

Undergraduate study programme Mathematics and Computer Science

Why Mathematics and Computer Science?

Mathematics and Computer Science form an inseparable foundation of **modern science and technology**. Mathematics provides the fundamental language of **abstract thinking, logic, and modeling**, while computer science enables the **effective realization of these ideas** in the form of algorithms, programs, and information systems. Together, they constitute the backbone of the **digital society, artificial intelligence, data science, information security, modern communications, and numerous research and industrial breakthroughs** that decisively shape the 21st century.



Modern
equipment



Research and
field work



International
exchanges



Extensive
extracurricular
activities

General information

Duration: 3 years

Mode of study: full-time

Language of study: Slovene, English

Degree awarded: "diplomirani inženir matematike in računalništva (UN)" equiv. to B.Sc. in Mathematics and Computer Science

Location: Koper

Admission requirements: passed the matura examination or passed the vocational matura

Benefits of the study at UP FAMNIT?

- Gain early exposure to a top-tier **research environment** during your undergraduate studies.
- Join a small, dynamic team that can more easily **adapt to your expectations and needs**.
- UP FAMNIT is internationally recognized for its research in **algebraic and discrete mathematics, graph theory, theoretical computer science, and data and computational methods**, which opens up broad opportunities for students for further studies, research work, and successful careers in an international environment.
- To acquire **key foundations** for further study or research work in the fields of computer science, data science, information security, mathematics, and related areas.

My career **opportunities?**

Graduates are primarily prepared for entry-level and junior positions that require strong analytical, algorithmic, and computational competencies.

Typical career paths include:

- data analyst / junior data scientist,
- junior algorithm developer or engineer of efficient computational solutions,
- junior software developer with strong mathematical and algorithmic foundations,
- junior positions in the fields of information security and cryptography.

Thanks to their broad and solid foundational knowledge, graduates are also competitive in the financial sector, high-tech companies, and research and development teams.

About the **programme**



Mathematics and Computer Science is an interdisciplinary program designed for individuals who want to understand and shape the digital world. The program combines a strong foundation in mathematics with an analytical and problem-solving approach. This combination opens the door to careers in data science, artificial intelligence, software development, and information security, as well as opportunities for further studies in an international setting.

- Dr. Rok Požar,
Programme coordinator -



Course structure

1st year

Algebra I - Matrix Calculus
Algebra II - Linear Algebra
Analysis I - Foundations of Analysis
Analysis II - Infinitesimal Calculus
Discrete Mathematics I - Set Theory
Discrete Mathematics II - Combinatorics
Mathematical Practicum
Computer Practicum
Programming I
Computer Systems

2nd year

Algebra III - Abstract Algebra
Analysis III - Functions of Many Variables
Data Structures and Algorithms
Introduction to Numerical Calculations
Programming II
Probability
Algebra IV - Algebraic Structures
Formal Languages and Computability
Introduction to Database Systems
Coding Theory

3rd year

Mathematical Modelling
Statistics
Graph Theory
Programming III - Concurrent
Programming
Introduction to Machine Learning and
Data Mining
Cryptography and Computer Safety
Optimization Methods
External Elective Course I
External Elective Course II
External Elective Course III

