CPTR1011 - Survey of Artificial Intelligence

Credits:	3 (2/1/0)
Description:	This course provides an introduction to artificial intelligence (AI), machine learning (ML) and deep learning (DL). Students explore foundational concepts, real-world applications and ethical implications of AI technologies. Through hands-on labs using Python, students learn how to prepare data, build simple ML models, evaluate performance and experiment with neural networks, computer vision and natural language processing. The course concludes with a final project in which students develop and present a simple AI application.
Prerequisites:	
Corequisites:	
Pre/Corequisites*:	
Competencies:	1. Explain artificial intelligence, machine learning and deep learning. 2. Identify real-world applications of artificial intelligence in healthcare, education, transportation and finance. 3. Use Python libraries (NumPy, Pandas, scikit-learn, TensorFlow/Keras) to build machine learning models. 4. Implement regression, classification and clustering algorithms. 5. Apply evaluation metrics such as accuracy, precision, recall and F1 score. 6. Build a simple neural network for classification. 7. Experiment with computer vision and natural language processing tasks using modern tools. 8. Explain how generative artificial intelligence models, such as generative pre-trained and bidirectional encoder representation transformers, work at a high level. 9. Critically analyze ethical issues related to artificial intelligence and algorithmic bias. 10. Design and present an artificial intelligence mini-project addressing a real-world problem.
MnTC goal areas:	None

Can be taking as a Prerequisite or Corequisite.

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