

Machine Learning Essentials

Duration: 2 Months (Mon–Fri, ~90 Hours)

Mode: Live Online / Classroom

Tools & Technologies: Python, Scikit-learn, Jupyter Notebook

Syllabus

Week 1

- Introduction to Machine Learning concepts
- Supervised vs Unsupervised learning
- Assignment at end of week

Week 2

- Regression models: Linear, Logistic
- Hands-on with Scikit-learn
- Assignment at end of week

Week 3

- Classification: Decision Trees, Random Forest, SVM
- Assignment at end of week

Week 4

- Clustering: K-means, DBSCAN
- Evaluation metrics for clustering
- Assignment at end of week
- Mock Interview 1

Week 5

- Model evaluation: accuracy, precision, recall, F1-score
- Cross-validation techniques
- Assignment at end of week

Week 6

- Feature engineering & scaling
- Assignment at end of week

Week 7

- Hyperparameter tuning (GridSearch, RandomSearch)

- Assignment at end of week

Week 8

- End-to-end ML project
- Final project presentation
- Mock Interview 2
- Assignment at end of week

Learning Outcomes

- Understand core ML algorithms
- Implement regression, classification, and clustering models
- Evaluate models using real-world datasets
- Apply feature engineering and hyperparameter tuning
- Complete an ML project from start to finish