

CSE11152	Applied Machine Intelligence.	L	T	P	C
Version 1.0	Contact Hours 45 Hours	3	0	0	3
Pre-requisite/Exposure	Basics of Algorithm, Linear Algebra, Probability, and Statistics				
Co-requisite	NIL				

Course Objectives:

- To help the student to acquire knowledge of basics of artificial intelligent computing.
- To enable students to gain basic knowledge of machine learning.
- To incorporate the evolutionary computational knowledge.
- To enable students to acquire various problem solving, learning, and planning ability.
- To enable students to apply machine learning models to solve real-life problems

Course Outcomes:

On the completion of this course the student will be able to

CO1: Understand applications of Machine Learning in industry scenarios.

CO2: Analyse different parameters that control implementation of Machine Learning in a practicalscenario.

CO3: Explain different data modelling techniques

CO4: Compare among different practical implementations and their effects on businessCO5: Develop AI models using state of the art tool.

Course Description:

There is a growing need for talented machine learning/data scientist developers across every industry. As technology advances, the ability to build quality machine learning driven software while considering design, development, security, and maintenance is sought after amongst all kinds of companies, from finance and banking to healthcare and national security. Machine Learning applies the knowledge and theoretical understanding gained through computer science to building high-quality intelligent software products. As a maturing discipline, Artificial Intelligence is becoming more and more important in our everyday lives.

Our software development and engineering professional program is

Course Content:

Units	Lecture Hours
Unit-I: Data Analysis Refresher : Descriptive Statistics, Feature Extraction, Curse of dimensionality, DimensionalityReduction, Types of Machine Learning Techniques, Neural Networks, CNNs, LSTMs	9

Units	Lecture Hours
Unit-II: Machine Learning on numeric/nominal features : Decision Trees, Naïve Bayes Classification, K-NN classifier, K-Means Clustering, Similarity Matrix, Cluster validity indices, Fuzzy-C-Means.	9
Unit-III: Computer Vision : Grayscale Image Processing, Detection of edges, shapes, textures and gradient based features, Image classification, feature extraction using CNNs, image denoising, image-to-image translation, image segmentation, object detection	9
Unit-IV: Natural Language Processing tf-idf, bag-of-words, language models, POS-Tagging, dependency parsers, WordSense Disambiguation, Named Entity Recognition, Deep learning in language processing - word embeddings, glove, Word2Vec, Natural Language Generation, Translation, RNN, GRU, LSTMs, Transformers- BERT Transformer.	9
Unit-V: Modern Case Studies Sequential Analysis : Video processing with convolutional LSTMs Time Series Forecasting : Stock Market Predictions Graph based approaches : Bioinformatics	9

Examination Scheme:

Components	Mid Term	Class Assessment	End Term
Weightage (%)	20	30	50

Relationship between Course Outcomes (COs) and Program Outcomes (POs):

1 = Weakly Mapped

2 = Moderately Mapped 3 = Strongly Mapped

Course Code	Course Name	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
CSE11	Applied	CO1115	2	2	1	2	1	1	2	-	2	-	-	1	1	2	1
152	Machine	2.1															
	Intelligence.	CO1115 2.2	2	2	2	2	3	3	1	-	3	-	-	1	3	1	3
		CO1115	3	2	3	2	2	2	2	-	3	-	-	1	1	2	1
		2.3															
		CO1115	1	3	2	3	3	3	3	-	1	-	-	3	2	1	1
		2.4															
		CO1115	1	2	3	3	3	1	2	-	1	-	-	1	2	1	2
		2.5															
		CO1115	1.	2.	2.	2.	2.	2.	2.	-	2.	-	-	1.4	1.8	1.4	1.6

Course Code	Course Name	COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
		2	8	2	2	4	4	0	0		0						