Technology & Visual Arts

AIDI 1002 – Machine Learning Programming

Course Instructor: Miss Garima Malik

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Section 01 : Time and Location: 2:00 PM – 5:00 PM Monday, (GC Flex Mode)
Section 02 : Time and Location: 6:00 PM – 9:00 PM Monday, (GC Flex Mode)

Office Hours: Appointments should be requested by emails

Course Description: In this course, students learn how to program machine learning models using common libraries to construct artificial intelligence systems. They will also work with real life case studies and datasets and applying the supervised and unsupervised learning methods to predict the meaningful patterns from the data.

Resources: Main resources will be Blackboard content and class notes with python labs.

Additional References: To understand the Machine learning algorithms students can refer this book (**Introduction to Machine Learning, Fourth Edition, By Ethem Alpaydin**)

Evaluation Criteria:

Machine Learning Labs	20% of the final grade
Assignment 1	20% of the final grade
Assignment 2	20% of the final grade
Assignment 3	20% of the final grade
Final Exam	20% of the final grade

WEEK	DATE (MM/DD)	LESSON	Assignment	Due
1	09/05 - 09/11	Basics of python and essential libraries for Machine Learning		
2	09/12 - 09/18	Exploratory Data Analysis (EDA): Data collection, cleaning, manipulation, modelling and preparation	week-1 lab viva	
3	09/19 - 09/25	Feature Engineering and selection	week-2 lab viva Assignment – 1 Release	Due in 2 weeks
4	09/26 - 10/02	Data Visualization using Python	week-3 lab viva	
5	10/03 - 10/09	Introduction to supervised learning: Classification and Regression problems with real life case studies	week-4 lab viva	
6	10/10 - 10/16	Naïve Bayes, Decision Trees, Random Forest, Logistic Regression, Support Vector Machines	week-5 lab viva	
7	10/17 - 10/23	Unsupervised Learning: K-means, KNN, hierarchical clustering, dendrogram	week-6 lab viva	
	10/24 - 10/30	Reading Week- No Classes		
8	10/31 - 11/06	Dimensionality Reduction- PCA and LDA	week-7 lab viva Assignment – 2 Release	Due in 2 weeks
9	11/07 - 11/13	Machine Learning Experiment Design (K-fold cross validation, confusion metrics, evaluation metrics, train-test splits, overfitting and underfitting)	week-8 lab viva	
10	11/14 - 11/20	Introduction to neural networks and functional programming	week-9 lab viva	
11	11/21 - 11/27	Keras (TensorFlow) v/s Pytorch	Assignment – 3 Release	Due in 2 weeks
12	11/28 - 12/03	ML basics with PyCaret part 1	Week 10 lab viva	
13	12/04 - 12/12	ML basics with PyCaret part 2		
14	12/12	Final Exam		

The sequence and content of this syllabus may change due to unanticipated opportunities or challenges, or to accommodate the learning styles of the students.

Due to extenuating circumstances and to accommodate the need for this program to be offered remotely, there may be some modifications to the evaluation/assessment. This has been approved by the Dean of Technology & Visual Arts (TVA), as directed by the Vice President, Academic.