**MSc in Artificial Intelligence and Data Analytics**

|  |
| --- |
| **ΜΑΘΗΜΑ “**Machine learning & Computer vision**.”AIDA…….** |
| **code**  |  |
| **title** | Machine learning & Computer vision |
| **type (compulsory/optional)** | Compulsory |
| **cycle (first/second/third)** | First |
| **year of study when the component is delivered (if applicable)** | 2023-2024 |
|  **semester/trimester when the component is delivered** | Winter |
| **number of ECTS credits allocated** | 7.5 |
| **name of lecturer(s), with information about how, when and where to contact them.** | Eftychios Protopapadakis (eftprot@uom.edu.gr) |
|  **learning outcomes** | Upon completion of the course, the student will be able to:a) Implement machine learning algorithms: Students should be able to implement various machine learning algorithms from scratch and apply them to real-world datasets.b) Develop deep learning models: Students should have hands-on experience in building and training deep learning models using popular frameworks like TensorFlow and PyTorch.c) Apply computer vision techniques: Students should be capable of developing computer vision applications for tasks such as image classification, object detection, and image segmentation. |
| **mode of delivery (face-to-face/distance learning etc.)** | Face-to-face |
|  **prerequisites and co-requisites (if applicable)** | Programming, Statistics, Linnear algebra  |
| **course content** | Feature Extraction TechniquesSupervised Learning AlgorithmsNeural Networks and Deep LearningUnsupervised Learning and Dimensionality ReductionConvolutional Neural NetworksObject Detection TechniquesSemantic SegmentationGenerative adversarial networksObject trackingInterpretability and Adversarial Robustness in Computer Vision |
|  **recommended or required reading and other learning resources/tools** | "Machine Learning Yearning" by Andrew NgDeep Learning for Computer Vision by Rajalingappaa Shanmugamani. Released January 2018. Publisher(s): Packt Publishing. ISBN: 9781788295628 |
|  **planned learning activities and teaching methods** | Weekly lectures |
| **assessment methods and criteria** | Homework assignments (3) 50%Final project 50% |
| **language of instruction** | English |