

Machine Learning Lab

Course Code	20CS3652	Year	III	Semester	II
Course Category	PCC	Branch	CSE	Course Type	Practical
Credits	1.5	L-T-P	0-0-3	Prerequisites	Programming for problem solving, Java Programming, Python Programming
Continuous Internal Evaluation :	15	Semester End Evaluation:	35	Total Marks:	50

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Apply various preprocessing techniques and Machine Learning methods on different datasets for a given problem.	L3
CO2	Implement various experiments in Jupyter Notebook Environment and Colab.	L3
CO3	Develop an effective report based on various learning methods implemented.	L3
CO4	Apply technical knowledge for a given scenario and express with an effective oral communication	L3
CO5	Analyze the outputs and visualizations generated for different datasets.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1						1								3
CO2					1				1					
CO3										2				
CO4										3				
CO5		3												

Description (If any):

1. The programs can be implemented in either Python in Anaconda Software Jupyter Note book Environment or Co Lab.
2. Data sets can be taken from standard repositories (<https://archive.ics.uci.edu/ml/datasets.html>) or constructed by the students.

Syllabus

Expt. No.	Contents	Mapped CO
1	Anaconda Software Installation and introduction to Jupyter and Co Lab.	CO1,CO2,CO3,CO4, CO5
2	Apply Data pre-processing techniques.	CO1,CO2,CO3,CO4, CO5
3	Implement ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.	CO1,CO2,CO3,CO4, CO5
4	Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.	CO1,CO2,CO3,CO4, CO5
5	Implement naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.	CO1,CO2,CO3,CO4, CO5
6	Implement k-nearest neighbours classification using python.	CO1,CO2,CO3,CO4, CO5
7	Implementation of K-means Clustering algorithm.	CO1,CO2,CO3,CO4, CO5
8	Implementation of DBSCAN Clustering algorithm.	CO1,CO2,CO3,CO4, CO5
9	Implementation of hierarchical agglomerative clustering algorithm	CO1,CO2,CO3,CO4, CO5

Learning Resources**Text Books**

1. Machine Learning using Python , U Dinesh Kumar and Manaranjan Pradhan, John Wiley & Sons
2. Machine Learning with Python for Everyone, Mark E.Fenner, First Edition, 2020,Pearson.
3. Machine Learning: A Probabilistic Perspective, Kevin P. Murphy, 2012, MIT Press

References

1. Artificial Intelligence: A Modern Approach, Stuart Russell and Norvig, Third Edition, 2015,
2. C Bishop – Pattern Recognition and Machine Learning – Springer, 2006. Machine Learning, Anuradha Srinivasaraghavan , and Vincy Joseph ,Kindle Edition, September 2020, WILEY.
3. Introduction to Machine Learning by ETHEM ALPAYDIN, Fourth Edition, Prentice Hall of India, MIT Press, 2020.

e-Resources and other Digital Material

1. <https://www.coursera.org/learn/machine-learning>
2. <https://github.com/atinesh-s/Coursera-Machine-Learning-Stanford>