PhD Program: Mathematical modeling and application of mathematics
Professional Branch: 4.5. Mathematics
Major Field of Study: Mathematical modeling and application of mathematics
Faculty: Mathematics and Natural Sciences
Department: Mathematics

Brief Annotation: The education in END doctoral program is organized within 6 semesters. The educated specialists obtain serious theoretical and practical training in the field of mathematical modeling, computer science and their applications in other areas such as biology, chemistry, economy etc. The educational process finishes with the elaboration and defense of PhD thesis. The specialists who have defended it successfully can find professional realization as scientific researchers, teachers, analysts in various application areas, specialists in software technologies.

Competences of PhD students completed this program:

The graduates of the doctoral degree must possess the following knowledge, skills and competencies:

- Thorough knowledge of mathematics and computer science;
- The ability to independently perform scientific research related to mathematical and numerical modeling of real processes;
- To develop, use and analyze mathematical models and software packages for analysis of the relevant phenomena;
- To analyze the properties of the numerical solutions of the considered mathematical models;
- To elaborate scientific publications;
- To prepare scientific presentations and report them to scientific forums.

Curriculum:

The curriculum of the PhD student is elaborated by the tutor depending on the subject of the PhD thesis. At least 4 subjects among the following should be included in the curriculum (including of other subjects is also allowed):

Sample list of courses

- Fundamentals of the mathematical modeling Assoc. prof. Mihail Kolev, PhD
- Numerical methods selected topics Assoc. Prof. Stefan Stefanov, PhD
- Numerical methods for solving differential equations Assoc. Prof. Stefan Stefanov, PhD
- Programming with software packages (Matlab) Assoc. prof. Krasimir Jordjev, DSc, Assoc. prof. Ivan Trenchev, PhD
- Functional analysis Assoc. prof. Vassil Grozdanov, PhD
- Mathematical models in biology and medicine Prof. Petar Milanov, Assoc. prof. Mihail Kolev, PhD
- Mathematical models in economy Prof. Petar Milanov
- Neural networks Prof. Petar Milanov
- Quantitative structure activity relationships (QSAR) Assoc. prof. Zhivko Velkov, PhD
- Computer methods in scientific research Assoc. Prof. Krasimir Yordzhev, DSc
- Specialized foreign language Assist. Prof. Milena Levunlieva, PhD

Graduation:

- Exams - after taking all exams provided in the curriculum, the doctoral student can be admitted to the defense of the dissertation.

- Defense of the PhD thesis - after elaborating and presenting of the thesis, according to the legal provisions.