Laboratory of Applied Mechanics

Principal goals and activities

- Experimental research on stress and strain; fatigue tests.
- Material tests: tensile, bending and compression.
- Optical measurement of deformation in 3D.
- Contactless displacement measuring system.
- Experimental identification of dynamic properties in polymer plastics, rubbers and foams.

Specific instruments and outcomes

The laboratory delivers research in basic characteristics of elastic components made from composite, magnetorheologic, foam or „smart" materials, under static or dynamic load with respect to material fatigue, environment temperature, etc.

- **Tiratest** – load testing machine for static and quasi-static tests: tensile, bending and compression.
- **Instron E3000** – electrodynamic loading machine with maximum load up to 3 kN and 500 Hz for identification of dynamic properties and fatigue tests optionally in a temperature chamber (from -70 to +250° C).
- **IstraDantec Dynamics** – optical equipment for measurement of deformation in 3D.
- **PONTOS 5M** – optical equipment for measurement of spatial motion of objects.
- A „ball on disc" tribometer for measurement of friction coefficient.

Offer of technology and expertiset

- Analysis of stress and strain, safety factor, analysis of machine and structure failures.
- Analysis of fatigue, life of structures and their optimization.
- Investigation of simulation models of dynamic systems using analytical and numerical methods.
- Research on passive and active vibration isolation of systems.
- Analysis of machines and structures load.
- Vibration damping.