1 Name, Scope and Level of the Course

The course is provided by the University of Skövde and is named Human-Robot Collaboration within the Industry A1F. It comprises 7.5 credits and is on advanced level. The level of progression of the course is A1F.

2 Objectives

After completed course the student should be able to:

- describe, exemplify and discuss robotics; Industry 4.0; automation and ICT from a general perspective in a modern industrial context,
- describe, exemplify and contrast the current state of technologies used in collaborative robots and relate them to present and future needs of the industry, and
- describe, argue and critically discuss research articles concerning collaborative robotics in industry.

3 Course Content

The course Human-robot collaboration within industry introduces the ICT-intensive shop-floor environment at a modern industry. The students will describe, exemplify and discuss central issues and principles, from a general perspective, about industrial robotics, Industry 4.0, automation and ICT, how it is implemented and used. After the general perspective the course will focus on current state of collaborative robotics in industry, their technical aspects and the future challenges. During the course the students will also study research articles on collaborative robotics and analyze them through seminars and group discussions.

4 Forms of Teaching

The teaching comprises lectures, project work, presentations, seminars/group discussions and seminars.

The teaching is conducted in English.

5 Examination

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

Registration of examination results:

<table>
<thead>
<tr>
<th>Name of examination</th>
<th>Credits</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written assignment</td>
<td>2 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Laboratory assignment</td>
<td>2 credits</td>
<td>G/U</td>
</tr>
<tr>
<td>Project presentation¹</td>
<td>3.5 credits</td>
<td>A/B/C/D/E/F</td>
</tr>
</tbody>
</table>

¹ Determines the final grade of the course.

Students with a permanent disability who have been approved for special educational support may be offered adapted or alternative examinations.

6 Admission Requirements

Prerequisite course for this course is passed course: IT757A - Introduction to Human-Robot Interaction - Different Perspectives A1N, 15 credits (or the equivalent).

7 Subject, Main Field of Study and Disciplinary Domain

The course forms a part of the academic subject area of Virtual Product Realization. The course is a part of
the main field of study in Virtual Product Realization at the University of Skövde. The disciplinary domain of the course is Technology.

Every course at the University of Skövde belongs to a subject. The division of subjects is used for follow-up and quality assurance. A main field of study is an area in which a degree can be awarded. Disciplinary domain is a division which is used by the government for the allocation of resources for studies at basic level and advanced level.

8 Approval of Course and Course Syllabus
The course was approved by the Curriculum Committee for Engineering Science on 8 October 2018. This course syllabus was approved by the Curriculum Committee for Engineering Science on 8 October 2018. It is valid from 1 July 2019.

9 Overlapping with Another Course
This course cannot constitute a part of a degree also containing a course the content of which is totally or partly equivalent to the content of this course.

10 Additional Information
Further information will be available on the university’s website before a course is given.

National and local regulations for higher education are available on the university’s website.

Upon completion of the course there will be a follow-up. The main purpose of this follow-up is to contribute to improvements of the course. The students’ experiences and views constitute one of the criteria for the follow-up and are gathered by means of course evaluations. The students will be informed of the results of the follow-up and any decisions regarding actions that are to be taken.

11 Course Literature and Other Educational Materials
Mostly scientific papers and manuals are provided to students online (course web page) during the course.