Course syllabus

Servicerobotik
Service Robotics

TNSN01, 7,5 credits, A (Second Cycle)

Valid for: 2020/21
Decided by: PLED ID
Date of Decision: 2020-02-18

General Information

Elective for: C4, D4, E4, M4-me, MD4
Language of instruction: The course will be given in English on demand

Aim

The aim of the course is to give knowledge in service robotics and illustrate this with experimental work which shows the different parts and applications in mobile robotics.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

• be able to understand the characteristic features of mobile robots and importance in different settings
• be able to explain and use methods for modelling and control of mobile robots in a few typical cases
• be able to model, perform experiments, build and validate mobile robot systems which include sensor interaction

Competences and skills
For a passing grade the student must

• be able to design and present suggested solutions on mobile robot systems
• be able to, through experimental work, create control programs and mechanical parts which solve the given task
• be able to present orally and in writing as well as demonstrate results on given tasks

Judgement and approach
For a passing grade the student must be able to evaluate the design choices for the topic of the project, taking into account the application domain and the system interaction with the outside world.

**Contents**

The course consists of a theoretical and project part. Lectures will explain the foundation of the subject. The theoretical part ends up in a literature study where one of a number of relevant topics is studied in groups. The result should be presented both orally and written. Examples of topics for literature study should be related to mobile robotics with focus on specific issues like artificial intelligence, mobility, human-robot interaction, etc.

The practical part consists of a project in one or more of the previously mentioned areas.

**Examination details**

**Grading scale:** TH - (U,3,4,5) - (Fail, Three, Four, Five)

**Assessment:** Each student presents his/her respective results from defined project tasks as report, models and experimental work in relation to each project task. The projects are performed in general in groups with two students in each group. The results from the projects are graded and the final grade is calculated as a weighted mean value of these. Complementary work can be negotiated with the teacher to reach a pass or higher grade.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

**Admission**

- The number of participants is limited to: No
- The course overlaps following course/s: MMKN30

**Reading list**

- Compendia and other material available on the course website.

**Contact and other information**

**Course coordinator:** Håkan Eftring, universitetslektor, tekn dr, hakan.eftring@certec.lth.se

**Examiner:** Håkan Eftring, universitetslektor, tekn dr, hakan.eftring@certec.lth.se

**Course homepage:** http://www.certec.lth.se/english/education/