



AI CENTER
FEE CTU

Exam, Revision, Projects

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Exam PUI

Exam Format: Written + Oral

We are examining PUI **in person**.

Written exam is a test with questions that takes **two hours**. Michaela Urbanovska and Jan Mrkos will conduct written exam.

Oral: Lukas Chrpa and Stefan Edelkamp will conduct oral examination.

For one student, the oral exam will take about 15 minutes.

For the **PhD module**, only **oral exam** (30 mins per student) will be conducted

Exam in short

Requirements, Points, and Language

For attending an exam, you need to fulfill requirements for **Zápočet** (Check your KOS).

Total number of points possible to get from the exam is **50**.

You can get maximum of **30** points from the **written part** and maximum of **20** points from the **oral part**.

Oral exam can also overwrite written marks, if needed

Language

The questions in the written exam are in **English** but you can ask the examiner for an explanation in Czech. You can answer them either in **Czech or English**.

Oral exam can be conducted in **Czech or English** (English is preferred but **Czech course students have the right to do the exam in Czech**)

There will be **mostly theory** in the oral part of the exam and **mostly practice** in the written part of the exam.

You can use your **pocket calculators** (no mobile phones).

Topics

Classical planning

- Planning Representation - PDDL, FDR, STRIPS
- Search algorithms
- Properties of heuristics
- Abstractions
- Relaxations
- Landmarks and LM-cut
- LP heuristics

Planning with uncertainty

- Formalisms (MDP, POMDP)
- Simple temporal networks
- MDP algorithms
- Monte Carlo Tree Search

Content.

Written Exam (not the exhaustive list)

- Compute h_{\max} and h_{add} (for a given planning task)
- Trace in detail the computation of LM-cut heuristics
- Trace in detail the Value Iteration method
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Oral Exam (not the exhaustive list)

- Difference between STRIPS and SAS formalisms
- What are landmarks
- Properties of heuristic functions
- What are Simple Temporal Networks
- What are preferences
- What is a randomized roadmap
- What are pattern databases
- ...

Exam Dates

Dates

We assume the oral exam to take place after the written exam in the exam day (we plan about 15 minutes per student). Other days might be arranged.

Discussion

We can handle at most 14 students in one day for an exam.

Preliminary exam dates

- 25.5.2022 10:00 - 12:00 (written) 14:30-18:00 (oral)
- 31.5.2022 10:00 - 12:00 (written) 14:30-18:00 (oral)
- 9.6.2022 10:00 - 12:00 (written) 14:30-18:00 (oral)
- 13.6.2022 10:00 - 12:00 (written) 14:30-18:00 (oral)

Marks and Grades

Marking

As there are 50 of 100 pts remaining to the students for the exam, we have max 30 pts in the written test, and 20 pts in the oral exam (min 25 in total to pass). Oral might also adjust the written marks, if needed.

All pts, in assignment 1, assignment 2, written, oral are added and make up the final mark

Grading

As there are 100 Pts to get - Grades are given on the usual scale

Master Thesis / PhD Projects.

- Reasoning and Acting in Dynamic (and Adversarial) Environments
- Learning Domain Control Knowledge for Planning
- Planning for Traffic Control
- Planning with (soft) deadlines

□ Lukas Chrupa.

- MGMP: Multi-Goal Task-Motion Planning
- Planning with Pattern Databases
- Card Game Playing
- Sequential Sorting with QuickXSort

□ Stefan Edelkamp.