TECH: Artificial Intelligence in the Wild

Module Title:	Artificial Intelligence in the Wild
Language of Instruction:	English

Credits:	5

NFQ Level:	8

Module Delivered In	3 programme(s)

Teaching & Learning Strategies:	As well as traditional lectures, students will undertake various laboratory exercises implementing a number of algorithms/techniques. They will be expected to participate in class on the materials covered, in addition to both individual and group based projects.

Module Aim:	The aim is for students to understand the formal theory, current technologies and techniques for the application of Artificial Intelligence in real world contexts. The module will focus on students applying their new knowledge by practical applications in both virtual and physical devices.

Learning Outcomes	
On successful completion of this module the learner should be able to:	
LO1	Understand, evaluate and communicate the key principles, theories and techniques specific to the application of Artificial Intelligence.
LO2	Understand and critique the application of Artificial Intelligence/Machine Learning approaches in practice.
LO3	Design, implement and test appropriate Artificial Intelligence algorithms and prototypes for varied problem domains and contexts.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is recommended before enrolment in this module.*
No recommendations listed
Incompatible Modules *These are modules which have learning outcomes that are too similar to the learning outcomes of this module.*
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements *This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.*
No requirements listed

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Module Content & Assessment

Indicative Content
Introduction to Artificial Intelligence A brief history of AI. Disambiguation between terms such as Artificial Intelligence, Machine Learning, Deep Learning and Data Science.
Machine learning Machine learning and knowledge acquisition to include basic concepts such as search techniques, distance measures, linear models, K nearest neighbours.
Evolving Intelligence Focusing on non-symbolic AI such as Neural Networks and Genetic Algorithms.
Programming AI A selection of current technologies/software applications such as Python, Tensorflow, sklearn.
AI applications in the real world Learning how to develop solutions within real time and physical contexts such as Object Detection, Image recognition, Robotics, and Natural Language Processing.
Intelligence at the Edge Understanding the constraints/requirements for power, memory, and storage when dealing with stand alone systems in the field (edge computing).

Assessment Breakdown	%
Continuous Assessment	30.00%
Project	30.00%
End of Module Formal Examination	40.00%

Continuous Assessment

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Case Studies	A number of lab based exercises.	1,2,3	30.00	n/a

Project

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Individual/Group Projects	1,2,3	30.00	n/a

No Practical

End of Module Formal Examination

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Formal Exam	Written examination of module content.	1,2	40.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

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Module Workload

Workload: Full Time		
Workload Type	*Frequency*	*Average Weekly Learner Workload*
Lecture	12 Weeks per Stage	1.00
Laboratory	12 Weeks per Stage	3.00
Independent Learning Time	15 Weeks per Stage	5.13
	Total Hours	125.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_KCCGD_B	Bachelor of Science (Honours) in Computer Games Development	8	Group Elective 1
CW_KCCYB_B	Bachelor of Science (Honours) in Cyber Crime and IT Security	8	Elective
CW_KCSOF_B	Bachelor of Science (Honours) in Software Development	8	Group Elective 1