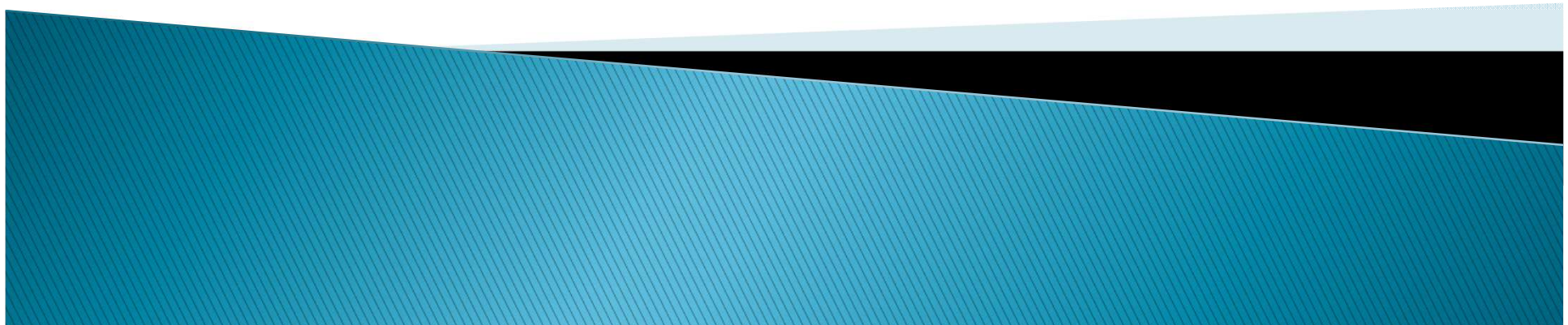


ISS0023

Intelligent Control Systems

Arukad juhtimissüsteemid

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Introductory lecture

- ▶ How study work is organized?
- ▶ Content/ Preliminary plan
- ▶ Exam / evaluation criteria



Study work

Groups: IASM12, MAHM31, MAHM32 + Exchange students

Lectures + practices

Lecturs: U03–311 – odd weeks

Practices: laboratories U02–303,304
(max. 30 persons) – EVEN WEEKS

Tuesday 10:00–11:30

Thursday 16:00–17:30

NB! Registration in <http://ois.ttu.ee/> is needed!
(see audience groups)

Exam is practical – in the laboratory.

First possibility to take the exam is 16th study week

<http://www.a-lab.ee/edu>

<http://www.a-lab.ee/edu/ISS0023>



Semester plan by weeks

- ▶ Week 1 – Introductory lecture
- ▶ Week 2 – lab U02–303/304 introduction to MATLAB and control System design in Simulink
group A Tuesday 10:00 / group B Thursday 16:00
- ▶ Week 3 – Lecture: Introduction to adaptive systems, Introduction to Neural Networks
- ▶ Week 4 – lab U02–303/304 MATLAB/Simulink
- ▶ Week 5 – Lecture
- ▶ etc...



Semester plan

- ▶ Adaptive Systems
- ▶ Artificial Neural Networks
 - Structures of artificial neural networks and training algorithms;
 - Artificial neural networks based identification of nonlinear systems;
 - Artificial neural networks based control of nonlinear systems;
 - Artificial neural networks based image recognition and pattern classification;
 - Self-organizing systems;



Preliminary semester plan by weeks

- ▶ Dynamic Feedback Linearization based Control of Nonlinear Systems
- ▶ Introduction to Fuzzy Systems and
- ▶ Genetic algorithms, combined approach;
- ▶ Fractional order modelling and control
(see <http://fomcon.net/>)
 - Lecture weeks nr. 1, 3, 5, 7, 9, 11, 13, 15
 - Practice weeks nr. 2, 4, 6, 8, 12, 14.
group A/ group B
- ▶ Week nr. 16 – exam



Lab reports

6 labs = 6 reports

Each report gives up to 1 point.

Each report has to be presented during 2 weeks after the lab!

Later presented reports (before December 18) – multiplied by coefficient 0.8

After December 18 – coefficient 0.6

5 best report will give up to 5 points.



Exam

- ▶ Exam prerequisites:
 - Course ISS0023 is declared (included into Your semester plan),
 - Laboratory trainings are performed,
 - Reports are presented and accepted

- ▶ Exam – up to 72 hours
 - Small practical project – design of a control system according to given control criteria;
 - Simulation of the control system;
 - Analysis of results and writing a report;
 - 2 tasks – each one gives maximum 5 points.

Average of 2 exam tasks and labs = YOUR COURSE GRADE

