Course: Robots — credits: 5

Course code	GTVB23ELRO
Name	Robots
Study year	2025-2026
ECTS credits	5
Language	English
Coordinator	I. Plutschouw
Modes of delivery	Tutorial
Assessments	Robots - Other assessment

Learning outcomes

Learning Outcomes

This Focus Track has five Programme Learning Outcomes.

Programme Learning Outcomes

B1. The student can construct technical solutions informed by relevant knowledge and theories.

B2. The student alters and differentiates technical solutions using identified improvements.

C3. The student elaborates digital prototypes using appropriate methods and techniques

F2. The student can experiment with innovative concepts to address complex or complicated situations.

G2. The student acts and performs within a team, valuing the team's diversity and facilitating contributions of team members.

Content

The Robotics elective is designed to provide students with an opportunity to explore the world of robotics and its applications. Through guided project work, students collaborate in teams to build robots that can express different emotions and interactions with users. Throughout the elective, students not only gain a solid foundation in the basics of electronics, Arduino programming, basic sensors, and automation in both software and hardware design but also in social interactions, empathy and how emotions can be detected and shown.

The first few weeks of the course focus on fundamental electronics and Arduino programming, while the latter weeks explore more advanced topics such as social interaction, empathy, and behaviour. Students are encouraged to take on specialized roles within their teams, while still learning the basics of electronics, power systems, basic sensors, Arduino programming, visual detection, and more.

Assessment of each student's progress and understanding is based on a group report that describes the build process and outlines how each group member contributed to the final product. In addition, each student participates in an individual interview to assess their intrinsic understanding of the fundamental topics covered in the course. The minimum requirement for each student is to design and implement a functional contribution to the robot in each of the following areas: electronics, Arduino coding, and mechanical design/construction and how these can show and influence the state of the robot.

By the end of the course, students should be able to apply their newly acquired skills and knowledge to create a functional robot that can express different emotions and interact with users. Students who wish to pursue more advanced topics in robotics can continue their studies in machine learning, advanced AI, more advanced sensor systems, or industry-standard development platforms. The Robotics elective offers an exciting opportunity for students to develop their creativity, problem-solving skills, and critical thinking abilities, all while having fun building robots.

Included in programme(s)

Creative Media & Game Technologies
Minor Game Design & Development
CMGT Exchange Minor Game Design & Development

School(s)

School of Communication, Media & IT

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