



# TECHORIGIN

Technology Development Training & Entrepreneurship institute

## DATA ANALYSIS COURSE OPTION

Data Analysis encompasses the process of comprehending and refining data, aiming to extract valuable insights from raw information. Businesses worldwide rely on their ability to grasp the intricacies of their data, using it as a foundation for informed decision-making. Various technology-driven tools such as Microsoft Excel, Python, SQL, and Power BI are employed for this purpose, particularly for creating analytical dashboards.

In today's business landscape, Data Analysis is indispensable for comprehending customer behaviour, discerning market trends, and evaluating the performance of products or services. It serves as a linchpin for identifying both opportunities and potential risks. Moreover, in the realm of scientific research, it plays a pivotal role in deriving meaningful conclusions from experiments and observations, aiding in the validation of hypotheses and the advancement of knowledge.

Here at TechOrigin Technology Development School, we have structured our Data Analysis curriculum into four distinct modules. Each module is designed to furnish our students with essential skills in Data Analysis, tailored to their specific industry for practical application.

### Tools

- ❖ Microsoft Excel
- ❖ Power BI
- ❖ Visual Studio Code
- ❖ Jupyter Notebook
- ❖ SQL Server Management Studio
- ❖ Functional Laptop with at least 4GB RAM and network connectivity



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### Module Three: Advanced Data Analysis Programming with Python

#### Course Outline

##### ❖ Python for Data Analysis

##### ❖ Introduction

- ❖ Importance of Scripting for Data Analysis
- ❖ Role of Python in Data Analysis
- ❖ Installing Python on Visual Studio Code & Jupyter Notebook
- ❖ Using Google Colab Online Jupyter Notebook
- ❖ Data Reporting

##### ❖ Python Basics

- ❖ Data Types & Variables
- ❖ Numerical & Logical Operators
- ❖ Conditional Statements
- ❖ Loops & Iteration

##### ❖ Data Structures

- ❖ List and Tuples
- ❖ Dictionaries and Sets
- ❖ Objects

##### ❖ Functions & Modules Packages

##### ❖ Python For Data Analysis

- ❖ NumPy for Numerical Analysis
- ❖ Pandas for Data Manipulation and Analysis
- ❖ Matplotlib & Seaborn Charting & Visualization Tool