

Data Analytics & Data Science

Duration: 14 Weeks

Program Overview

Become a job-ready Data Analyst and Data Science professional by learning data analysis, visualization, machine learning, SQL, Excel, Power BI, and Python from industry experts. This program combines theory, practical exercises, real-world datasets, and capstone projects to build strong analytical and problem-solving skills.

Module 1: Data Fundamentals & Analytics Foundations

Topics Covered

- Introduction to Data and Data Types
- Structured, Semi-Structured & Unstructured Data
- Data Analytics vs Data Science vs Artificial Intelligence
- Types of Analytics
 - Descriptive Analytics
 - Diagnostic Analytics
 - Predictive Analytics
- Data Collection & Data Sources
- Statistics for Data Analysis
- Data Cleaning & Preparation
- Exploratory Data Analysis (EDA)

Practical Learning

- Working with CSV and Excel datasets
 - Data cleaning using Python
 - Dataset exploration from Kaggle
 - Statistical analysis and reporting
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Module 2: Excel for Data Analysis

Topics Covered

- Excel Fundamentals
- Data Formatting & Validation
- Functions & Formulas
- VLOOKUP & XLOOKUP

- Conditional Formatting
- Charts & Graphs
- Pivot Tables & Pivot Charts
- Power Query
- KPI Tracking
- Dashboard Design

Practical Learning

- Interactive Excel Reports
 - Business Dashboards
 - Data Summarization Techniques
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Module 3: Python Programming Essentials

Topics Covered

- Python Fundamentals
- Variables & Data Types
- Operators & Expressions
- Conditional Statements
- Loops & Iterations
- Functions & Lambda Expressions
- Recursion Basics
- File Handling (CSV, JSON, TXT)
- Exception Handling
- Object-Oriented Programming

Practical Learning

- Problem-Solving Exercises
 - Data Processing Scripts
 - File Automation Tasks
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Module 4: Python Data Structures

Topics Covered

- Lists
- Tuples
- Sets
- Dictionaries
- Nested Data Structures

Mini Project

Data Management System

- Record Storage
 - Data Retrieval
 - Data Manipulation
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Module 5: Python for Data Analysis

Technologies Covered

- NumPy
- Pandas
- Matplotlib
- Seaborn

Topics Covered

- Data Manipulation
- Data Wrangling
- Data Transformation
- Data Cleaning
- Statistical Analysis
- Data Visualization
- Exploratory Data Analysis

Project

Complete Exploratory Data Analysis Project

- Real Dataset Analysis
 - Business Insights Generation
 - Visualization Reporting
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Module 6: Machine Learning for Business Analytics

Topics Covered

Machine Learning Fundamentals

- ML Concepts & Workflow
- Supervised vs Unsupervised Learning

Predictive Modeling

- Linear Regression
- Logistic Regression

- Decision Trees
- Random Forest
- K-Nearest Neighbors (KNN)

Clustering & Segmentation

- K-Means Clustering

Model Optimization

- Feature Engineering
- Data Scaling & Encoding
- Model Evaluation
- Hyperparameter Tuning

Business Interpretation

- Translating Model Outputs into Business Decisions
- Data-Driven Decision Making

Mini Project

Predictive Analytics Project

- Data Preparation
 - Model Building
 - Performance Evaluation
 - Business Recommendations
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Module 7: SQL for Data Analysis

Topics Covered

- Database Fundamentals
- Tables & Relationships
- CRUD Operations
- Filtering & Sorting
- Aggregate Functions
- Joins
- GROUP BY & HAVING
- Window Functions

Practical Learning

- Business Query Writing
 - Sales & Customer Analysis
 - Data Extraction Techniques
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Module 8: Power BI for Business Intelligence

Topics Covered

- Power BI Fundamentals
- Data Import & Transformation
- Data Modeling
- Relationships
- Interactive Visualizations
- DAX Functions
- Dashboard Development
- Data Storytelling

Practical Learning

- Executive Dashboards
 - KPI Monitoring Reports
 - Interactive Business Reports
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Capstone Projects

Industry-Level Projects

Students will work on end-to-end projects involving:

- Data Collection & Preparation
- Exploratory Data Analysis
- SQL-Based Data Extraction
- Machine Learning Model Development
- Business Dashboard Creation
- Data Storytelling & Reporting

Sample Project Domains

- Sales Analytics
 - Customer Segmentation
 - Employee Performance Analysis
 - Retail Analytics
 - Marketing Campaign Analysis
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Tools & Technologies

- Python
- NumPy

- Pandas
 - Matplotlib
 - Seaborn
 - Scikit-Learn
 - SQL
 - Microsoft Excel
 - Power BI
 - Jupyter Notebook
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Career Opportunities

After completing this program, learners can pursue roles such as:

- Data Analyst
 - Business Analyst
 - Reporting Analyst
 - Business Intelligence Analyst
 - Junior Data Scientist
 - Data Visualization Specialist
 - Analytics Associate
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Certification

Earn a Professional Data Analytics & Data Science Certification upon successful completion of assignments, projects, assessments, and the final capstone project.