

WM275-15 Machine Intelligence

24/25

Department

WMG

Level

Undergraduate Level 2

Module leader

Manoj Babu

Credit value

15

Module duration

11 weeks

Assessment

100% coursework

Study locations

University of Warwick main campus, Coventry Primary

Distance or Online Delivery

Description

Introductory description

Machine intelligence is revolutionizing industries by helping machines to perform complex tasks that are difficult. It is principally a way of training computers to learn, predict and perceive the future.

Module aims

This module will introduce concepts and methods used for implementing intelligent agents. It will cover details related to fundamental concept in machine intelligence including problem solving, knowledge, reasoning, planning, and learning.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1. Introduction to Machine intelligence,
2. Intelligent Agents,
3. Problem Solving,

4. Informed search and exploration,
5. Knowledge and reasoning.

Learning outcomes

By the end of the module, students should be able to:

- Define an intelligent agent and comprehend behaviour of agents
- Solve problems using searching and exploration techniques
- Develop intelligent agents capable of taking decision under uncertainty
- Apply different forms of learning techniques such as decision trees

Indicative reading list

Russell, S. and Norvig, P. (2013) Artificial Intelligence: A Modern Approach. 3rd ed. Pearson Education UK.

Hetland, M. L. (2017) Beginning Python: from novice to professional. Third edition.

Lutz, M. (2013) Learning Python. Fifth edition. Sebastopol, CA: O'Reilly Media.

Strang, G. (no date) Introduction to linear algebra.

Sutton, R. S. and Barto, A. G. (2018) Reinforcement learning: an introduction. Second edition. Cambridge, Massachusetts: The MIT Press.

[View reading list on Talis Aspire](#)

Subject specific skills

Python programming;
Agent Based Modelling;

Transferable skills

Technology literacy;
Critical thinking;
Self-learning.

Study

Study time

| Type | Required |
|--------------------------------------|-----------------------------|
| Lectures | 18 sessions of 1 hour (20%) |
| Seminars | 6 sessions of 1 hour (7%) |
| Practical classes | 6 sessions of 1 hour (7%) |
| Work-based learning | (0%) |
| Online learning (scheduled sessions) | 4 sessions of 1 hour (4%) |
| Online learning (independent) | 8 sessions of 1 hour (9%) |
| Private study | 48 hours (53%) |
| Total | 90 hours |

Private study description

- Online forum for discussing queries with course peers and tutor.
- Exploring design of agents for various applications.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A1

| | Weighting | Study time | Eligible for self-certification |
|--|-----------|------------|---------------------------------|
| Assessment 1 | 40% | 24 hours | Yes (extension) |
| A written report to be submitted by the student based on problem sets and coding assignments dealing with one or more of the following: knowledge representation, reasoning , logical agents and planning. | | | |
| Post Module Assessment | 60% | 36 hours | Yes (extension) |
| A project where the student designs an intelligent agent for one of the use cases defined in class or work based. | | | |

Feedback on assessment

Feedback will be given as appropriate to the assessment type:

- verbal formative feedback on lab activities.
 - written summative feedback on module assessments.
-

Availability

Courses

This module is Core for:

- Year 3 of DWMS-H653 Undergraduate Digital and Technology Solutions (Network Engineering) (Degree Apprenticeship)