Mathematics and computer science undergraduate study programme, first Bologna cycle

COURSE STRUCTURE of the study programme

The study programme consists of compulsory (27) and elective (3) courses.

In the third year, students select three external elective courses; one external elective course may be replaced by Practical Training in a Work Environment (lasting three weeks).

All courses carry 6 ECTS under the European Credit Transfer and Accumulation System (ECTS).

To complete the programme, a minimum of 180 ECTS must be obtained, including all academic requirements within the study programme.

The following section presents the structure of the study programme by year and the compulsory courses of the programme.

Table 1: Structure of the study programme

Year of study	Study obligation	Number	ECTS-credits (ECTS)	
			ECTS	ECTS/Year of study
1.	Compulsory Course	10	60	60
2.	Compulsory Course	10	60	60
3.	Compulsory Course	7	42	60
	External Elective Course	3	18	

Legend:

ECTS credits (ECTS) = credit points awarded under the European Credit Transfer and Accumulation System (ECTS). The credit system facilitates student mobility and the mutual recognition of completed academic requirements.

ECTS credits represent an average estimate of the time required to complete a course and include both organized forms of instruction (lectures, seminars, seminar and laboratory exercises, fieldwork, practical training, etc.) and the student's independent work (exam preparation and other course-related obligations, etc.). One (1) ECTS credit corresponds to 25 to 30 hours of study workload. Credits are awarded upon the successful completion of the requirements for an individual course.

Table 2: First year of study

No.	Course	ECTS
1.	Algebra I - Matrix Calculus	6
2.	Algebra II – Linear Algebra	6
3.	Analysis I – Foundations of Analysis	6
4.	Analysis II – Infinitesimal Calculus	6
5.	Discrete Mathematics II – Combinatorics	6
6.	Mathematical Practicum	6
7.	Computer Practicum	6
8.	Programming I	6
9.	Discrete Mathematics I – Set Theory	6
10.	Computer Systems	6

Table 3: Second year of study

No.	Course	ECTS
1.	Algebra III – Abstract Algebra	6
2.	Analysis III – Functions of Many Variables	6
3.	Data Structures and Algorithms	6
4.	Introduction to Numerical Calculations	6
5.	Programming II	6
6.	Probability	6
7.	Algebra IV - Algebraic Structures	6
8.	Formal Languages and Computability	6
9.	Introduction to Database Systems	6
10.	Coding Theory	6

Table 4: Third year of study

No.	Course	ECTS
1.	Mathematical Modelling	6
2.	Statistics	6
3.	Graph Theory	6
4.	Programming III - Concurrent Programming	6
5.	Introduction to Machine Learning and Data Mining	6
6.	Cryptography and Computer Safety	6
7.	Optimization Methods	6
8.	External Elective Course I	6
9.	External Elective Course II	6
10.	External Elective Course III	6

ELECTIVE courses

In the third year, students select three external elective courses.

External elective courses may be selected within accredited study programmes at higher education institutions in Slovenia or abroad, specifically from programmes in the fields of mathematics, financial mathematics, bioinformatics, computer science, and informatics.

Within the framework of external electives in the third year, students may complete traineeship in a working environment (lasting three weeks and carrying 6 ECTS). The purpose of this practical training is to enable students to gain professional experience in the field of mathematics. The training is carried out in a real work environment under the supervision of a qualified mentor in mathematics. Students who choose to undertake practical training must first coordinate with the study programme coordinator and then record their decision

on the enrolment form when enrolling in the third year. More detailed instructions are available in the section Practical Training.

For assistance and guidance in selecting elective courses and fields of study, students may consult the study programme coordinator.

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