

FNM in 2022



Faculty of  
Natural Sciences  
and Mathematics

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# MARIBOR - UNIVERSITY CITY

Maribor is **the second largest city in Slovenia** with approximately 110,000 inhabitants. It is the economic, cultural and educational centre of the north-eastern part of Slovenia. It lies at the intersection of transport routes from central to south-eastern Europe and from western central Europe to the Pannonian Plains. The earliest settlements in the Maribor area date back nearly a thousand years ago, but the city began to develop faster **in the middle of the 18th century**.

The University of Maribor is the second largest and second oldest university in Slovenia. Around 14,000 students and 2,000 employees of the University make Maribor a university city in all respects. Students give it a youthful vibrancy and promising prospects for the future, while professors bring their academic and professional excellence.

Maribor boasts a rich and diverse cultural tradition; in 2012, it was the **European Capital of Culture**. It is the site of the **world's oldest vine**, which is over 400 years old. It has beautiful green surroundings. The Pohorje mountain range has a ski centre that regularly hosts FIS World Cup races in skiing. Maribor is also a centre of congress tourism. Many men of note have passed through or lived here, including the pioneer of space research Herman Potočnik Nordung, and Nikola Tesla.



# FACULTY OF NATURAL SCIENCES AND MATHEMATICS

The Faculty of Natural Sciences and Mathematics (FNM) boasts one of **the oldest traditions** at the University of Maribor. It was founded from the Faculty of Education, which was a founding member of the University.


FNM is distinguished by exceptional research excellence and above-average students' evaluation of the work performed by academic staff. We are proud of our positive employee and student relations, and especially of our tutoring system, which is particularly important. FNM is the only member of the University of Maribor that has been ranked among the top in the world in two study areas, according to the Times Higher Education World University Rankings.

There are four departments at the faculty: Biology, Physics, Mathematics and Computer Sciences, and Technology. 14 study programs are available at all three levels of the Bologna Process framework. All of them enable students to acquire an in-depth understanding of theoretical backgrounds, as well as practical skills and competences. This provides them with excellent employment opportunities and a great competitive advantage in the labour market. We are the only faculty in Slovenia with a teacher training Uniform Master's study program, which opens doors to the graduates' employment in primary and secondary schools.

We are proud of all our BA, MA and PhD graduates, as well as our employees, who perform their work at the highest, globally comparable level. Ever since its inception, but especially in the past year, the actions of FNM have demonstrated to the wider community that a powerful sense of mission underpins all our fields of study.

Dean of FNM  
**prof. dr. Blaž Zmazek**

**Our Motto:**  **Creating professions of the future.**

**Pursuing Our Vision:**  To be the leading educational, research and development centre in the region in the field of basic natural sciences and mathematics, as well as being the leading centre in Slovenia for the education of teachers in all fields of science, mathematics, and technical professions at all levels of education.



# EDUCATION

FNM offers teacher training and non-teacher training study programs in the fields of Biology, Ecology with Nature Conservation, Physics, Mathematics, Computer Sciences, Technology, and Chemistry. We are the first and only one in Slovenia to offer a five-year teacher-training Uniform Master's program. Our doctoral study programs lay the groundwork for high-quality in-depth research in the sphere of promising and established scientists.

Most important educational goals include the placement of graduates onto the labour market, their links to possible employers, the quality of education provided, as well as adequate staffing and a favourable ratio of assistants and professors in relation to students. FNM cares for a constant development of teaching and research competences in our lecturers, while students are encouraged towards creative competitiveness, international mobility, and lifelong learning.

In the academic year 2022/23, **169 students were enrolled** in the first year of study:

- **90** BSc students,
- **36** MSc students of 5-year program
- **37** MSc students and **6** PhD students.

In total, **451 students are studying** at the faculty, of which there are:

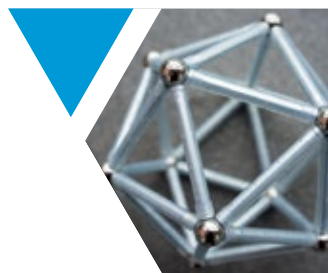
- **224** BSc students,
- **101** MSc students of 5-year program,
- **95** MSc students and **31** PhD students.

In 2022, **95 students** graduated, of which there were:

- **47** BSc diplomas,
- **32** MSc diplomas,
- **8** MSc 5-year program graduate, and
- **8** PhD graduates.

Vice-Dean for Education Affairs

**Prof. dr. Sonja Škornik**

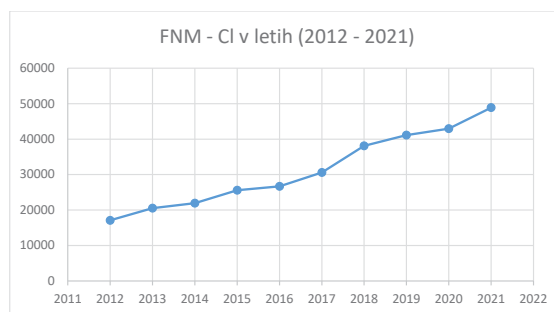


# RESEARCH

Scientific research at FNM has a long and rich tradition. Most recently, as many as three of our researchers received the Zois Award (the highest recognition of the Republic of Slovenia for scientific research), one received the Puch Award, and seven FNM researchers received the Zois Certificate of Recognition. Given all our researchers' outstanding achievements, it is no coincidence that FNM regularly ranks among the best in various evaluations of the research work performed by the University of Maribor, as well as international research work. In 2018, the University of Maribor was ranked among the top 300 world universities by the Times Higher Education World University Rankings in the fields of Mathematics, Statistics, Physics, Astronomy, Chemistry, Geology and Environmental Sciences. The study programs of Mathematics and Physics/Astronomy were ranked by the prestigious QS World University Rankings in 2017; Physics in 2017, 2018 and 2019, and Mathematics in 2017 and 2020.

We have successfully carried out more than 40 R&D projects and are currently participating in seven national research programs, whereby we are the leading research organization for two program groups, Computationally Intensive Complex Systems, and Digital Restructuring of the Deficitating Professions for Society 5.0 (Industry 4.0). We are also currently involved in 15 basic research projects, with FNM as leader of the project Preventing Heat Stress in Urban Systems under Climate Change. Finally, FNM is collaborating on five targeted research programs, as leading partner in the following three: Development of a Blended Learning Standard in Slovenia; Design, Testing and Preparation of the Result-Oriented Agri-Environmental Measure "Colorful Meadow" on HNV Grasslands in Slovenia, and Landscape Heterogeneity and the Forthcoming Agricultural Policy Measures in Slovenia.

In the international arena, we are leaders or partners in projects from most research-relevant countries around the world. Research activity is reflected in postgraduate studies, where students are actively and successfully involved in the research work.



Vir: [https://bib.cobiss.net/bibliographies/si/webBiblio/bibcit\\_20221111\\_122204\\_2547.html](https://bib.cobiss.net/bibliographies/si/webBiblio/bibcit_20221111_122204_2547.html)

The visibility of our research work is remarkable, as evidenced by the ten-year trend of the index of citations of research articles at FNM (in 2021, the number exceeded 48,000):

**Vice-Dean for Scientific Research and International Affairs**

**Prof. dr. Aleksander Vesel**

# COOPERATION WITH THE COMMUNITY

In the field of both research and education, FNM cooperates with the community either directly within the framework of shared employee recruitments or as a participant in joint projects. Cooperation outside the university environment is also very important.

## Partner companies

FNM cooperates closely with companies from the fields of statistical and algorithmic data processing and modelling, physics-based analyses and modelling of natural phenomena, machine construction, and mapping and nature protection-based evaluation of habitat types.

## Partner schools

Pre-service teacher education students perform lesson observations and teaching trials as part of their study process. This brings them into contact with their future work environments, and at the same time they become the first ambassadors to present our faculty to future generation students.

Secondary school students and teachers are invited to presentations, such as science days, research camps, open days at the faculty, vivarium visits, and more. Our goal is to create a motivating atmosphere for learning about science, mathematics, and technology, and provide prospective students with an opportunity to turn their personal interests into a formal study at FNM.

FNM highly appreciates and encourages the ambition and creativity of our students, and therefore actively involves them in professional, developmental, and scientific research projects, as well as in socially responsible work and intergenerational support.



## Participation in Organizations, Bodies and Commissions

Employees and students participate actively in different expert bodies and commissions at all levels, such as the Council of Experts of the Republic of Slovenia for General Education, the Slovenian Research Agency (ARRS), the Society of Mathematicians, Physicists and Astronomers of Slovenia (DMFA), the Biological Society of Slovenia, etc. through which they influence policy reforms, promote the development of scientific knowledge, and raise awareness about the importance of these skills in the contemporary society. In 2022, five of our colleagues held important positions at the Ministry of Education. With their knowledge and creative power, all of them have contributed to developing their respective fields of expertise for the benefit of the entire Slovenian higher education sector.

## Popularization of Science

Activities performed at FNM are highly visible in the community, such as thematic days and specialist lectures for secondary schools/gymnasias and other interested public, competitions in physics, biology and constructing, publication of articles or media broadcasts on the latest scientific discoveries, etc. Their efforts have not gone unnoticed by the professional public, as virtually every year individuals or teams are rewarded a high national-level award.

## Career Centre

Through a network of companies students systematically gather informal knowledge through personal consultations and enrich their experiences. We provide employers with access to prospective candidates.

## Natural Sciences and Mathematics Club

With the foundation of the Academy of Natural Sciences and Mathematics, the club set out to create an environment which will provide additional support to the most talented pupils and students.

## Centre for Lifelong Learning

The Centre offers opportunities for further education to FNM alumni, especially in relation to the national teaching community. It implements programs of continuous professional development for teachers, various forms of non-formal education and training, and an up-skilling program for teaching science in primary schools.

## Vice-Dean for Collaboration with Public Institutions

**prof. dr. Mitja Slavinec**



# TEACHER TRAINING PROGRAMS

At FNM, teacher training programs are the ones with the longest tradition. They are closely intertwined with other programs, especially in terms of common subject-specific subjects, and especially through those elective subjects whose content represents an important upgrade of acquired knowledge and skills regarding communication with colleagues in a real work environment.

In 2022, the work of FNM has been inevitably shaped by the global pandemic. Despite this, we have been successful in providing, among other things, practical experience to our students. The five-year MA study program Subject Teacher successfully underwent the model evaluation, which has been the focus of considerable effort during the past year. Our study programs are being integrated with the findings of development projects in which we participated as a consortium partner:

- Strengthening Entrepreneurship Competence and Promoting Flexible Transitions Between Education and the Environment in Grammar Schools (2017-2022),
- Science and Mathematics Literacy: Promoting Critical Thinking and Problem-Solving (November 2016-2022), and
- Innovative Learning and Teaching for Quality Graduate Careers and Excellent Higher Education (2018-2022).

This allows students to become familiar with new trends in teaching in primary and secondary schools. In addition, learning methods and teaching approaches that have proven to be effective during the pandemic period, are being integrated into the study process at FNM. We are also involved in the UM Pedagogical Network, a community for higher education teachers and faculty assistants of the University of Maribor.



## Collaboration with the Industry

FNM's cooperation with the industry is essential and represents an opportunity to build on our past work. Some of our study programs have already introduced courses aimed at gaining direct practical experience for students on the axis of cooperation between potential employers and FNM. We are pleased that other FNM study programs have followed suit. We generally receive positive and constructive feedback from our partner institutions, whose list has been extended over the past year, which is a good starting point for possible improvements to our study programs. Indirectly related to this area, a pilot project has also been approved this year as part of EU's Recovery and Resilience Facility, which we are implementing together with FGPA UM. One of the project's objectives is to ensure that the curricula of the study programs are designed in a flexible way, thus enabling the integration of knowledge and skills that follow the needs of the labor market and encouraging more cooperation with external experts from the industry.

## International Relations

The various scientific and research collaborations of our departments abroad have continued to run smoothly to a considerable extent, as have the teaching collaborations, which are also carried out remotely. In the past year, some flexibility has also been required in implementing visits by foreign experts to our departments and, conversely, in the departure of our staff members on professional or teaching trips abroad. We observe that more such visits were carried out than in the previous year. The war in Ukraine has made cooperation with this region very difficult, and virtually impossible with the Russian Federation for the same reason.

In October, a group of students from the Department of Technical Education visited the Czech Republic to participate in a week-long Erasmus BIP program »Activation Strategies in STE(A)M Education« at the Charles University in Prague.

We would also like to highlight the exemplary cooperation with the Natural Sciences and Mathematics Association of Slovenia, with whom we participated in the 4th Balkan Physics Olympiad, led by the Balkan Physics Association. This year's hybrid edition was organized by the Cyprus Physics Association, with contributions from FNM students of physics on behalf of Slovenia.

Vice Dean for Cooperation with the Industry, International Relations and Teacher Training Programs  
**Prof. dr. Robert Repnik**

# STUDENTS

## Student Council

Students interests and opinions are represented by the Student Council, the only formal body consisting exclusively of students, led by a Student Vice-Dean, and operating under the motto "By Students and for Students". Members of the Student Council discuss about strategies for successful studying, improving the quality of studies, suggestions, and possible issues, and in particular about students' rights and obligations. Various events are organized as part of the Council, with a view to reinforcing the relationships between students in a relaxed atmosphere.

- *Spring Greeting with a Healthy Breakfast*, to remind students about the importance of healthy eating.
- Study visits; getting to know potential employers and visiting viable companies that employ our graduates.
- Student mixer events and department picnics, for making new friends and acquaintances, for all generations.
- Post-exam parties, a great opportunity to relax after a busy exam period.
- *Trivia night*, an interfaculty competition between FNM, the Faculty of Arts (FF) and the Faculty of Education (PeF).

## Tutors

Tutors are successful students who help other students with advice. They also facilitate the adaptation of newcomers to the university environment and help to increase the transition of students to the next year of study.

## Society of Natural Science Students

Connecting FNM students of biology, ecology with nature conservation and other natural sciences. We share the desire for practical field work and specialist lectures on natural science topics.

Student Vice-Dean for Student Affairs

**Melani Potrč**



# IMPORTANT EVENTS AND ACHIVEMENTS

**Prof. Dr. Matjaž Perc** is ranked among the top 0.35 % of scientists in the world, according to Stanford University's list of the top 2% of scientists in the world.

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**Prof. Dr. Blaž Zmazek** was among the finalists of the national selection for the »*Prometheus of Science for Excellence in Communication*« award for 2021, for the creation and successful functioning of the online portal Razlagamo.si since the beginning of the Covid-19 pandemic, and for other efforts in connecting people with science.

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## University of Maribor Awards

2021

**Cecilija LOPARIČ HERCOG** received the University of Maribor Award for Professional Work 2021.

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## Faculty of Natural Sciences and Mathematics of the University of Maribor

2022

- **Prof. Dr. Samo Kralj** received the award for outstanding achievements in the field of scientific research, as an excellent expert, lecturer and outstanding researcher.
- **Prof. Dr. Alenka Lipovec** received the award for outstanding achievements in the field of education, for her outstanding contribution to the establishment and operation of the online portal Razlagamo.si.
- **Prof. Ddr. Boris Aberšek** received the award for outstanding achievements in the field of development and professionalism, for his contribution to the development of the expert field and to the better functioning and reputation of FNM.
- **Assistant Prof. Dr. Terezija Ciringer** received the recognition award for outstanding achievements in the development of the expert field, for responsible and efficient work and for proposing solutions to improve the work of the Department of Biology at FNM UM.



# FNM IN FIGURES

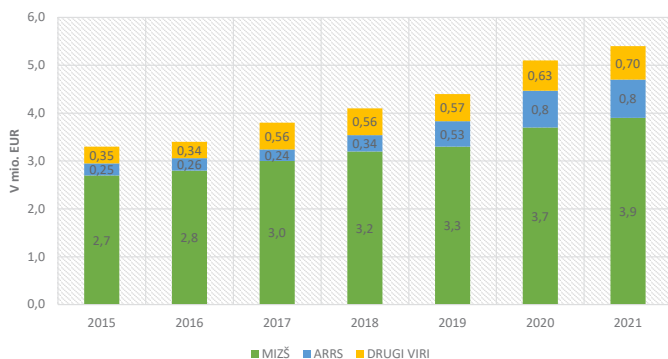
FNM employs 106 full-time and part-time employees and 97 external staff. A total of 451 students are currently studying at the faculty.

The average age of employees is 45 years, which indicates that FNM has an optimal ratio of young power to experienced staff.

► Professors:	18
► Associate professors:	9
► Assistant professors:	12
► Assistants:	29
► Skills teacher:	1
► Researchers:	14
► Laboratory staff:	7
► Support staff:	16



SREDSTVA FNM PO VIRIH 2015 DO 2021



# FACULTY BODIES

**DEAN:** prof. dr. Blaž Zmazek (from 17. 1. 2022)

**ACADEMIC ASSEMBLY:** prof. ddr. Boris Aberšek

**SENATE OF THE FACULTY:** prof. dr. Jana Ambrožič Dolinšek, prof. dr. Iztok Banič, prof. dr. Marko Jakovac, prof. dr. Mitja Kaligarič, prof. dr. Mateja Ploj Vrtič, prof. dr. Robert Repnik, prof. dr. Sonja Škornik, prof. dr. Nataša Vaupotič, prof. dr. Aleksander Vesel, prof. dr. Blaž Zmazek (dean and member by function), Anica Ficko, student, Mo Lipovec, student, Klemen Tršinar, student.

## MANAGEMENT BOARD:

- Dean (by function)
- Vice-Dean for Student Affairs (by function)
- Secretary-General (by function)
- doc. dr. Aleš FAJMUT
- prof. dr. Marko JAKOVAC
- doc. dr. Nenad MUŠKINJA
- doc. dr. Nataša PIPENBAHER



## DEPARTMENT CHAIRS:

### DEPARTMENT

Department of Biology  
Department of Physics  
Department of Mathematics and Computer Science  
Department of Technical Education

### CHAIR

doc. dr. Tina Klenovšek  
doc. dr. Eva Klemenčič  
doc. dr. Tanja Dravec  
doc. dr. Nenad Muškinja

## HEADS OF INSTITUTES:

### INSTITUTE

Institute of the Dept. Of Mathematics and Computer Science  
Institute for Biology, Ecology and Nature Conservation  
Institute for Physics  
Institute of Contemporary Technologies  
Science and Research Centre

### HEAD

prof. dr. Boštjan Brešar  
prof. dr. Franc Janžekovič  
prof. dr. Matjaž Perc  
prof. ddr. Boris Aberšek  
prof. dr. Drago Bokal

### STUDENT COUNCIL:

- Melani Potrč, Vice-Dean for Student Affairs,
- Ema Tancoš,
- Tjaša Kašič,
- Igor Jurovič,
- Daša Zamernik,
- Mitja Suvajac,
- Žan Smej,
- Mojca Šeruga,
- Eva Gros,
- Blažka Golob Pleunik,
- Mojca Oprčkal,
- Ana Palčič.



Faculty of  
Natural Sciences  
and Mathematics

### FNM UM PROGRAM COUNCIL:

Igor AKRAPOVIČ	Director and owner Akrapovič, d. d.
Simona BIRO	Director of CEROP, Puconci
akad. prof. dr. Igor EMRI	Science Europe
mag. Benjamin JOŠAR	management board president of Triglav, d. d.
Simona KALIGARIČ	Institute of the Republic of Slovenia for Nature Conservation
dr. Vinko LOGAJ	National Education Institute Slovenia
Aleksander BRUNČKO	Director of DEM
Mitja Podgajski	director of IDEA TV
red. prof. dr. Aleksander VESEL	Vice-Dean of FNM
izr. prof. dr. Sonja ŠKORNIK	Vice-Dean of FNM
izr. prof. dr. Robert REPNIK	Vice-Dean of FNM
red. prof. dr. Nataša VAUPOTIČ	Dean FNM UM 2007–2015
izr. prof. dr. Mitja SLAVINEC	Dean FNM UM 2015–2021

### FNM PROGRAM COUNCIL FOR TEACHER TRAINING PROGRAMS

Alenka Ambrož Jurgec	Srednja gradbena šola Maribor
Roman Činč	Gimnazija Murska Sobota
Zvonko Kustec	Gimnazija Franca Miklošiča Ljutomer
Marija Lešer	III. gimnazija Maribor
dr. Marko Jagodič	II. gimnazija Maribor
Herman Pušnik	Prva gimnazija Maribor
doc. dr. Samo Repolusk	Zavod Antona Martina Slomška Maribor, FNM UM
Ludvik Sukič	Srednja poklicna in tehniška šola Murska Sobota
Boštjan Šeruga	Gimnazija Ptuj
dr. Anton Šepetavc	I. gimnazija v Celju
doc. dr. Andrej Flogie	FNM UM
izr. prof. dr. Robert Repnik	Vice-Dean of FNM



# FNM DEPARTMENTS



# Faculty of Natural Sciences and Mathematics

Department of

**Biology**



Department of

**Physics**



Department of

**Mathematics and Computer Science**

Department of

**Technical Education**



[www.fnm.um.si](http://www.fnm.um.si)

 [www.facebook.com/FNM.Maribor](https://www.facebook.com/FNM.Maribor)

 [dekanat.fnm@um.si](mailto:dekanat.fnm@um.si)

# Biology

## STUDY PROGRAMS

- ▲ BACHELOR PROGRAM – BIOLOGY (3 years, 180 ECTS)
  - ▲ BACHELOR PROGRAM – ECOLOGY WITH NATURE CONSERVATION (3 years, 180 ECTS)
  - MASTERS PROGRAM – BIOLOGY AND ECOLOGY WITH NATURE CONSERVATION (2 years, 120 ECTS)
  - UNIFIED BACHELOR + MASTERS PROGRAM – TEACHER OF BIOLOGY AND ....\*;  
TEACHER OF CHEMISTRY AND ....\*
  - \* Biology, Chemistry, Mathematics, Physics, Design and Technology, Computer Science (5 years, 300 ECTS)
  - PhD PROGRAM – ECOLOGICAL SCIENCES (4 years, 240 ECTS)
- *large number of different field excursions*
  - *involvement of students in research and R&D projects already at bachelor and masters level*
  - *innovative and interdisciplinary elective courses*
  - *flexible MSc and PhD programme structure*
  - *possibility of internship and student exchange*

## RESEARCH AREAS

- Vegetation Ecology of Grasslands, Flora of Slovenia
- Coastal Habitats, Archaeobotany, Landscape ecology
- Zoology, Animal Behaviour
- Basic and Applied Ecology
- Biodiversity and Nature Conservation
- Microbiology
- Plant and Animal Physiology
- Biology and Chemistry Didactics



*The study of life* at the Department of Biology UM embraces many areas of biological interest to expand our knowledge of biodiversity and its conservation.

<https://biologija.fnm.um.si/>

📘 [www.facebook.com/OddelekZaBiologijoFNM](https://www.facebook.com/OddelekZaBiologijoFNM)  
[www.facebook.com/katedraizokem.fnmum](https://www.facebook.com/katedraizokem.fnmum)

✉ [biologija.fnm@um.si](mailto:biologija.fnm@um.si)

# Physics

## STUDY PROGRAMS

- ▶ **BACHELOR PROGRAM – PHYSICS** (3 years, 180 ECTS)
  - **UNIFIED BACHELOR + MASTERS PROGRAM – TEACHER OF PHYSICS AND ....\*** (5 years, 300 ECTS)  
\* Mathematics, Chemistry, Biology, Design and Technology, Computer Science
  - **MASTERS PROGRAM – PHYSICS** (2 years, 120 ECTS)
  - **PhD PROGRAM – PHYSICS, BIOPHYSICS, EDUCATIONAL PHYSICS** (3 years, 180 ECTS)
- *theory and application oriented programs*
  - *involvement of students in research and R&D projects already at bachelor and masters level*
  - *innovative and interdisciplinary elective courses*
  - *possibility of internship and student exchange*

## RESEARCH AREAS

- Physics of Complex Systems
- Soft Matter Physics
- Biophysics
- Applied Physics
- Physics Education



### ESSENTIAL SCIENCE INDICATORS - THOMSON REUTERS:

„The University of Maribor has entered the top 1% of institutions in the field of Physics - and it did so with the highest number of citations.“  
<http://archive.sciencewatch.com/inter/ins/08/08mayMaribor/>

**[www.fizika.fnm.um.si](http://www.fizika.fnm.um.si)**

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Email icon [fizika@um.si](mailto:fizika@um.si)

Department of

# Mathematics and Computer Science

## STUDY PROGRAMS

- ▶ **BACHELOR PROGRAM – MATHEMATICS** (3 years, 180 ECTS)
- **UNIFIED BACHELOR + MASTERS PROGRAM – TEACHER OF MATHEMATICS AND ....\*;  
TEACHER OF COMPUTER SCIENCE AND ....\***  
\* Mathematics, Computer Science, Biology, Physics, Chemistry, Design and Technology (5 years, 300 ECTS)
- **MASTERS PROGRAM – MATHEMATICS** (2 years, 120 ECTS);  
**EDUCATIONAL MATHEMATICS** (2 years, 120 ECTS)
- **PhD PROGRAM – MATHEMATICS** (3 years, 180 ECTS)

- *educating experts with knowledge of mathematics and computer science to work in the economy, financial sector and research institutes*
- *educating mathematicians, future teaching assistants and university professors*
- *educating teachers of mathematics*
- *educating teachers of computer science*

## RESEARCH AREAS

- Algebra
- Applied Mathematics
- Differential Equations
- Discrete Mathematics
- Geometry
- Mathematics Education
- Computer Science Education and E-learning
- Topology



WE COUNT ON YOU

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# Technical Education

## STUDY PROGRAMS

- ▲ **UNIFIED BACHELOR + MASTERS PROGRAM – TEACHER OF DESIGN AND TECHNOLOGY AND ....\*** (5 years, 300 ECTS)  
\* Biology, Chemistry, Computer Science, Mathematics, Physics
- **MASTERS PROGRAM – EDUCATIONAL DESIGN AND TECHNOLOGY – SINGLE MAJOR** (2 years, 120 ECTS)
- **PhD PROGRAM – EDUCATION IN TECHNOLOGY AND ENGINEERING** (3 years, 180 ECTS)

- *education of design and technology teachers*
- *the link between theory and practice in pedagogical terms*
- *innovative and interdisciplinary elective courses*
- *possibility of internship and student exchange*



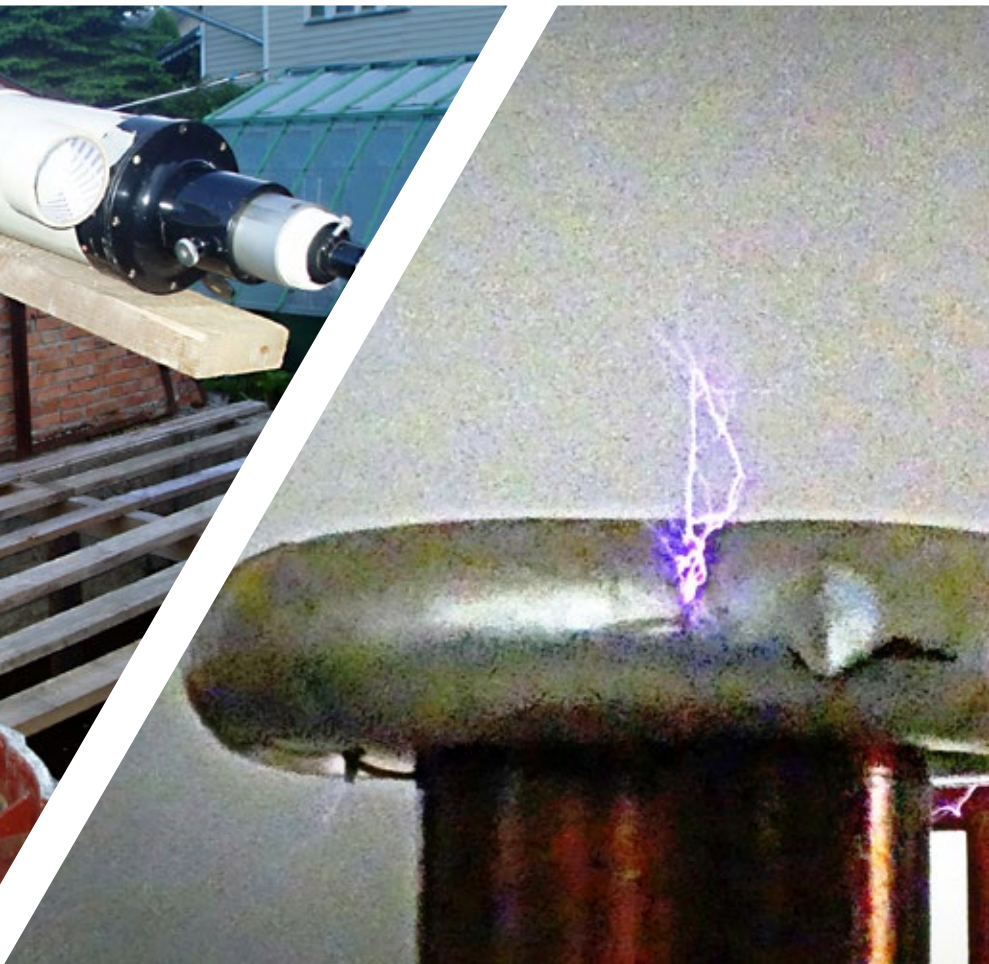
## RESEARCH AREAS

- **Development of Teaching Models**
- **Cognitive Neuroscience and Philosophy of Mind**
- **Intelligent Tutoring Systems and Smart Learning Environments**
- **Integration of Technical Sciences and Knowledge Transfer to Education**

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