

NIRMA UNIVERSITY
INDUSTRIAL DESIGN PROGRAMME
Bachelor of Design, Department of Design
Year IV, Semester VII

L	T	P	C
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Course Code	IDTH 413 E
Course Title	Introduction to Artificial Intelligence

Course Learning Outcomes (CLO):

At the end of the course the students will:

1. Develop a broad understanding of Artificial Intelligence (AI) and its implications on Product Design
2. Interpret decision making algorithms
3. Build a capability to write basic algorithms in Open Source GUI software like Python
4. Understand Raspberry PI and Interfaces

Syllabus:

Total Teaching hours: 60

Unit 1: Broad Understanding of AI and ML

Teaching hours: 15

- 1.1 Introduction to Artificial Intelligence (AI) and Machine Learning (ML)
- 1.2 Importance of AI in Industrial Design
- 1.3 Brief Introduction of Industry 4.0
- 1.4 Applications and Advantages of AI and ML

Unit 2: Programming with GUI programming software

Teaching hours: 25

- 2.1 Introduction to OS Programming language-Python
- 2.2 Data types and Variables
- 2.3 Communication with Microcontrollers and Sensors
- 2.4 Simple Graphical User interface
- 2.5 Real time Data Acquisition

Unit 3: AI Algorithms in Python

Teaching hours: 20

- 3.1 Intelligent Algorithm Development using Design Perspective
- 3.2 Color Detection and Shape Detection Algorithm
- 3.3 Simple Game Designing Process

Suggested Readings:

1. *Artificial Intelligence with Python*, by Prateek Joshi, Packt Publications, Jan 2017
2. *Artificial Intelligence in Practice*, Matt Ward, Willey Publications, ISBN: 978-1-119-54898-0, April 2019

w.e.f. Academic year _2020 and onwards

Key: L= Lecture, T= Tutorial, P= Practical, C= Credit