KOENIG SOLUTIONS · COURSE OUTLINE

Exploring Data Analytics, Business Intelligence, and Machine Learning

Learn to analyse, visualise and model data using Power BI, Python and R, from dashboards to machine learning.

5 Days	19	5
DURATION	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This five-day corporate training program is designed to provide an in-depth understanding of data analytics, business intelligence (BI), data science, and machine learning, equipping participants with practical skills to analyze, visualize, and extract insights from data. The training covers essential tools such as Power BI, Python, and R, while also integrating industry best practices for data-driven decision-making. Participants will engage in hands-on exercises, real-world case studies, and interactive discussions to enhance their proficiency in data analytics. By the end of this program, attendees will be able to develop data-driven reports, create predictive models, and apply machine learning algorithms to business scenarios.

WHO THIS COURSE IS FOR

- **Data Analysts**
- **Business Intelligence Developers**
- **Data Scientists**
- **Reporting Analysts**
- **Business Analysts**

PREREQUISITES

- Basic knowledge of statistics and data analysis
- Familiarity with Excel and SQL (recommended but not mandatory)

TOOLS AND REQUIREMENTS

Tools/Technologies Used

- Power BI - Data visualization and business intelligence
- Python - Data processing, analysis, and machine learning
- R - Statistical computing and predictive modeling
- Additional Tools: SQL, Pandas, NumPy, Scikit-learn, Azure ML Studio

LEARNING OBJECTIVES

What You Will Learn

- Explain core concepts of data analytics, BI and data science
- Build interactive dashboards and reports in Power BI
- Apply Power Query and DAX for data transformation and calculations
- Connect and combine data from SQL, Excel and Web APIs
- Manipulate and visualise data with Pandas, NumPy and Matplotlib
- Perform exploratory data analysis and statistical computing in R
- Implement machine learning algorithms such as regression and decision trees
- Apply feature engineering and time series forecasting techniques

COURSE SYLLABUS

19 Topics

DAY 1 Foundations of Data Analytics & BI

TOPICS

Hands-on

- Introduction to Data Analytics, BI, and Data Science
- Understanding Business Intelligence & Reporting
- Power BI Fundamentals - Interface, dashboards, data import
- Data Cleaning & Transformation using Power Query

DAY 2 Advanced Data Visualization & Analytics

TOPICS

Hands-on

- Data Modeling & Relationships in Power BI
- Introduction to DAX (Data Analysis Expressions) for calculations
- Advanced visualization techniques and custom dashboards
- Connecting multiple data sources (SQL, Excel, Web APIs)

DAY 3 Introduction to Python for Data Science

TOPICS

Hands-on

- Basics of Python Programming for analytics
- Working with Pandas & NumPy for data manipulation
- Data visualization using Matplotlib & Seaborn
- Exploratory Data Analysis (EDA) techniques

DAY 4 Statistical Analysis & Machine Learning Basics

TOPICS

Hands-on

- Introduction to R for Statistical Computing
- Descriptive & Inferential Statistics in R
- Machine Learning fundamentals & algorithms (Supervised vs. Unsupervised Learning)
- Implementing Linear Regression & Decision Trees

DAY 5 Advanced Machine Learning

TOPICS

Activity

- Feature Engineering & Model Optimization
- Introduction to Time Series Analysis & Forecasting
- Deploying Machine Learning models in Azure ML Studio (if required)

HANDS-ON ACTIVITIES

Practise What You Learn

MODULE	ACTIVITY
Foundations of Data Analytics & BI	**Hands-on:** Creating interactive reports in Power BI
Advanced Data Visualization & Analytics	**Hands-on:** Building a complete BI report
Introduction to Python for Data Science	**Hands-on:** Analyzing a real-world dataset with Python
Statistical Analysis & Machine Learning Basics	**Hands-on:** Building a simple predictive model in Python & R
Advanced Machine Learning	**Final Hands-on Project:** Participants will work on a real-world case study using Power BI, Python, and R

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

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

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