

Course schedule of
Strength of Materials
for full time, BSc level students

2020-2021 autumn semester

Course code: GKNB_AMTA003

Credits: 5

week 1	Course overview. Review of basic basic concepts of strength of materials. Introduction to stress and strain tensors.
week 2	Review of axially loaded bars state of stress and strain. Design of structures for working safely and verification.
week 3	Review of bending moment loaded beams state of stress and strain. Description of differential equation of the elastic curve.
week 4	Review of moment of inertia of the cross-sectional area. Steiner's law. Mohr's circle for moment of inertia. Principal axis of inertia and principal strains.
week 5	Review of torsional moment loaded beams with circle and pipe cross sections state of stress and strain.
week 6	Buckling analysis of columns.
week 7	Review of general state of stress, principal stresses and principal axes. Mohr's circle for state of stress.
week 8	Review of general state of strain, general Hooke's law. General theories of design of structures for working safely and verification. Review of equivalent stress theories (Mohr, von Mises).
week 9	Review of strain measurement with strain gauges. Principle of superposition.
week 10	Review of axial and bending moment combined loaded beams state of stress and strain. Review of unsymmetric bending moment loaded beams state of stress and strain.
week 11	Review of bending and torsional moment combined loaded beams state of stress and strain. Eccentric axial loading.
week 12	Transverse shear.
week 13	Betti's theorem.
week 14	Castigliano's theorem.