Module Specification

Artificial Intelligence I

Version: 2026-27, v3.0, Approved

Contents

Part 1: Information

Module title: Artificial Intelligence I

Module code: UFCFGS-15-1

Level: Level 4

For implementation from: 2026-27

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: This module will introduce students to the fundamental concepts of modern Artificial Intelligent based systems, the underpinning paradigms, and the ethical and wider context within which they operate.

Features: Not applicable

Educational aims: This module aims to give the students underpinning knowledge and skills in AI techniques and the vocabulary used to describe them. It also aims to promote a consideration of the ethical issues that arise from their use.

Outline syllabus: Topics are likely to include but are not limited to:

What is AI?

Different types of problems (optimisation, modelling, prediction) and how they relate to forms of logic abduction/induction/deduction

Ethics of AI: - examples of problems (e.g. discrimination) and also 'hype'

Knowledge Representation: human provided models

rules/facts, e.g. expert system rules, "rule engines", scripted Non-Playing Character (NPC), simple chatbot

Machine Learning (ML):

Unsupervised & reinforcement learning.

Supervised learning:

    Process of model induction: training, and test sets

        Different forms of models and their strengths/weaknesses: e.g.

      Greedy rule induction,

      Multi-Layer Perceptron(MLP) with Backpropagation

Search, and the concept of representations as an abstraction of the real world allowing the use of standard algorithms.

Constructive vs perturbative search

Completeness, optimality, introduce idea of landscapes,

Simple Hill Climber (relating to greedy search in the ML algorithms studied above)

Dijkstra and A* for route planning

Part 3: Teaching and learning methods

Teaching and learning methods: The timetabled sessions will include:

Lectures to introduce basic concepts and problem specs. Where appropriate, industry speakers will be invited to illuminate the concepts from their perspective.

Tutorials / Lab sessions in which students will work on a number of practical projects gaining hands-on experience of the techniques introduced in the lectures. Example projects include:

A Chatbot (i.e., human provided knowledge base);

A simple rule induction algorithm for a machine learning problem;

A* for a pathfinding application (e.g. a NPC controller in a game)

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Recognise the differences between "Knowledge-based" AI and "Computational Intelligence" and select appropriate paradigms according to the needs of a specific problem or application.

MO2 Apply the basic concepts and processes of AI to new tasks, identifying: the type of problem; what technologies or algorithms would be appropriate; and design and implement suitable solutions.

MO3 Identify potential legal and ethical issues - such as privacy and unintentional bias - associated with the deployment of AI-based systems and suggest actions to mitigate undesirable effects.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ufcfgs-15-1.html

Part 4: Assessment

Assessment strategy: The module is divided into topics (Knowledge-based Systems, Machine Learning, Search and Optimisation).

The learning outcomes will be formally assessed through a portfolio of work, consisting of five of the weekly workbooks which are flagged as needing to be submitted for marking.

The workbooks will take the form of Jupyter Notebooks containing:
Further worked examples to illustrate and provide 'hands-on' experience of the algorithms and issues covered in that week's materials.
A series of activities to complete to demonstrate their understanding. Typically, these will involve a mixture of; Multiple choice questions; Writing python functions to implement (or complete) simple AI algorithms; Writing python functions to implement create common tasks from typical Data Science/AI workflows.
Where students are asked to provide implementations in python, typically students will be given several useful code-snippets during other activities, and/or detailed pseudocode.

The portfolio elements will take the form of on-line submissions to an automated marking system to allow feedback to be easily and automatically provided.

The resit attempt will be assessed in the same way as the first attempt.

Assessment tasks:

Portfolio (First Sit)
Description: Portfolio of tasks associated with the module topics.
Weighting: 100 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Portfolio (Resit)
Description: Portfolio of tasks associated with the module topics.
Weighting: 100 %
Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Computer Science {Foundation} [GCET] BSc (Hons) 2025-26

Computer Science (Artificial Intelligence) {Foundation} [GCET] BSc (Hons) 2025-26

Computer Science {Foundation} [GCET] DipHE 2025-26

Computer Science (Artificial Intelligence) {Foundation} [GCET] DipHE 2025-26

Computer Science (Smart Devices) {Foundation} [GCET] DipHE 2025-26

Computer Science (Smart Devices) {Foundation} [GCET] BSc (Hons) 2025-26

Computer Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Computer Science [Frenchay] BSc (Hons) 2026-27

Computer Science {Dual} [Taylors] BSc (Hons) 2026-27

Computer Science [Frenchay] BSc (Hons) 2026-27

Computer Science {Foundation} [Frenchay] BSc (Hons) 2025-26

Computer Science (Artificial Intelligence) [NepalBrit] BSc (Hons) 2026-27

Computer Science [Villa] BSc (Hons) 2026-27

Computer Science [Phenikaa] BSc (Hons) 2026-27

Computer Science [Villa] BSc (Hons) 2026-27

Computer Science [Phenikaa] BSc (Hons) 2026-27