Images and Graphics, Project Course CDIO

Programme course

12 credits

Bilder och grafik, projektkurs, CDIO

TSBB11

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

Information Technology, Computer Science and Engineering, Electrical Engineering

Course level

Second cycle

Advancement level

A1X

Course offered for

- Computer Science and Engineering, M Sc in Engineering
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- 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
- Computer Science and Software Engineering, 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

The projects carried out in the course normally require the students to have taken at least one course in fields such as image processing, computer vision, computer graphics, or image coding. All projects require some amount of programming skills, ability in oral and written communication, and project management.

Intended learning outcomes

A project is carried out using industrial practice, and after passing the course the students have demonstrated development and consolidation of 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 image processing, computer vision, computer graphics, image compression, 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 within the project group.
- Modeling, design and implementation of solution.

The result of the project work shall be:

- Of high technical quality and be based on state-of-the-art knowledge and methods in the technical fields relevant for the project.
- 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 passing the course students are 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.
- 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

Research and application related projects within the field of image analysis, computer vision, computer graphics, image coding, and neural networks. Examples of previous projects are

- Mobile robots.
- Medical image processing.
- 3D reconstruction.
- Simulation of water surfaces

Teaching and working methods

The course has a set of projects proposed by customers external or internal to the university. Student groups will be formed around these projects, based on the knowledge background of the students, suitable mix of competence with a group, and individual preferences of the students. Each project starts by working out a requirement specification and a plan for the remaining part of the project.
The project may be carried out according to the LIPS-model or an alternative model as decided by the examiner, this is, and all documents produced within the project will be written according to the templates described within this model.

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

Klas Nordberg

Examiner

Fahad Khan

Course website and other links

https://www.cvl.isy.liu.se/education/undergraduate

Education components

Preliminary scheduled hours: 52 h
Recommended self-study hours: 268 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.