



**TAL
TECH**

Computer-Aided Design of Digital Systems (IAS0540) Digitaalsüsteemide masinprojekteerimine (IAS0540)

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School of Information Technology
Tallinn University of Technology

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Overview

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Contacts

Interactive Session

Introduction

Key Information

Course title:	Computer-Aided Design of Digital Systems
Kursuse nimi:	Digitalsüsteemide masinprojekteerimine
Course code:	IAS0540
ECTS credits:	6.0
Lectures per week:	2.0 h
Practice per week:	2.0 h
Assessment form:	Oral examination + labs
Location:	ICT-501
Time:	17:45–21:00

Moodle

Moodle: <https://moodle.taltech.ee/course/view.php?id=31203>
Moodle key: **7LUjyKW**

Contact information

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Interactive Session

URL: <http://www.menti.com>

Key: 34 77 93 2

Overview

Introduction

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Learning Outcomes

You can

- design modern microchips and embedded systems
- use (commercial) computer-aided design tools
- optimize your microchip design for
 - speed
 - area, cost

Is the focus on theory or practical skills?

- practical skills supported by theory

Main Requirements

- Basic Boolean algebra (AND, OR, NOT, De Morgan, etc)
- Logic circuits (ALU, MUX, etc)
- Computer architecture

Languages

- VHDL
- (Verilog, etc)
- Python
- C/C++

Course Structure

Week	Topics	Labs	Deadlines
1–2	Introduction, Boolean Algebra	Booleans	week 3
3–6	High-level synthesis	FIR	week 7
7–8	Simulation, Verification, Validation	FIR coverage	week 9
9	HDLs & RTL Synthesis	FIR (RTL) coverage	week 10
10–11	Optimization w/ Linear Programming	Design optimization	week 14
12–13	Optimization w/ Graphs		
14–15	Synthesis of Digital Systems	FIR layout	before exam
16	Review		

Evaluation & Conditions

■ Lab reports

- Labs reports must contain source code files
- Labs must be submitted in written form (PDF)
- All 6 labs must be defended before examination

■ Examination

- All 6 labs must be successfully defended before examination!
- Oral examination

Evaluation & Grading

Defended lab reports:	1
Quality of lab reports:	1
Examination:	3
TOTAL:	5

Questions?