



● **LAB PLAN:**

Sr. No.	Course Outcomes	LLO	Name of Practical	Planned Date	Performance Date	Remark	Related Self Learning (if any)
1.	CO607.1	1.1	a. Installation of Tools and Libraries ( Jupyter Notebook /Matplotlib/ Numpy / Pandas / PyTorch/ scikit-learn) b. Use of google colab ( <a href="https://colab.research.google.com/">https://colab.research.google.com/</a> )	A:15/12/25 B: 16/12/25 C: 17/12/25			
2.	CO607.1	3.1	Perform following operations:(Assume suitable data/dataset if needed). I. Write a program to read dataset) Text,CSV,JSON,XML) II. Which of the attributes are numeric and which are categorical? III. Performing Data Cleaning, Handling Missing Data, Removing Null data IV. Rescaling Data. Encoding Data V. Feature Selection	A: 22/12/25 B: 23/12/25 C: 24/12/25			
3.	CO607.1	4.1	Write a program to implement SVM for classification using suitable dataset	A: 05/01/26 B: 06/01/26 C: 07/01/26			
4.	CO607.1	6.1	Write a program to implement Association Rule Learning (Apriori Algorithm) on any dataset	A: 12/01/26 B: 13/01/26 C: 14/01/26			
5.	CO607.1	8.1	Write a program to implement AND Logic Gate with 2-bit Binary Input using Perceptron algorithm	A: 26/01/26 B: 27/ 01/26 C: 28/01/26			
6.	CO607.2	9.1	Write a program to implement Perceptron Learning in Python using Iris flower dataset	A: 02/02/26 B: 03/02/26 C: 04 /02/26			
7.	CO607.2	13.1	Write a program to implement CIFAR 10- CNN using PyTorch	A: 16/02/26 B: 17/02/26 C: 18/02/26			
8.	CO607.2	15.1	Classification of images using imagenet dataset	A: 23/02/26 B: 24/02/26 C: 25/02/26			
9.	CO607.2	5.1	Write a program to implement an unsupervised machine learning algorithm (Clustering – K Medoid in python on dataset to cluster data. (Assume suitable dataset)	A: 09/03/26 B: 10/03/26 C: 11/03/26			
10.	CO607.2	7.1	Write a program to implement	A: 16/03/26			

			Association Rule Learning (Eclat Algorithm) on any dataset	B: 17/03/26 C: 18/03/26			
11.	CO607.2	11.1	Write a program to implement /Simulate Back propagation/feed forward neural network	A: 23/03/26 B: 24/03/26 C: 25/03/26			
12.	CO607.3	12.1	Build a small CNN model consisting of 5 convolution layers	A: 30/03/26 B: 31/03/26 C: 25/03/26			

- Formative Assessment Criteria :**

Performance Indicators		Weightage
<b>Process Related (15 Marks)</b>		<b>60%</b>
1	Logic formation	40%
2	Debugging ability	10%
3	Correctness of program code	10%
<b>Product Related (20 Marks)</b>		<b>40%</b>
1	Expected output	10%
2	Timely completion of practical	10%
3	Answer to sample questions	20%
<b>Total (25 Marks)</b>		<b>100%</b>

- Rules for Formative Assessment:**

1. Formative assessment of each practical is based on Process related (15 marks) and Product related (20 marks) - Total out of 25 marks as per the assessment scheme prescribed by MSBTE,
2. Final assessment of 25 Marks for all practicals.
3. Final Formative Assessment (F.A.) of 25 marks is calculated as follows: FA Marks = ((Total obtained marks))/ (25\*Total Number of practical)

- Rules for Summative Assessment:**

1. A comprehensive Final Practical End Semester examination (SA-PR of 25 Marks) will be conducted by MSBTE at the end of semester. Examiner for this examination will be External examiner. The schedule of MSBTE Practical Examination will be display on Notice board prior to examination.

- Rules for Summative Assessment:**

1. Self-learning assessment includes micro-project or assignment.
2. SLA Marks Shall be awarded as per the continuous assessment record
3. SLA will be of 25 Marks.
4. Following are some SLA topic or similar self-learning topic could be added by SLA:
  - I. Implement and Tune a Convolutional Neural Network (CNN) for Transfer Learning.
  - II. Implement and Train a Transformer Model for Text Generation.
  - III. Implement a Neural Network with Backpropagation and Vanishing Gradient Problem.
  - IV. Implement and Train a Transformer Model for Text Generation
  - V. Build an AI Model for Time Series Forecasting.

#### Practical wise LLO-CO Mapping:

PR No.	LLOs	CO607.1	CO607.2	CO607.3	CO607.4	CO607.5
Practical 1	1.1	✓				
Practical 2	3.1	✓				
Practical 3	4.1		✓			
Practical 4	5.1		✓			
Practical 5	6.1		✓			

Practical 6	7.1		✓			
Practical 7	8.1		✓			
Practical 8	9.1			✓		
Practical 9	11.1			✓	✓	
Practical 10	12.1			✓	✓	
Practical 11	13.1				✓	
Practical 12	15.1					✓

### • SUGGESTED LEARNING MATERIALS / BOOKS

Sr. No	Author	Title	Publisher with ISBN Number
1	Andreas C. Müller & Sarah Guido	Introduction to Machine Learning with Python	O'Reilly Media, Inc ISBN-13: 978-9352134571
2	Tom M Mitchell	Machine Learning	McGraw Hill Education; First Edition ISBN-13: 978-1259096952
3	Rudolph Russell	Machine Learning Step-by-Step Guide To Implement Machine Learning Algorithms with Python	CreateSpace Independent ISBN-13: 978-1719528405

### • LEARNING WEBSITES & PORTALS

Sr. No	Link / Portal	Description
1	<a href="https://www.python.org/downloads/">https://www.python.org/downloads/</a>	Python IDE download
2	<a href="https://www.pdfdrive.com/machine-learning-step-by-step-guide-to-implement-machine-learning-algorithms-with-python-d158324853.html">https://www.pdfdrive.com/machine-learning-step-by-step-guide-to-implement-machine-learning-algorithms-with-python-d158324853.html</a>	AI and ML E-Books
3	<a href="https://www.geeksforgeeks.org/how-to-install-python-pycharm-on-windows/">https://www.geeksforgeeks.org/how-to-install-python-pycharm-on-windows/</a>	Guidelines for Installation of python
4	<a href="https://www.pythongcentral.io/how-to-install-pytorch-using-pip-a-step-by-step-guide/">https://www.pythongcentral.io/how-to-install-pytorch-using-pip-a-step-by-step-guide/</a>	Installation of PyTorch on windows

### • Tools for conducting Practical:

- 1. Google classroom
- 2. YouTube
- 3. MKCL LMS-Learn Live
- 4. Python setup/ PyTorch,
- 5. Google colab

Ms. D. N. More  
Faculty

Mrs. R. Y. Thombare  
(HOD-AN)