UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Data Acquisition, Control and Monitoring A1N

6 credits

Course code: VP754A
Version number: 4.1
Valid from: 1 July 2026
Ratified by: Curriculum Committee for Engineering Science
Date of ratification: 5 February 2026

1. General information about the course

The course is provided by the University of Skövde and is named Data Acquisition, Control and Monitoring A1N (Datainsamling, kontroll och övervakning A1N). It comprises 6 credits and is a second-cycle course. The level of progression is A1N.

The course is a part of the main field of study in Virtual Product Realization. The disciplinary domain of the course is Technology.

2. Entry requirements

A Bachelor's degree equivalent to a Swedish kandidatexamen of 180 credits, within the main fields of integrated product development, production engineering, automation engineering, mechanical engineering or information technology (or the equivalent).

A further requirement is proof of skills in English equivalent of studies at upper secondary level in Sweden, known as the Swedish course English 6 or English level 2 (or the equivalent). This is normally demonstrated by means of an internationally recognized language test, e.g. IELTS or TOEFL.

3. Course content

The course provides an overview of how data collection, remote control and remote monitoring are combined with modern communication techniques to effectively control, monitor and collect data from industrial processes. This means that the student will learn how to categorize components that are part of physical and digital industrial control systems.

The students will also implement practical examples of data gathering, using simulated environments, in a lab. This will help students to deepen their understanding of the interrelationship of data gathering, control, monitoring and display.

4. Objectives

After completed course the student should be able to:

Knowledge and understanding

- discuss and explain, in general terms, industrial control systems, data communication (including IIoT), and their hardware and software components in automated data acquisition systems,
- explain fundamental principles for data collection, process measurement and control,

Skills and Abilities

- design and implement a data monitoring system using optional sensors and communication methods,
- identify and discuss the implementation of different functions for data acquisition, information display, monitoring, control, and data processing,

Evaluation ability and approach

- evaluate the advantages and limitations of different sensor technologies and communication methods for industrial data acquisition and control applications.

5. Examination

The course is graded A (Excellent), B (Very good), C (Good), D (Satisfactory), E (Sufficient) or F (Fail).

The examinations of the course consist of the following modes of assessment:

- **Project assignment**
  3 credits, grades: A/B/C/D/E/F (determines the final grade)
- **Written assignment**
  2 credits, grades: G/U
- **Laboratory assignment**
  1 credit, grades: G/U

Students with a permanent disability who have been approved for directed educational support may be offered adapted modes of assessment.

6. Types of instruction and language of instruction

The teaching is comprised of lectures and exercises.

The teaching is conducted in English.

7. Course literature and other educational materials

Course materials will be available to download from the learning platform.

8. Student influence

Student influence in the course is ensured by means of course evaluation. The students are informed about the results of the evaluation and potential measures that have been taken or are planned, based on the course evaluation.

9. Additional information

Further information about the course, as well as national and local governing documents for higher education, is available on the website of the University of Skövde.