

## Sensors and Measurement

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**Subject area:** Electrical Engineering

<b>University:</b>	CTU
<b>Level:</b>	BA3, BA4, MA all years
<b>Teaching mode:</b>	blended: mostly online, but presence on campus required in certain period
<b>Instructor(s):</b>	Doc. Ing. Mattia Butta, Ph.D.

### Short description

The first half of the course is focused on electrical measurements from the basics to the most advanced techniques to perform a measurement of measurement of an electric quantity including its digitalization. The second part of the course deals with sensors of different physical quantities: sensors of temperature (contact and contact-less), force, flow, velocity, position, acceleration...

### Full description

<https://fel.cvut.cz/cz/education/bk/predmety/43/57/p4357606.html>

### Learning outcomes

At the end of the course a successful student will be independent in designing and assembling a measurement circuit to measure a specific quantity, knowing how to avoid possible artifacts and will have a basic experience on how to select and use the main sensors.

### General information

<b>Contact hours per week:</b>	6
<b>Total workload:</b>	150 (in student hours for the whole course)
<b>ECTS credits:</b>	6
<b>Language:</b>	English
<b>Course start date:</b>	20 February 2023
<b>Course end date:</b>	28 May 2023

**Add. info about start date:** Start course date refers to start of the semester at CTU. Schedules will be available 1-2 weeks before semester starts.

**Weekly teaching day/time:**

**Time zone:** CET (Denmark, Germany, France, Netherlands, Switzerland, Czech Republic)

**Further information:** Lessons are recorded and available on YouTube.

**IMPORTANT:** students will be required to visit our Faculty in Prague for an intensive in-person 4 day training in the laboratory, where the students will perform all the laboratory tasks prescribed by the syllabus (see link above).

These labs are mandatory and must be attended in order to obtain the assessment necessary to take part to the final exam.

**Prerequisites:** The student should know very well the basics of electric circuits and have strong foundations of physics.

**Activities and methods:** Lectures, Lab-work, Exercises

**Presence on campus:** students will be required to visit our Faculty in Prague for an intensive in-person 4 day training in the laboratory, where the students will perform all the laboratory tasks prescribed by the syllabus (see link above). These labs are mandatory and must be attended in order to obtain the assessment necessary to take part to the final exam.

## Final examination

**Form:** oral and in person laboratory

**Date:**

**Location/format:** on campus of home institution and, in special cases, online

**Re-sit possibility:** yes

**Transcript available:** end of semester

**Add. info/requirements:** Lessons are recorded and available on YouTube.

**IMPORTANT:** students will be required to visit our Faculty in Prague for an intensive in-person 4 day training in the laboratory, where the students will perform all the laboratory tasks prescribed by the syllabus (see link above).

These labs are mandatory and must be attended in order to obtain the assessment necessary to take part to the final exam.

## Registration

To register for this course, follow the registration requirements of your **home university** as specified here: [www.euroteq.eu/courses-registration](http://www.euroteq.eu/courses-registration).

## Administration

<b>Number of places:</b>	8
<b>Minimum participants:</b>	5
<b>Internal course code:</b>	BE5B38SME
<b>Contact:</b>	buttamat@fel.cvut.cz

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*This course is part of the EuroTeQ Engineering University joint course catalogue 2023. This is a collaborative activity of the partner universities DTU, L'X, TU/e, TalTech, CTU, TUM as well as Technion. Students from these universities can participate in the offered courses. It is the responsibility of the student to check if you fulfil the requirements to participate in a specific course. Students are also advised to check with their home institution how to get recognition of the ECTS credits gained in courses of the EuroTeQ course catalogue. For further information about EuroTeQ Engineering University, visit [www.euroteq.eu](http://www.euroteq.eu) or get in touch with the above-mentioned point of contact.*