

# Overview of the BS Program

## Year 1 | Subject

### T1 | All tracks

Philosophy (Logic + Discrete Maths)  
Fundamentals of Computer Architecture  
Mathematical Analysis I  
Analytical Geometry and Linear Algebra I  
Introduction to Programming  
English

### T2 | All tracks

Data Structures and Algorithms  
Mathematical Analysis II  
Analytical Geometry and Linear Algebra II  
Theoretical Computer Science  
Software System Analysis and Design  
English

### T3 | All tracks

Software Project  
Tech Elective 1  
Hum Elective 1  
Physical education and sport  
History (history of Russia, world history)

## Year 2 | Subject

### T1 | All tracks

Philosophy 2 (Introduction to AI)  
Probability and Statistics  
Physics I (Mechanics)  
Operating Systems  
Differential Equations  
Introduction to Optimization

### T2

**DS** Networks  
Introduction to Machine Learning  
Databases  
Distributed and Network Programming  
Statistical Techniques

**AAI** Networks  
Introduction to Machine Learning  
Databases  
Reinforcement Learning  
Nature Inspired Computing

**R** Introduction to Machine Learning  
Physics II (Electrical Engineering)  
Control Theory  
Theoretical Mechanics  
Fundamentals of Robotics

**SD** Networks  
Introduction to Machine Learning  
Databases  
Distributed and Network Programming  
System and Network Administration

**CS** Networks  
Introduction to Machine Learning  
Databases  
Distributed and Network Programming  
System and Network Administration

### T3 | All tracks

Tech Elective 2  
Tech Elective 3  
Hum Elective 2  
Life Safety  
Elective disciplines (modules) in physical education and sport

## Year 3 | Subject

### T1

**DS** Information Retrieval  
Introduction to Computer Vision  
Natural Language Processing  
Practical Machine Learning and Deep Learning  
Tech Elective 4

**AAI** Information Retrieval  
Introduction to Computer Vision  
Natural Language Processing  
Practical Machine Learning and Deep Learning  
Tech Elective 4

**R** Introduction to Computer Vision  
Practical Machine Learning and Deep Learning  
Mechanics & Machines  
Tech Elective 4

**SD** Information Retrieval  
Programming Paradigms  
Compiler Construction  
Lean Software Development  
Tech Elective 4

**CS** Information Retrieval  
Programming Paradigms  
Fundamental of Computer Security  
Network and Cyber Security  
Tech Elective 4

### T2

**DS** Data Mining  
Data and Knowledge Representation  
Big Data  
Game Theory  
Academic and Research Writing

**AAI** Human-AI Interaction Design  
Explainable and Fair AI  
Big Data  
Game Theory  
Academic and Research Writing

**R** Autonomous Robotics  
Robotic Systems  
Sensors & Sensing  
Signals and Systems  
Academic and Research Writing

**SD** Signals and Systems  
DevOps Engineering  
Software Quality, Reliability and Security  
Advanced compiler construction and program analysis  
Academic and Research Writing

**CS** Signals and Systems  
DevOps Engineering  
Secure System Development  
Software Quality, Reliability and Security  
Academic and Research Writing

## Year 4 | Subject

Full-time industrial internship in a company  
Thesis with a university supervisor

\*Abbreviation for tracks

DS - Data Science  
AAI - Applied Artificial Intelligence  
R - Robotics

SD - Software Development  
CS - Cyber Security