



## COURSE DATASHEET

<b>Semester:</b>	2012/13/1
<b>Course:</b>	Applied Mechanics II.
<b>Code:</b>	VEMKGEB212M
<b>Responsible department:</b>	Department of Mechanical Engineering
<b>Department code:</b>	MKGE
<b>Responsible instructor:</b>	dr. Imre Timár

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### Course objectives:

To provide a general theory of stress analysis for solid and elastic materials and structures

### Course content:

Basic idea of statics, stage of stress and strain. Stress Mohr's circle, stage of stress in space and plane. Material fluidity, typical breakdown curves, parameters of material, Hooke's law. Simple strains. Tension and compression (Heat-stresses, weakening of cross-section). The pure shearing and bending. Bending of changing cross-section rods, differential equation of elastic axis. Adaptations. Torsion (ring and annulus cross-section). Bredt's form. Test. Stability of axially compressed rods. Complex strains. Bending with shear. Single-line complex stresses (tension and bending, oblique bending). More line complex stresses (theorems of Mohr and Huber-Mises-Hencky). The work of the force. Betti's theorem. Castigliano's theorem, Claiperon's system. Calculations of statics undecided constructions.

### Requirements, evaluation and grading:

Minimum pass mark from papers (30 %) and prepare two individual projects

### Required and recommended readings:

Timár I.: Műszaki mechanika II. Szilárdságtan. Veszprémi Egyetemi Kiadó, 2003. M. Csizmadia B., Nándori E.: Szilárdságtan. Nemzeti Tankönyvkiadó, Bp., 1999.