



**LUNDS UNIVERSITET**  
Lunds Tekniska Högskola

*Course syllabus*

# **Konstruktion av inbyggda system**

## **Design of Embedded Systems**

**EDAN15, 7,5 credits, A (Second Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** PLED C/D

**Date of Decision:** 2023-04-18

### **General Information**

**Main field:** Electronic Design.

**Compulsory for:** MSOC1

**Elective for:** D4-is, D4-hs, E4-is, M4-me, MWIR2, MMSR1

**Language of instruction:** The course will be given in English

### **Aim**

The goal of this course is to have each student acquire the knowledge on basic methods used to design embedded systems that contain both hardware and software components.

### **Learning outcomes**

#### *Knowledge and understanding*

For a passing grade the student must

- be able to define terms and describe overall approaches used in the design of embedded systems
- be able to define and explain basic methods for system specification, analysis, design representation (models of computation), synthesis and integration.

#### *Competences and skills*

For a passing grade the student must

- be able to use different computational models to model embedded systems,
- be able to design and evaluate embedded system architectures,
- be able to integrate hardware and software parts in one system,
- be able to develop a simple embedded system.

### *Judgement and approach*

For a passing grade the student must

- demonstrate the ability to autonomously identify, assess and improve issues in existing embedded systems designs,
- demonstrate the ability to critically compare and propose different design and implementation alternatives.

## Contents

Methods and techniques for building embedded systems comprising software and existing hardware components, starting with modelling (using appropriate models of computations), design, all the way to analysis and verification.

## Examination details

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

**Assessment:** Written examination. The final grade of the course is based on the result of the written examination. For a passing grade, the students must attend compulsory lessons and also complete the laboratory work.

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.

### Parts

**Code:** 0110. **Name:** Compulsory Course Items.

**Credits:** 4,5. **Grading scale:** UG. **Assessment:** To qualify for a final grade of the course the laboratory work must be completed and the students must attend the compulsory lessons. **Further information:** The compulsory course items consist of laboratory work and lessons.

**Code:** 0210. **Name:** Written Examination.

**Credits:** 3. **Grading scale:** TH. **Assessment:** The final grade of the course is based on the result of the written examination.

## Admission

**Admission requirements:**

- EDAA45 Introduction to Programming or EDAA55 Programming, First Course, and EITF65 Design of Digital Circuits - A Systems Approach plus EITF70 Computer Organization. For M: EDAA65 Programming First Course or EDAA85 - Programmeringsteknik, grundkurs and EIEF40 Measurement Systems for Control or EIEF01 Applied Mechatronics or EIEN65 Applied Mechatronics

**The number of participants is limited to:** No

## Reading list

- E. A. Lee and S. A. Seshia: Introduction to Embedded Systems, A Cyber-Physical Systems Approach, 2nd Ed. MIT Press, 2017, ISBN: 978-0-262-53381-2.

## **Contact and other information**

**Course coordinator:** Flavius Gruian, [flavius.gruian@cs.lth.se](mailto:flavius.gruian@cs.lth.se)

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**Course homepage:** <http://cs.lth.se/edan15>