Mechanics and Mathematical Modelling

Kazan (Volga Region) Federal University

Language of study: **Russian**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **148 620 RUB per year**

Programme webpage at the university website: https://kpfu.ru/eng/academic-units/physics-mathematics-and-it/limm

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Objective of the study program: preparation of the qualified and competitive Bachelor graduates, who possess complex knowledge in the fields of Mathematics, Mechanics of deformable solid body, Aero- and fluid mechanics, as well as manage contemporary calculation methods and information technologies oriented at mathematical modelling of the wide scope of physical and mathematical processes.

The study process is built up according to the following principle:

The courses on general subjects such as Mathematical Analysis, Mathematical Logic, Algebra, Analytical Geometry, Theoretical Mechanics, Programming Technologies and others are offered at the first years of studies.

Specialized courses such as Mechanics of the continuous medium, Mechanics of deformable solid body, Aero- and fluid mechanics, Mechanics of plates and shells and Subsurface hydrodynamics prevail at the senior years of studies.

The studying of the technologies of programming enters training programs for specialists in mechanics. C++ makes the basic language.

Various mathematical and CFD packages such as Matlab, Wolfram Mathematica, ANSYS, FLUENT are used at the classes of Numerical methods Subject. Apart fr om that, all students are taught to edit texts in TeX and MathML. Writing a research term paper is obligatory for all the students during the third year of studies whereas writing a final qualification thesis is compulsory during the fourth year.

Basic professional skills of graduates:

- application of mathematical methods and algorithms of computational mathematics while solving the problems of the mechanics and analyzing applied problems;

- use of mathematical methods of information processing;

- use of fundamental knowledge of the mechanics while preparing and carrying out experimental research;

- teaching physical and mathematical disciplines at the educational institutions of general secondary and professional education.

Professional fields, wh ere our graduates possess competitive advantage:

Scientific research, Modelling and optimization of technological processes (oil and gas extraction, nuclear energetics, chemical industry), Aerodynamical research, Ballistic analysis, Material resistance research, Calculation of strength and stability of constructions, Software design; Teaching activity, Management activity; Business analytics.

Specializations within this programme