FMF3040 Trustworthy Cyber-Physical Systems - selected state of the art topics 3.0 credits

Pålitliga cyberfysiska system - state of the art

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

On 2023-03-30, the Dean of the ITM School has decided to establish this official course syllabus to apply from spring semester 2023, registration number: M-2023-0748.

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Master of Science Degree

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The course has the overall goal to provide insights and opportunities for in-depth studies on state of the art topics of the evolving area of trustworthy cyber-physical systems.

After finished the course the students should be able to:

- be able to describe key trends, characteristics and challenges influencing the development and deployment of cyber-physical systems (CPS) related to their life-cycle
- be able to describe, characterize and critically analyze state of the art in selected CPS topics

Course contents

Advanced cyber-physical systems, in terms of integrated physical and cyber (computing and communications), are steadily being developed and deployed in society with increasing capabilities (e.g. as autonomous connected systems). The area is evolving at a fast pace, requiring socio-technical considerations and multidisciplinary skills, as well as renewed efforts in keeping track of the state of the art. This course has the purpose to facilitate dedicated studies on state of the art topics course, tailored to specific needs (of projects, students, etc.) in this rapidly evolving field. Specific topics of interest include (but are not limited to) trustworthiness aspects (from dependability to AI/ethics related topics such as transparency and fairness), architecting (of single as well as collaborating CPS) and computing and communication technologies and platforms.

The course is organized as interactive sessions with homework preparations in-between.

The extent of selected CPS subjects should correspond to two 1.5 credits modules, with a total work effort of approximately two working weeks.

Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.