Mathematics and Mechanics

Novosibirsk State University

Degree or qualification is awarded: **Researcher, teacher**

Language of study: **Russian**
Mode of study: **full-time**
Duration: **4 years**
Availability of free education: **yes**
Price: **5 500 USD per year**

Programme webpage at the university website: https://education.nsu.ru/department_mechanics_mathematics_english/

Programme curator: **Alexander Matsokin**
Tel.: **+7-383-3306557**
E-mail: matsokin@sscc.ru

Postgraduate programs at Novosibirsk State University are oriented towards research through collaboration with the institutes of the Siberian Branch of the Russian Academy of Sciences. Postgraduate Students are scientifically advised by highly qualified specialists of these institutes.

Specializations within this programme

Real, Complex and Functional analysis

The specialization focuses on the functions and their generalizations. The research is pursued in the following areas:

1. Real analysis which is the branch of mathematical analysis that investigates the properties of functions of real variables.
2. Complex analysis which examines the functions of one and several complex variables and their properties.
3. Functional analysis, which investigates vector spaces endowed with some kind of limit-related structure and the linear operators acting upon these spaces.

Differential Equations, Dynamical Systems, and Optimal Control

The specialization aims at investigating an area of mathematics devoted to the study of differential equations. The research focuses on ordinary differential equations and partial differential equations. The main scientific goal is investigation of the solvability of differential equations, the description of qualitative and quantitative characteristics of solutions, and their applications.

Geometry and Topology

The objects of research are geometric structures, topological spaces, and their mappings. The scientific goal is to study the geometrical and topological structures that arise in mathematics and its applications.

Theory of Probability and Mathematical Statistics

The research focuses on mathematical models of random phenomena and objects. The aim of the theory of probability is the study of the universal mathematical laws and the application of these laws to the study of the properties of the specific probabilistic models. The aim of mathematical statistics is research of methods for the selection of mathematical models that best reflect the essential features of random data and also methods for collecting, organizing, and processing of random data.

Mathematical Logic, Algebra and Number Theory

Algebra examines algebraic structures that arise in mathematics and its applications. Mathematical logic focuses the study of syntactic and semantic properties of formalized mathematical theories and structural properties of their semantic models. Number theory covers arithmetic properties of mathematical objects.

Discrete Mathematics and Mathematical Cybernetics

The research covers six main areas:

- Discrete mathematics
- The theory of control systems
- Mathematical programming
- The mathematical theory of operations research and game theory
- The mathematical theory of pattern recognition and classification
- Mathematical theory of optimal control

Solid Mechanics

The research focuses on the patterns of deformation processes, damage, and destruction of various materials, as well as stress-strain state of solids from these materials as a result of mechanical, thermal, static, and dynamic effects in passive, active, gas, liquid environments and fields of various nature.

Mechanics of Liquids, Gas and Plasma

Mechanics of liquids, gas and plasma is an area of natural sciences that focuses on processes and phenomena accompanying the flow of homogeneous and multiphase fluids as a result of mechanical, thermal, electromagnetic, and other impacts.