KOENIG SOLUTIONS · COURSE OUTLINE

AI Data Analytics: SQL, Python & Tableau

Learn to analyse and visualise data using Excel, SQL, Python, ETL, Tableau and generative AI techniques.

5 Days	9	49
40 HOURS	MODULES	TOPICS

COURSE OVERVIEW

This course covers business analytics with Excel, including pivot tables and dashboard creation, before moving into data acquisition and manipulation using SQL. It then addresses ETL processes for extracting, transforming and loading data, followed by data visualisation with Tableau and foundational and applied Python programming for data analytics. The later modules examine generative AI, prompt engineering and ChatGPT, their applications within data analytics, and conclude with data ethics covering privacy, security, transparency and fairness.

WHO THIS COURSE IS FOR

- **Data Analysts**
- **Business Analysts**
- **Data Engineers**
- **BI Developers**
- **Python Developers**

PREREQUISITES

- Knowledge of basic mathematics

LEARNING OBJECTIVES

Course Outcomes

- Gain hands-on expertise in data analytics using Excel, SQL, and Python
- Master Generative AI concepts, including prompt engineering and ChatGPT
- Implement ETL processes and build interactive dashboards with Power BI & Tableau
- Explore Generative AI applications in data analytics for automation and efficiency
- Develop a strong foundation in data ethics and AI-driven decision-making

COURSE SYLLABUS

9 Modules, 49 Topics

01

Business Analytics with Excel

Learn to analyze complex datasets, create visual insights using charts and dashboards, and apply foundational statistical techniques.

TOPICS

Business Analytics Overview · Conditional Formatting · Pivot Tables · Dashboard Creation · Statistical Data Analysis

02

Data Acquisition and Manipulation Using SQL

Gain expertise in SQL queries, table creation, transactions, and stored procedures for database management.

TOPICS

SQL Fundamentals · Filtering Data · Aggregate Functions · Joins & Subqueries · Views & Indexes · String, Date, and Time Functions

03

Extract, Transform, Load (ETL)

Understand ETL processes to extract structured/unstructured data, apply transformation rules, and load optimized data for analytics.

TOPICS

ETL Fundamentals · Data Source Identification · Batch & Real-time ETL · Data Transformation & Mapping · ETL Tools like Nifi & Talend

04

Data Visualization Using Tableau

Master visualization techniques, build interactive dashboards, and create compelling data stories using Tableau.

TOPICS

Tableau Basics · Chart Creation · Filters & Analytics · Dashboards · Data Blending · Calculations & Level of Detail (LOD)

05

Fundamentals of Python Programming

Learn Python programming basics, object-oriented principles, and multithreading for data analytics applications.

TOPICS

Python Syntax · Data Types · Conditional Statements · Loops · Functions · OOP · Multithreading

06

Data Analytics with Python

Explore Python libraries (Pandas, NumPy, Matplotlib) for data manipulation, statistical analysis, and machine learning applications.

TOPICS

Data Acquisition · Correlation & Regression · Hypothesis Testing · Probability Distributions · Time Series Analysis

07

Essentials of Generative AI, Prompt Engineering & ChatGPT

Understand generative AI models, prompt engineering, explainable AI, and the mechanisms behind ChatGPT.

TOPICS

Generative AI Fundamentals · Explainable AI · ChatGPT Applications & Fine-tuning · Conversational AI · Ethical AI Considerations

08

Applications of Generative AI in Data Analytics

Learn how to use generative AI for synthetic data generation, automation, ETL optimization, and AI-driven insights.

TOPICS

AI-Optimized ETL · Data Augmentation · AI for Visualization & Forecasting · Integration Challenges · Future AI Trends

09

Data Ethics

Develop ethical considerations for data handling, ensuring privacy, security, transparency, and fairness in AI systems.

TOPICS

Data Privacy Laws (GDPR, CCPA) · Bias & Fairness in AI · Transparency · Data Security · Ethical AI Decision-Making

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

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