Module Definition Form (MDF)

Module code: MOD004553	**Version:** 4 **Date Amended:** 22/May/2025

1. Module Title
Artificial Intelligence

2a. Module Leader
Mahdi Maktab Dar Oghaz

2b. School
School of Computing and Information Sciences

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions

Type	Module Code	Module Name	Condition
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc Computer Science, BSc Computer Gaming Technology		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Artificial Intelligence (AI) covers a broad range of disciplines such as image recognition, robotics, search engines, and self-driving cars. In this module, we will explore various real-world AI scenarios. We will understand what algorithms to use in a given context and how to code these algorithms in practice based on AI research methodology principles. You will learn about all about the main areas of AI such as machine learning, predictive analysis, genetic algorithms, neural networks, recommendation systems and other topics. This module is based on the Python programming language. The course is intended to be quite practical and you will be expected to solve small coding challenges associated with most of the covered topics, and develop a major AI-related programming assignment. This module is friendly to Python beginners, but familiarity with Python programming would certainly be helpful so you can play around with the code and build real-world modern artificial intelligence applications.

Currently, public interest in the topic of AI is very high, driven by new technological developments (e.g. autonomous vehicles, generative AI, applications that can personalise your lifestyle, more meaningful responses to your internet searches) and also by the growing need for business to create applications that can retrieve consumer information to target new markets (data analytics) practical technical skills in AI, combined with an understanding of AI research methodologies and ethics as part of the course portfolio will make you highly employable in the IT-sector.

6b. Outline Content

Indicative topics:

- Introduction to Artificial Intelligence and Machine learning; classification and regression; predictive analytics
- Decision making – rule based systems, recommender systems, logic programming, heuristic search techniques
- Adaptation and learning – neural networks, genetic algorithms, pattern recognition, reinforcement learning, natural language processing
- Programming techniques for AI implementation
- AI in game development.
- AI Explainability & Interpretability and its importance in scientific research and model transparency.
  Scientific Research & Ethical AI - Emphasis on empirical studies, reproducibility in AI research, and ethical considerations in the development of AI technologies.

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

Access to the internet and Anglia Ruskin University VLE.

Software development tools and dependencies for programming in a high-level language (eg Python) available as a standard resource in departmental labs.

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Understand the theoretical underpinnings of artificial intelligence and how these are implemented and studied through research methodologies to provide intelligent behaviour.
2	Knowledge and Understanding	Critically assess the relative strengths and weaknesses of artificial intelligence techniques and how these are used in AI research, ethics and applications to enhance behaviour of interactive systems.
3	Intellectual, practical, affective and transferrable skills	Analyse problems, design solutions and apply appropriate AI techniques in various problem domains
4	Intellectual, practical, affective and transferrable skills	Implement and develop AI based techniques to solve problems in interactive environments.

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	12	1,2	1hr Lecture per week
Other teacher managed learning	12	3,4	1hr Practical per week
Student managed learning	126	1-4	Research into AI techniques, their application, design and implementation in interactive environments and demonstration of this knowledge through the software development assessment
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	**Assessment Method**	**Learning Outcomes**	**Weighting (%)**	**Fine Grade or Pass/Fail**	**Qualifying Mark (%)**
010	Coursework	1-4	100 (%)	Fine Grade	30 (%)
2 Components (2700 words equivalent)					

Assessment components for Element 010				
Component No.	**Assessment Title**	**Submission Method**	**Weighting (%)**	**Components needed for Mark Calculation?**
010/1	Coursework (1500-word equivalent)		50 (%)	All
010/2	In-class test (50 minutes, 1200-word equivalent)		50 (%)	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]