# **Data Analytics & Business Intelligence**

**1. Databases and Advanced SQL Techniques**

* **Introduction to Databases: SQL and NoSQL**
  + Overview of SQL Databases (Relational Databases)
  + Overview of NoSQL Databases (Document, Key-Value, Column-Family, Graph)
  + Use Cases and Comparisons Between SQL and NoSQL
  + Setting Up and Connecting to SQL and NoSQL Databases
* **Basic SQL Queries**
  + Understanding SQL Syntax and Commands
  + Writing Basic SQL Queries (SELECT, INSERT, UPDATE, DELETE)
  + Filtering, Sorting, and Aggregating Data
  + Joining Tables and Subqueries
* **Advanced SQL Techniques**
  + Advanced Joins and Nested Queries
  + Using Window Functions and CTEs (Common Table Expressions)
  + Indexing and Query Optimization
  + Implementing Transactions and Concurrency Control
* **Practical Examples and Use Cases**
  + Real-world Applications of SQL and NoSQL
  + Case Studies in Various Industries
  + Best Practices for Database Design and Querying
  + Hands-on Exercises and Projects

**2. Data Warehousing and Enterprise Data Architecture**

* **Introduction to Data Warehousing**
  + Understanding Data Warehousing Concepts
  + Benefits and Use Cases of Data Warehousing
  + Key Components of a Data Warehouse
  + Setting Up a Data Warehouse (ETL Tools and Platforms)
* **ETL Processes and Data Lakes**
  + Overview of ETL (Extract, Transform, Load) Processes
  + Designing and Implementing ETL Pipelines
  + Introduction to Data Lakes and Their Benefits
  + Integrating Data Lakes with Data Warehouses
* **Enterprise Data Architecture**
  + Understanding Enterprise Data Architecture Concepts
  + Designing Scalable and Flexible Data Architectures
  + Tools and Technologies for Enterprise Data Architecture
  + Case Studies and Best Practices
* **Practical Implementation and Use Cases**
  + Real-world Examples of Data Warehousing and ETL
  + Implementing Data Lakes in Various Industries
  + Designing and Managing Enterprise Data Architectures
  + Hands-on Exercises and Projects

**3. Data Governance and Metadata Management**

* **Introduction to Data Governance**
  + Understanding Data Governance Concepts
  + Importance of Data Governance in Organizations
  + Key Components of a Data Governance Framework
  + Setting Up a Data Governance Program
* **Metadata Management**
  + Overview of Metadata and Its Importance
  + Types of Metadata (Technical, Business, Operational)
  + Tools for Metadata Management
  + Best Practices for Metadata Management
* **Data Security and Compliance**
  + Importance of Data Security in Data Governance
  + Implementing Data Security Measures (Encryption, Access Control)
  + Compliance with Data Protection Regulations (GDPR, HIPAA)
  + Monitoring and Auditing Data Security
* **Practical Examples and Case Studies**
  + Real-world Applications of Data Governance
  + Implementing Metadata Management in Organizations
  + Case Studies on Data Security and Compliance
  + Hands-on Exercises and Projects