VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF MECHANICAL ENGINEERING

Applied Mechanics

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Faculty	Faculty of Mechanical Engineering
Type of study	Doctoral
Language of instruction	English
Code of the programme	P0715D270014
Regular period of the study	4 years
Coordinating department	Department of Applied Mechanics
Coordinator	prof. Ing. Karel Frydrýšek, Ph.D., FEng.
Keywords	assessment and proposal of machines and structures, mechanics, biomechanics, numerical methods and experiment, elasticity, strength and plasticity

About study programme

Suitable for persons interested in mechanics or biomechanics. Suitable for an additional career. Large interdisciplinary cooperation in scientific and technical projects and with industrial companies. Possibilities to study abroad.

Graduate's employment

Industrial companies, universities, academies of science, etc. in Czech Republic and abroad. Design, calculations, proposals and assessments.

Study aims

To be an expert. To manage the theoretical and practical solutions of tasks in mechanics, elasticity, plasticity and strengths, biomechanics, fatigue of materials, numerical methods, measurements, calculation and proposal ways and assessments etc.

Graduate's knowledge

In industrial companies, scientific and university institutions, to know the solution of in-general complicated problems of mechanics, biomechanics, elasticity, plasticity and strength, and other related fields.

Graduate's skills

Applications of the theory and practice in the mechanics and biomechanics etc. for solutions of standard and new problems of science and technics.

Graduate's general competence

Independence, assessment, and decision of suitable processes for the solutions of technical problems. Interests from companies.

Professions

- Researcher
- Research and development specialist
- Research team worker
- Materials specialist

- Research team leader
- RαD engineer in the field of materials science
- Teacher and lecturer

Hard skills

- Python programming language
- Strength calculations
- Knowledge of sound
- Nondestructive testing - ultrasound
- Boundary element method
- Bursting tests
- Knowledge of experimental mechanics
- SW LabView
- Knowledge of plasticity
- Knowledge of mechanics of plastics and composites
- Computing SW Mathcad
- Knowledge of thermal stress
- Calculations of machine parts
- Knowledge of acoustic measurements
- Knowledge of non-destructive testing
- Knowledge of optimization of mechanical systems
- SW Matlab
- Durability calculations
- Dynamics calculations
- Knowledge of creep
- Finite element method
- Lifetime optimization
- Experimental stress analysis
- Evaluation of stresses and strains using the method of deformation networks
- Knowledge of fracture mechanics
- SW ANSYS
- Stiffness calculations
- Knowledge of computational programmes

Study curriculum

- form Full-time (en)
- form Part-time (en)