LINKÖPINGS UNIVERSITET

Automatic Control - Project Course

Programme course

12 credits

Reglerteknisk projektkurs, CDIO

TSRT10

Valid from: 2017 Spring semester

Determined by
Board of Studies for Electrical
Engineering, Physics and Mathematics

Date determined
2017-01-25

Main field of study

Electrical Engineering

Course level

Second cycle

Advancement level

A1X

Course offered for

- Computer Science and Engineering, M Sc in Engineering
- Mechanical Engineering, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Information Technology, M Sc in Engineering
- Applied Physics and Electrical Engineering - International, M Sc in Engineering

Specific information

The Entrepreneurship part overlap with other CDIO courses and cannot be included more than once in a degree.

Exchange students may apply for the course after arrival to LiTH but before it starts. The international officer for exchange studies must be contacted before applying.

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Automatic control, Industrial Control Systems, Control theory, Modeling and simulation.

Intended learning outcomes

The project shall be carried out using industrial practice, and it shall develop and consolidate competence in the following areas:

- Apply knowledge and methods from previous courses and when necessary new knowledge shall be developed.
- Integrate knowledge from different disciplines, such as automatic control, modeling, signal processing, computer programming, and apply this knowledge in new contexts, such as project work in collaboration with industry or researchers.
- Define requirements for the project based on preliminary specifications, often defined by an external customer, and investigate the conditions under which the project work can be carried out.
- Present the project outcome for the customer and other students, whom are not expected to be experts within the fields of expertise of the students who carried out the work.
- Show the ability to in an independent way manage the project work using a project model and with limited support in terms of supervision.
- Planning, implementation and evaluation of a project.
- Analyzing problems and break down of problems.
- Creative solutions.
- Social competence.
- Modeling, design and implementation of solution.

The result of the project work shall be:

- Of hight technical quality and be based on state-of-the-art knowledge and methods in automatic control.
- Documented in terms of project plan, project schedule, and technical report.
- Presented orally as well as with a poster.
- Evaluated in a review report.
- When applicable a user-friendly interface should be developed together with a user's manual.

A purpose for the course is also for the students to acquire knowledge and abilities within the general area of entrepreneurship, with particular focus on business planning for new ventures. After the course, students should be able to:

- account for models that describe what it takes for a new venture to have a stable basis for further development and to assess the level of development of ventures using such models; and
- account for the information and analyses needed to evaluate a development project from a business point of view and have the ability to collect and analyze relevant information for the purpose.

Course content

The project will be closely related to ongoing research within
automatic control or to companies working in this area. An example of
a project related to ongoing research is the integration of sensor
signals from external sensors to be used in control of a
robot. Another example is a project involving a UAV. Tracking
and sensor fusion are possible assignments. Some projects might be conducted in
collaboration with other reserach groups. Other projects will be conducted in
collaboration with industry. Due to this the contents of the projects will change
from year to year.

Teaching and working methods

The course runs over the entire autumn semester.

Examination

UPG1	Entrepreneurship assignments	3 credits	U, G
PRA1	Project work	9 credits	U, G

Grades are given as 'Fail' or 'Pass'.

Grades

Two-grade scale, U, G

Department

Institutionen för systemteknik

Director of Studies or equivalent

Johan Löfberg

Examiner

Daniel Axehill

Course website and other links

http://www.control.isy.liu.se/student/tsrt10/

Education components

Preliminary scheduled hours: 26 h
Recommended self-study hours: 294 h

Course literature

Additional literature

Compendia

Other

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.