

4CCS1IAI Introduction to Artificial Intelligence

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Coursework:

The coursework is about developing an AI planning application.

You should come up with an interesting problem that is useful to address using Artificial Intelligence Planning, model this problem using PDDL, and create plans using a planner.

Deliverable 1: Planning Model

This requires:

- 1) coming up with an interesting planning domain and instances,
- 2) modelling the domain and the instances in PDDL,
- 3) writing a report describing the planning model.

The report can be up to 3 pages long, and it must also contain an appendix where you report the PDDL model.

The evaluation will take into account: how creative and meaningful is the application (i.e., it must be an application for which planning is useful!), how rich is the domain (e.g., a domain that involves just one type of action for moving from one place to another is not interesting), which features of PDDL are used (e.g., durative actions), how appropriate and correct is the PDDL encoding. You can take inspiration from existing domains encoded in PDDL, available on the Web, but in this case you have to clearly state how you modified and extended the domain.

Deliverable 2: Planning Solutions

This requires:

- 1) defining a set of problem files for the domain designed for Deliverable 1,
- 2) solving the problems using one or more planners,
- 3) writing a report describing the results of the experimental analysis.

The report can be up to 3 pages long, and it must also contain an appendix where you report three examples of the PDDL problems you defined. The evaluation will take into account: how meaningful is the set of problems, how rich are the problems (e.g., if your domain models a route planner, a problem with only 3 destination points is not rich at all!), how sound and precise is the experimental analysis.

This coursework accounts for 30% of the marks for this course.

Deadline: 6pm on Monday 10 April 2017.

Groups: The coursework can be done in groups of **up to 4 members**.

Format: Reports must follow these rules:

- Each report must be no longer than three A4 pages (plus the appendix).
- You should use a font size of 11pt.
- Only two reports (one for each deliverable) must be submitted for each group.

Submit your report to KEATS (4CC1IAI section). Submission must follow these rules:

- The deadline is strict and the system will not accept submissions after it expires.
- Each report (including the appendix) should be in one PDF file.
- The file cannot be more than 5MB in size.

Late Reports: It is your responsibility to meet the deadline and to check your report has been correctly uploaded. If you miss the deadline because of unexpected circumstances with strong corroborating evidence, e.g. you were ill near the deadline and can provide a medical certificate, then submit a Mitigating Circumstances Form to the Department office with the evidence and your report as soon as possible, and it will be considered. If you do not submit by the deadline and do not have a strong reason, or you submit a report file but it is corrupt or unreadable, then you will receive a mark of 0.

Plagiarism: Plagiarism is passing off someone else's work as your own, and the penalties imposed by the College for plagiarising can be severe. Uploading work to KEATS is regarded by the Department as a statement by the student concerned, confirming that the work has not been plagiarised.

Sometime during the term, you will receive an email invitation to Turnitin, where you can upload your report and see a plagiarism detection report. This can be used to understand whether you might be seen to be plagiarising, and give you confidence that you are not. Remember that it is an automatic system and interpret the reports accordingly. In particular, there may be small fragments of your text that are coincidentally similar to other people's work, just because people use common expressions, which Turnitin will pick up but you can ignore.