

Introduction to Data Analytics

- Overview of Data Analytics and its Applications
- Importance of Data in Decision Making
- Data Lifecycle and Data-driven Decision Making

Statistical Analysis for Data Analytics

- Descriptive Statistics
- Inferential Statistics and Hypothesis Testing
- Regression Analysis and Multivariate Statistics

Data Visualization

- Principles of Data Visualization
- Tools for Data Visualization (e.g., Tableau, Matplotlib)
- Dashboard Design and Storytelling with Data

Programming for Data Analytics

- Introduction to Programming (Scala and Python and R)
- Data Wrangling and Cleaning
- Scripting for Data Analysis

Database Management and SQL

- Relational Database Concepts
- SQL Fundamentals
- Database Design and Optimization

Machine Learning Fundamentals

- Introduction to Machine Learning
- Supervised and Unsupervised Learning
- Evaluation Metrics and Model Selection

Big Data Technologies

- Overview of Big Data
- Hadoop and MapReduce
- Apache Spark and Distributed Computing

Deep Learning and Neural Networks

- Basics of Neural Networks
- Deep Learning Architectures
- Applications of Deep Learning in Data Analytics

Advanced Predictive Analytics

- Time Series Analysis
- Ensemble Methods
- Feature Engineering and Selection

Ethics in Data Analytics

- Privacy and Security Concerns
- Bias and Fairness in Data Analytics
- Ethical Decision Making in Data-Driven Environments