

Data Warehousing and Data Mining

Unit	Course Topics	Hours
1	Introduction to Data Warehousing: Need for data warehouse, OLTP vs OLAP, architecture, data marts, metadata, 3-tier architecture	4L
2	Data Warehouse Design: Schema types (Star, Snowflake, Fact Constellation), fact tables, dimension tables, surrogate keys	6L
3	ETL Process & Data Preprocessing: Extraction, transformation, loading, data cleaning, integration, reduction, discretization, normalization	6L
4	Online Analytical Processing (OLAP): OLAP operations (roll-up, drill-down, slice, dice, pivot), MOLAP, ROLAP, HOLAP	6L
5	Introduction to Data Mining: Definition, KDD process, types of data, types of patterns, applications of data mining	5L
6	Data Mining Techniques: Classification (Decision Tree, Naive Bayes, KNN), Clustering (K-Means, Hierarchical), Association Rule Mining (Apriori, FP-Growth)	4L
7	Advanced Topics & Applications: Text mining, web mining, time-series mining, spatial mining, big data analytics, data mining tools	4L