ÖREBRO UNIVERSITY

**Course Syllabus**

School of Science and Technology

# Autonomous Robots and ROS, 3 Credits

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| **Course Code:** | DT104U | **Subject Area:** | Field of Technology |
| **Main Field of Study:** | Computer Science | **Credits:** | 3 |
| | | **Subject Group (SCB):** | Computer Science |
| **Education Cycle:** | Second Cycle | **Progression:** | AXX |
| **Established:** | 2018-06-12 | **Last Approved:** | 2018-06-12 |
| **Valid from:** | Autumn semester 2018 | **Approved by:** | Head of School |

## Aims and Objectives

### General aims for second cycle education

Second-cycle courses and study programmes shall involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall
- further develop the ability of students to integrate and make autonomous use of their knowledge
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable autonomy, or for research and development work.

(Higher Education Act, Chapter 1, Section 9)

### Course Objectives

Knowledge and understanding
The student shall after the completion of the course gained knowledge about ROS (Robot Operating System) and its functionalities and how ROS can be applied within different robotics applications.

Competence and skills
After the completion of the course the student shall be able to utilize ROS to build a subsystem or to address and solve a problem within the scope of robotics and artificial intelligence.

Judgement and approach
The student shall after the completion of the course be able to asses how ROS could be used to address a specific problem and have obtained an understanding on both limitations as well as abilities.

## Main Content of the Course

An overview of the core functionallities in ROS.
- Practical considerations when designing ROS system.
- Examples of running different robotic applications in various domains using ROS.
- Lab work contaning both simulated and real robotic plattforms.

## Teaching Methods

The course is designed as a distance learning course including classroom events. It comprises a series of online lectures, group discussions, obligatory self-study exercises and seminar presentations on a literature study and a case-based learning task.

## Examination Methods

*Exercises*, 1.5 Credits. (Code: 0100)
Written report.

*Seminar Presentation*, 1.5 Credits. (Code: 0200)
Oral presentation on seminar.

## Grades

According to the Higher Education Ordinance, Chapter 6, Section 18, a grade is to be awarded on the completion of a course, unless otherwise prescribed by the university. The university may prescribe which grading system shall apply. The grade is to be determined by a teacher specifically appointed by the university (an examiner).

According to regulations on grading systems for first- and second-cycle education (vice-chancellor's decision 2010-10-19, reg. no. CF 12-540/2010), one of the following grades is to be used: fail, pass, or pass with distinction. The vice-chancellor or a person appointed by the vice-chancellor may decide on exceptions from this provision for a specific course, if there are special reasons.

Grades used on course are Fail (U) or Pass (G).

*Exercises*
Grades used are Fail (U) or Pass (G).

*Seminar Presentation*
Grades used are Fail (U) or Pass (G).

## Other Provisions

The course is given in english.

## Reading List and Other Teaching Materials

### Required Reading

*Ingen kurslitteratur krävs./No course literature is required.*