UNIVERSITY OF SKÖVDE

TRANSLATION FROM SWEDISH

COURSE SYLLABUS

Industrial Robotics and Offline Programming G1F

6 credits

Course code: PR310G
Version number: 9
Valid from: 1 July 2022
Ratified by: Curriculum Committee for Engineering Science
Date of ratification: 7 February 2022

1. General information about the course

The course is provided by the University of Skövde and is named Industrial Robotics and Offline Programming G1F (Industriell robotteknik och offline-programmering G1F). It comprises 6 credits and is a first-cycle course. The level of progression is G1F.

The course is a part of the main field of study in Industrial Engineering. The disciplinary domain of the course is Technology.

2. Entry requirements

The course has the following entry requirements: (passed IT136G Procedural Programming for Engineers G1N or passed IT120G Programming Fundamentals with C++ G1N) and attended MA304G Linear Algebra - Geometric Transformations G1F (or the equivalent).

3. Course content

The course deals with industrial robotics, with focus on the use of industrial robots. It gives the student knowledge of: underlying theoretical assumptions and concepts, the construction, function and use of the industrial robot. In addition, the student gains the ability and skills to work in both real and virtual development environments where industrial robots are included. The course contains a lot of laboratory work with real and virtual industrial robots.

4. Objectives

After completed course the student should be able to:

- describe basic concepts in industrial robotics,
- describe the need for and possibilities with robot and environment calibration,
- perform kinematic modelling of industrial robots,
- apply basic online-programming of industrial robots,
- apply basic modelling, simulation and offline-programming of robot cell,
- discuss societal benefits and ethical aspects of using industrial robots.

5. Examination

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

The final grade of the course is determined by the average of the grades (A=5, B=4, C=3, D=2 and E=1) where the average is taken in relation to the size in points for the different examination parts (assessed as A/B/C/D/E/F). The number is rounded to nearest integer (half values are rounded up). The final grade will only be issued when all the parts have been approved.

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

- **Projekt assignment**
  3 credits, grades: A/B/C/D/E/F
- **Laboratory assignment - kinematics**
  1.5 credits, grades: A/B/C/D/E/F
- **Laboratory assignment - robot cell**
  1.5 credits, grades: A/B/C/D/E/F

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, laboratory sessions, exercises and supervision.

Depending on the study period, the language of instruction may be Swedish or English. Even if the teaching is conducted in Swedish, some English may still occur.

7. Course literature and other educational materials

Siciliano, B. & Khatib, O. (2016) *Springer Handbook of Robotics* (2nd edition). Springer. ISBN 9783319325521 [Electronic resource].

Compendium materials are provided via Canvas.

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.