

## Data Acquisition Means and Methods

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**Subject area:** Electrical Engineering

**University:** TalTech  
**Level:** MA1  
**Teaching mode:** hybrid: some students participate online, other students attend real-life  
**Instructor(s):** Paul Annus, Eero Haldre

### Short description

Data, acquisition, and transmission of it in different mediums, and processing of it in different domains will be considered during the study. From fundamental ground rules to relevant details. Electrical signals from sensors, cleaning and conditioning of them, sampling and quantizing, communication, circuits and systems needed, and more. At the end of the semester, the student should understand important concepts, links between them, and should be able to find additional information.

### Full description

<https://ois.ttu.ee/subject/IEE1720>

<https://moodle.taltech.ee/enrol/index.php?id=32199>

### Learning outcomes

At the end of the course, the learner will be able:

- to understand and describe what the data acquisition is
- to conduct the acquisition of the data efficiently and safely
- to estimate functional parameters and characteristics of the electronic means needed in data acquisition systems
- to find and select components for the data acquisition task
- to select suitable communication means
- to start implementing data acquisition systems in real life
- to gather additional information
- to write reports and papers

### General information

**Contact hours per week:** 4

**Total workload:** 160 (in student hours for the whole course)

**ECTS credits:** 6

**Language:** English

**Course start date:** 29 August 2022

**Course end date:** 23 December 2022

**Add. info about start date:** this is start date of the semester, course will start on the first week depending on schedule

**Weekly teaching day/time:**

**Time zone:** CET +1 (Estonia, Israel)

**Further information:** Course environment in Moodle is currently under remodeling to help hybrid participation from distance and labs at students' location.

**Prerequisites:** Student should have very good bachelor level understanding of the basics in electronics, signal processing, communication and relevant parts of mathematics and physics. If required, the student should take individual steps to get fluent with basics. Some keywords: Kirchhoff's laws, Ideal and real sources, Equivalent circuits, Linear time-invariant systems, Superposition, Bode plots, Nyquist plots, Logarithms, Complex numbers, Polynomials, Trigonometry, Transforms, and more.

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

**Presence on campus:** Not required

## Final examination

**Form:** assignment

**Date:**

**Location/format:**

**Re-sit possibility:** yes

**Transcript available:** end of semester

**Add. info/requirements:**

## 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>	No limits at the moment
<b>Minimum participants:</b>	
<b>Internal course code:</b>	IEE1720
<b>Contact:</b>	paul.annus@taltech.ee

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