Sr. No.	Topic Name
1	Introduction to Machine Learning: Definition and Importance
2	AI vs. ML vs. DL: Key Differences
3	Types of Machine Learning: Supervised, Unsupervised, Reinforcement Learning
4	Challenges in Machine Learning
5	Applications of Machine Learning
6	Data Types: Ordinal, Nominal, Ratio, Interval
7	Structured, Semi-structured, and Unstructured Data
8	Machine Learning Development Life Cycle
9	Preliminary Project Planning
10	Bias and Variance Tradeoff
11	Overfitting and Underfitting
12	Understanding Datasets: Features Selection, Train/Test/Validation Sets
13	Preprocessing Techniques in ML
14	Cross Validation Techniques
15	Hyperparameter Tuning and Optimization
16	Confusion Matrix: Understanding True Positives and False Positives
17	Precision, Recall, F1 Score
18	Technical Seminar - 1
19	Type-1 Error vs. Type-2 Error
20	Error Metrics: MAE, MSE, RMSE
21	Introduction to Regression Models: Linear Regression
22	Cost Function and Gradient Descent for Linear Regression
23	Multiple Linear Regression: Concept and Implementation
24	Introduction to Classification Algorithms
25	Logistic Regression in Detail
26	Decision Trees: Working Mechanism and Applications
27	Na
28	k-Nearest Neighbors and Support Vector Machines
29	Introduction to Clustering and Its Importance
30	k-Means Clustering Algorithm: Steps and Implementation
31	Hierarchical Clustering: Agglomerative and Divisive Methods
32	Probabilistic Clustering: Gaussian Mixture Models
33	Introduction to Dimensionality Reduction Techniques
34	Principal Component Analysis (PCA) – Theory and Implementation
35	Applications of PCA in Machine Learning
36	Basic Design of Neural Networks and Architecture Terminology
37	Multilayer Perceptrons (MLP) – Understanding Deep Learning Networks
38	Activation Functions: Sigmoid, ReLU, Tanh, Softmax
39	Technical Seminar - 2
40	Introduction to Generative AI: Concepts and Use Cases
41	Case Study on OpenAI and Generative Models
42	Case Study on ChatGPT: How It Works and Its Evolution
43	Case Study on Driverless Cars: AI and ML in Autonomous Driving