

## COURSE SPECIFICATION DOCUMENT

**Academic School / Department:** School of Liberal Arts

**Programme:** Computer Science

**FHEQ Level:** 6

**Course Title:** Artificial Intelligence

**Course Code:** DGT 6103

**Student Engagement Hours:** 160

Lectures: 15

Lab: 30

Supervision: 40

Independent / Guided Learning: 75

**Credits:** 16 UK CATS credits  
8 ECTS credits  
4 US credits

### **Course Description:**

This course provides students with the skills necessary to respond to Artificial Intelligent (AI) problems with search, logic and probabilistic reasoning. The course will also introduce some current advanced applications such as deep learning and natural language processing in the context of AI.

### **Prerequisites:**

MTH 4140 Maths of Argument and Reasoning OR  
DGT 5101 Programming for Industry

### **Aims and Objectives:**

By the end of this course, students will be able to respond to computing problems by programming search and logic techniques. They will also be able to respond to uncertainty by probabilistic reasoning within programming. They will also apply their learning to a specialist area in AI such as deep learning or natural language processing.

### **Programme Outcomes:**

COMPSC: A2, A3, A6, A7, A8, B1, B5, B7, C2, C3 and C7

A detailed list of the programme outcomes are found in the Programme Specification.

This is located at the archive maintained by Registry and found at:

<https://www.richmond.ac.uk/programme-and-course-specifications/>

**Learning Outcomes:**

By the end of this course, successful students should be able to:

- Understand AI and the areas of applications
- Solve computing problems using search and logic techniques
- Solve computing problems that present uncertainty with probabilistic reasoning
- Apply programming skills in a specialist area such as deep learning or natural language processing
- Understand the ethical implications of Artificial Intelligence

**Indicative Content:**

- What is artificial intelligence
- Using Search for problem solving
- Using Logic for problem solving
- Uncertainty and probabilistic reasoning
- Machine learning
- Advanced applications such as deep learning, natural language processing.
- Ethical & human rights issues of AI Systems, Algorithms & Machine Learning

**Assessment:**

This course conforms to the University Assessment Norms approved at Academic Board and located at: <https://www.richmond.ac.uk/university-policies/>

**Teaching Methodology:**

- Lectures, practical demonstrations and step-by-step software tutorials, class workshops, one-to-one tutorials.

**Indicative Text(s):**

“Artificial Intelligence: A Modern Approach” by Stuart Russell and Peter Norvig, Global (4<sup>th</sup>) Edition, May 2021

**Journals/Additional Texts**

Kelleher, J., 2019. Deep Learning. Boston: MIT Press.

Kulkarni, A., 2021. Natural Language Processing Projects. New York: Apress.

Liao, S., 2020. Ethics Of Artificial Intelligence. New York: OUP.

**Web Sites**

<https://www.adobe.com/uk/products/xd.html>

<https://www.storyboardthat.com/>

See syllabus for complete reading list

**Change Log for this CSD:**

Nature of Change	Date Approved & Approval Body (School or AB)	Change Actioned by Registry Services
Revision – annual update	May 2023	