

CS Specialization: Algorithms

This specialisation will introduce students to the mathematical tools and algorithmic techniques for solving complex programming tasks arising in modern IT systems. The focus in the specialisation is on mathematical foundations, algorithm design and analysis.

This specialization enables you to

- Compute essential constructions of linear algebra and probability theory
- Apply tools of linear algebra and probability to solve mathematical problems
- Design and analyze algorithms using advanced tools like randomization or approximation
- Solve problems on Big Data efficiently
- Identify problems that are unlikely to admit efficient algorithms

Career Prospects

This specialisation will enable you to formulate practical problems of IT companies in a fashion that enables you to find efficient and scalable solutions. In times of Big Data, this is an essential skill of a Software Developer. Advanced knowledge of algorithms is also one of the main competencies that international IT companies value in job candidates.

Prerequisites

In general the specialisation requires willingness to work with mathematical concepts. Students are expected to have solid foundations of algorithms, usually gained through Algorithms and Data Structures and Algorithm Design. Students are also required to have a solid foundation in Discrete Mathematics.