UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Artificial Intelligence
Module Code	COS5028-B
Academic Year	2020/1
Credits	20
School	Department of Computer Science
Subject Area	Computer Science
FHEQ Level	FHEQ Level 5
Pre-requisites	N/A
Co-requisites	N/A

Contact Hours	
Type	Hours
Lectures	24
Laboratories	22
Directed Study	154

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

To provide an introduction to the foundations of Artificial Intelligence (AI).

To introduce important AI concepts and some application areas of AI, and thereby to equip students with the basic methods and techniques of AI.

To provide some practical hand-on experience by implementing basic AI concepts using some programming languages, such as Python.

Outline Syllabus

1. Concepts of Artificial Intelligence and Applications
2. Intelligent Agents: Different types of agents will be considered: simple reflex agents, model-based reflex agents, goal-based agents and utility-based agents.
3. Quantifying Uncertainty. Concepts related to quantifying uncertainty in artificial intelligence, e.g. probability, joint distributions and the Bayes rule, will be discussed with examples from real world scenarios. 4. Solving Problems by Searching. Different search techniques will be introduced with examples and algorithms.
5. Inference in First-order Logic
6. Introduction to Machine Learning. Different approaches to learning will be discussed: supervised and unsupervised learning. Some learning algorithms, including decision trees, regression models, perceptrons and artificial neural networks, will be introduced.

Learning Outcomes

Outcome Number	Description
01	Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its concepts.
02	Apply basic principles of AI in solutions that require problem solving, inference, planning and search, and learning.
03	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, search and path planning algorithms, artificial neural networks and other machine learning models.
04	Demonstrate an ability to share in discussions of AI, its current scope and limitations, and societal implications.

Learning, Teaching and Assessment Strategy

The course will consist of online lectures, online computer lab sessions, independent study, and directed reading to provide the opportunity to gain theoretical knowledge and practical knowledge of Artificial Intelligence. Lectures will also be recorded and made available to students afterwards.
Students will be assessed through two courseworks .

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Coursework	Practical case study analsis on the use of AI in real-life problems	N/A	50%
Summative	Coursework	Case study analysis using computer programming	N/A	50%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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