** | **Laboratory exercises** | **Lectures** | **Auditory exercises** | **Laboratory exercises** | **$S_o$** |
| 2 | 0 | 2 | 45 | 0 | 45 | 1.5 |
| 2*15 + 0*15 + 2*15 = 60 hours | | | 2*15*1,5 + 0*15*1,5 + 2*15*1,5 = 90 hours | | | |
| Total course workload 60 + 90=150 hours per semester | | | | | | |

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| **Learning outcomes** | After finishing the course, students will be able to:<br>1. demonstrate basic knowledge in the field of structure, properties and technology of materials in construction<br>2.demostrate knowledge about the types and classification of construction materials based on the properties of materials<br>3. choose appropriate materials based on the knowledge about the technical and technological characteristics of construction materials<br>4. determine the method of processing and application of the material knowing the characteristics of the material. |
| **Prerequisites** | |
| **Teaching methods** | Lectures, auditory and laboratory exercises, mid-term tests (colloquia). |
| **Syllabus outline per week** | 1. Basic properties of building materials; State parameters and structural properties: Specific and volumetric mass, porosity and degree of density;<br>2. Hydrophysical properties: Hygroscopicity, water absorption, humidity, water permeability and water impermeability, shrinkage;<br>3. Thermotechnical properties; Other important physical properties: Viscosity; Resistence;<br>4. Physical and mechanical properties of materials; Deformation properties (working s;-e diagram);<br>5. Construction and technological properties of materials; Rheological properties of materials; Material flow, stress relaxation, volume deformation of material;<br>6. Chemical properties of materials; Operational properties of materials;<br>7. Examination of materials by non-destructive methods; Ultrasound method; Gamma radiation method; Neutron radiation method; Surface methods; Vibrational methods;<br>8. Building stone; Basic rock types; Exploitation and processing of stone; Basic physical and mechanical properties of stone; Resistance of embedded stone;<br>9. Ceramic materials; Clay and clay products; Construction ceramics: Ordinary solid facade bricks and hollow bricks; Hollow blocks; Tile; Basic physical and physical-mechanical properties of ceramic materials;<br>10. Aggregate (granulate); Natural aggregates; Artificial aggregates; Granulometric composition of aggregates;<br>11. Mineral (inorganic) binders;<br>12. Cement; Aluminate cement;<br>13. Hydraulic module; Gypsum and lime; Pozzolani and slag;<br>14. Wood and wood-based materials; Physical, mechanical and rheological properties of wood; Wood processing and finished wood products;<br>15. Polymers and plastics; Structure and behavior of polymers when heated; Mechanical and rheological properties of polymers; Types of thermoplastic and thermostable polymers; Rubber.<br>Mid-term tests are taken after the 8th week and the 15th week. Semester verification is required |

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| | after the 15th week. |

| Obligatory reading | | | |
|---|---|---|---|
| **Author** | **Title, publisher** | **Year** | **Pages** |
| Muravljov, M. | Građevinski materijali, Građevinski fakultet, Gros knjiga, | 1995 | 28-95; 111-227;391-414; 431-448 |
| Михајло Мурављов, Секула Живковић | Građevinski materijali – Zbirka rešenih ispitnih zadataka, Građevinski fakultet, Univerzitet u Beogradu, Građevinska knjiga Beograd, Beograda | 2001 | 1-25; 48-141; 252-269; 280-292; |

| Additional reading | | | |
|---|---|---|---|
| **Author** | **Title, publisher** | **Year** | **Pages** |
| Brzaković, P. | Priručnik za proizvodnju i primenu građevinskih materijala nemetaličnog porekla, knjiga 1 i knjiga 2, Orion Art, Beograd | 2000 | 1-633; 1-506 |
| Tufegdžić, V. | Građevinski materijali, poznavanje i ispitivanje, Naučna knjiga Beograd | 1971 | 2-595 |
| Petrovski, P., Bušatlić, I. | Cement i druga neorganska mineralna veziva, HIJATUS, Zenica | 2006 | 3-202 |
| Zelić, J.,Osmanović, O. | Čvrstoća i trajnost cementnih kompozita, Sveučilište u Splitu, Split | 2014 | 1-329 |
| Nikolić, Lj., Srdić, V. | Osobine keramičkih materijala, Univerzitet u Novom Sadu, Tehnološki fakultet Novi Sad | 2011 | 1-155 |

| | **Type of student evaluation** | **Points** | **Percentage** |
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| **Obligations, assessment methods and grading system** | Pre-exam obligations | | |
| | Attendance | 6 | 6 % |
| | laboratory exercises | 10 | 10% |
| | Mid-term test (colloquium) 1 | 27 | 27% |
| | Mid-term test (colloquium) 2 | 27 | 27% |
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| | Final examination | | |
| | Final examination (oral) | 30 | 30 % |
| | Total | 100 | 100 % |
| **Web page** | www.tfzv.ues.rs.ba | | |
| **Date** | 2023 | | |