Module Code: CS7IS2
Module Name: Artificial Intelligence
ECTS Weighting: 5 ECTS
Semester taught: Semester 2
Module Coordinator/s: Dr. Ivana Dusparic

Module Learning Outcomes:
On successful completion of this module, students will be able to:

- **LO1.** Appreciate the scope, applications and limitations of artificial intelligence;
- **LO2.** Comprehend and apply search, reasoning and planning strategies;
- **LO3.** Develop intelligent systems that handle uncertainty;
- **LO4.** Choose and use appropriate AI techniques for various kinds of problems;
- **LO5.** Apply knowledge search, CSP, MDP, learning techniques to real-world problems.

Module Content:
This module aims to provide students with a thorough overview of the artificial intelligence techniques and algorithms that underlie intelligent systems and an ability to apply these techniques to real-world problems.

Specific topics addressed in this module include:
- Search;
- Problem solving;
- Control satisfaction Problems
- Markov Decision Process
- Representing and reasoning with uncertainty;
- Learning, including reinforcement learning
- Intelligent agents and multi agent systems
- Real-world applications

Teaching and Learning Methods:
Lectures, individual assignments, group assignments.

Assessment Details:

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Brief Description</th>
<th>Learning Outcomes Addressed</th>
<th>% of total</th>
<th>Week set</th>
<th>Week due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination</td>
<td>2 hour written examination</td>
<td>LO1, LO2, LO3, LO4, LO5</td>
<td>50%</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Individual Assignment</td>
<td>Programming assignment</td>
<td>LO2, LO3</td>
<td>20%</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Group Assignment</td>
<td>Research paper</td>
<td>LO1, LO4, LO5</td>
<td>30%</td>
<td>7</td>
<td>11</td>
</tr>
</tbody>
</table>

1. TEP Glossary
2. TEP Guidelines on Workload and Assessment
### Reassessment Details

Examination (2 hours, 100%)

### Contact Hours and Indicative Student Workload

<table>
<thead>
<tr>
<th>Contact Hours (scheduled hours per student over full module), broken down by:</th>
<th>22 hours</th>
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<tbody>
<tr>
<td>lecture</td>
<td>22 hours</td>
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<table>
<thead>
<tr>
<th>Independent study (outside scheduled contact hours), broken down by:</th>
<th>94 hours</th>
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<tbody>
<tr>
<td>preparation for classes and review of material (including preparation for examination, if applicable)</td>
<td>36 hours</td>
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<tr>
<td>completion of assessments (including examination, if applicable)</td>
<td>58 hours</td>
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**Total Hours**: 116 hours

### Recommended Reading List


### Module Pre-requisites

**Prerequisite modules**: n/a

**Other/alternative non-module prerequisites**: Programming experience required, preferably in Python.

### Module Co-requisites

While not required, it would be beneficial to take this module in conjunction with CS7CS4 Machine Learning module.

### Module Website

Blackboard

### Last Update

11/07/2019 by Ivana Dusparic