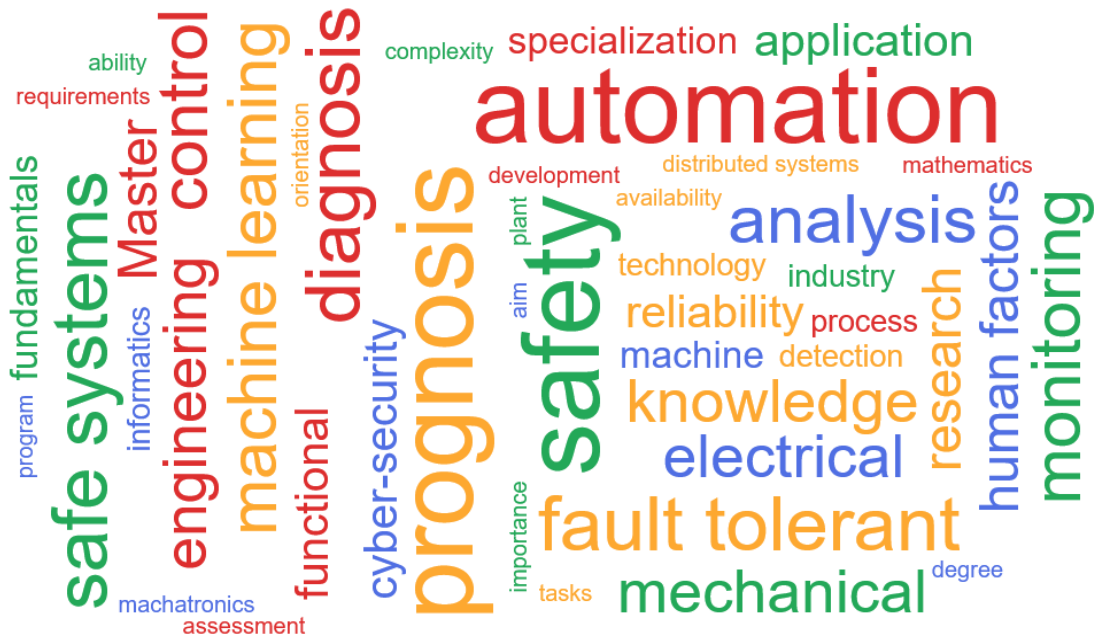




# Master ISE Automation and Safety

Specializations:

Automation and Control Engineering (ACE)  
Safe Systems (SaSy)





## Motivation

Complex engineering systems in typical engineering fields like **Electrical** or **Mechanical Engineering** are developed with constantly increasing demands on **automation technologies** as well as **system reliability and availability**. As a result, **modern methods of both automation technology and safety engineering** are gaining in importance.

In the context of "**Industry 4.0**", issues related to **process monitoring, fault detection and diagnosis, fault-tolerant systems, human factors, functional safety, cyber-security and system reliability** are also of increasing importance both in research and in industrial applications.

## Overview

The Automation and Safety Master degree program includes all **advanced and relevant subjects in control and automation technology**. The specialization ACE focuses on the related fundamentals and advanced methods whereas the specialization SaSy provides all subjects that are necessary for the **safety-related evaluation** of machines and systems as well as automation technologies. The study program includes a higher proportion of laboratories, reports, and presentation formats and addresses subjects from **automatic control, mechatronics, mechanical engineering and cyber-systems**. Graduates master the solution of **automation and mechatronic** tasks based on a research and application-oriented study program at **an international top level**.

## Areas

- Mathematics and additional physical fundamentals
- Process automation technology
- Higher theoretical methods of control engineering
- Real-time systems and distributed computer systems
- Human factors
- Fault diagnosis and fault tolerance in technical systems
- State and parameter estimation (ACE)
- Advanced labs and projects in the area of industrial cyber-physical systems, functional safety and security in cyber control and automation systems (ACE)
- Diagnosis and prognosis, functional safety (SaSy)
- Distributed sequence of practical labs and seminars teach fundamental with practical application knowledge for industry and research (SaSy)

## Contact



## Prerequisites

- Bachelor **Mechanical/Electrical Engineering**, Bachelor **Sicherheitstechnik** or similar
- Advanced knowledge in Dynamics and Control Engineering (can be repeated as obligation)
- Very good **English language** skills
- Strong interest in **newest approaches** and technologies, **artificial intelligence, machine learning**
- **Programming skills** and strong interest in improving them