The complexity of technical systems is continually increasing, and our society relies on an ever-growing number of electronic devices to enhance everyday life. At the same time, numerous industries are exploring new ways to optimize their processes through digitalization. In this rapidly evolving landscape, engineers are faced with demanding and interconnected systems, requiring expertise beyond dealing with individual components. That’s why we offer two demanding specializations for you to choose from, each with its particular content and characteristics: Electronic Systems and Robotic Systems.

**COURSE INFORMATION**

The first part of the study program focuses on general knowledge needed to design systems. The remaining is dedicated to the specialisations offered:

**Electronic Systems**

Our graduates apply their skills to the analysis of electronic circuits, using the principles of both analogue and digital electronics. Furthermore, they use knowledge of components, signal processing and feedback systems to create functional and efficient electronic systems.

**Robotic Systems**

Our graduate students use their skills to integrate new technologies, such as artificial intelligence, smart sensors and additive manufacturing to provide customised solutions for robot-based workplaces including principles of human-robot interaction.

**JOBS AND CAREER**

Graduates will be equipped to demonstrate an advanced understanding of computer science, dynamical systems, automation and control, mathematics, modeling and simulation, and sensors and actuators. They will be able to use artificial intelligence methods to solve complex engineering problems, adopt a system-oriented thought process and apply system-oriented methodologies. In the Systems Design master’s program, future engineers undergo comprehensive training to tackle the technological and methodological challenges inherent in the realm of cutting-edge electronic systems. This preparation extends to their adept application in industrial settings, particularly in the realm of robotic systems.
**CURRICULUM**

**SYSTEMS DESIGN**

### 1st Semester
- **Systems Design Essentials**: 5 ECTS
- **Advanced Engineering Mathematics**: 5 ECTS
- **Dynamical Systems**: 5 ECTS
- **Signal and Data Analysis**: 5 ECTS
- **Software Development for Embedded Systems**: 5 ECTS
- **Introduction to Machine Learning**: 5 ECTS

### 2nd Semester
- **Peripheral Devices and Sensors**: 5 ECTS
- **Advanced Control Systems**: 5 ECTS
- **Industrial Automation Systems**: 5 ECTS
- **Signal and Data Processing**: 5 ECTS
- **Advanced Electronic Systems**: 5 ECTS
- **Electro-dynamics**: 5 ECTS

### 3rd Semester
- **High Speed Systems Design**: 5 ECTS
- **FPGA Systems Prototyping**: 5 ECTS
- **Power Electronics**: 5 ECTS
- **Electronics Special Topics**: 5 ECTS
- **Elective Module 1**: 5 ECTS
- **Elective Module 2**: 5 ECTS

### 4th Semester
- **Master Thesis**: 25 ECTS
- **Master Thesis Seminar**: 5 ECTS
- **Master Exam**: 5 ECTS

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**DATES**

*Start:* 1 October 2024

*Study guidance:* info@fh-kaernten.at | +43 5 90500 7700

*FH Days and information events:* all dates at www.fh-kaernten.at/study-guidance

**COSTS**

*Tuition fee:* € 363.36 per semester

*Student Union Fee:* around € 22, annual adjustment

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**CONTACT**

*T:* +43 5 90500-2003

*M:* sd@fh-kaernten.at

*W:* www.cuas.at/sd

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**ECTS**

- European Credit Transfer System

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*Elective Module 1 and 2: Research project or two of the Modules 1 – 5

- Research project = Collaboration in one of the Research groups of Carinthia University of Applied Sciences

- Module 1: Sustainable Systems Engineering

- Module 2: Sustainable Systems Design

- Module 3: Integrated Sensors

- Module 4: Radio-Frequency Circuits and Systems

- Module 5: Electromagnetic interference in power electronics (EIPE)

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