Course: Sensor Principles and Applications — credits: 5

Course code	ELVP25SPA
Name	Sensor Principles and Applications
Study year	2026-2027
ECTS credits	5
Language	Dutch, with parts in English, English
Coordinator	B.D. Williams
Modes of delivery	Problem-based learning
Assessments	Sensor Principles and Applications - Assignment

Learning outcomes

Defining
The student clearly identifies a problem or customer need, contextualizes it, consults relevant sources, and converts it into a goal, problem statement, and electrical engineering requirements.

Designing
The student considers various solution directions to arrive at a detailed and well-founded electrical engineered product/service/process based on the program of requirements, using appropriate design methodologies and taking into account societal interests and engineering standards.

Professionalizing
The student is able to acquire and maintain skills, is self-directed, constructive in giving and receiving feedback, shows flexibility, and can communicate clearly.

Content

In this course, you will learn how sensors work, how to select the right sensor for an application and how environmental factors can affect measurements. You explore the underlying principles of different sensor types and investigate how they generate and process signals. Through practical assignments, you apply this knowledge directly: you design, build and test sensors, analyse measurement results and learn how to guarantee reliable measurements in a realistic working environment. This also covers the link to broader applications, such as energy storage, automation or monitoring in technical systems. After completing this course, you will be able to select sensors purposefully, critically evaluate them and apply them within various technological contexts.

Included in programme(s)

Electrical Engineering Major Mechatronics
Electrical Engineering Major Sensors & Smart Systems
Electrical Engineering Major Energy & Power Electronics

School(s)

Engineering, Life Sciences & ICT

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