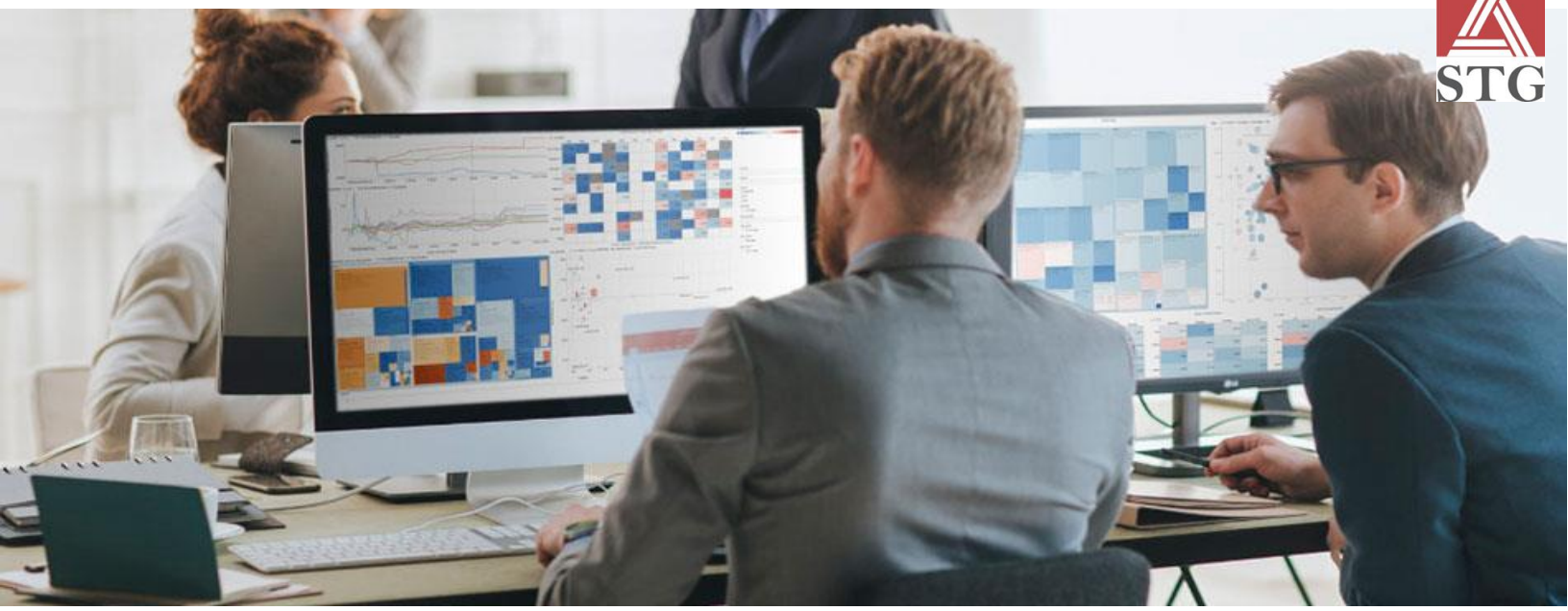

Data Analytics

About Data Analytics

Data analytics is used for the discovery, interpretation and communication of meaningful patterns in data. Implementing it into the business model means companies can help reduce costs by identifying more efficient ways of doing business. A company can use data analytics to make better informed decisions and help analyze customer trends and satisfaction, which can lead to new and better - products and services.

At STG, we help you learn the skills required to be successful in a data-driven world. In this course, you will gain domain knowledge, data transformation, understand the usage of algorithm for solving complex business problems, optimization techniques, project execution strategy, data visualization and storytelling. Upon successful completion, you'll have analyzed real-world datasets, created interactive dashboards, and presented reports to share your findings, giving you the confidence and the skills to begin a career as data analyst.

KEY HIGHLIGHTS

- 80+ hours of Applied learning
- Live & Collaborative online training sessions
- Assignments, Case Studies & Projects at end of every module
- Essential Soft Skills Training
- Designed for Working Professionals & Fresher's
- Job Assistance
- Flexible Schedule
- Mentor Support

COURSE OVERVIEW

In this program, you will learn the following data science courses along with multiple case studies, assignments and project work.

Program Content

- Advanced (Business) Statistics
- Excel and Advanced Excel
- SQL
- Tableau
- Power BI
- Basics - R
- Basics - Python

Business Statistics

- Data Types, Measure of Central Tendency, Measure of Dispersion
- Graphical Techniques, Skewness & Kurtosis, Box Plot
- Descriptive Stats
- Random Variable, Probability, Probability Distribution, Normal Distribution, SND, Expected Value
- Sampling Funnel, Sampling Variation, Central Limit Theorem, Confidence interval
- Introduction to Hypothesis Testing
- Hypothesis Testing (2 proportion test, 2 t sample test)
- Anova and Chisquare
- Data Cleaning
- Imputation Techniques
- Scatter Diagram
- Correlation Analysis

Excel - Basic

An overview of the screen, navigation and basic spreadsheet concepts

- Customizing the Ribbon, Worksheets, Format Cells
- Various selection techniques, Shortcut Keys
- Protecting and Unprotecting worksheets

Advanced Excel

Sorting and Filtering Data

- Sorting Tables, Using multiple-level sorting and custom sorting
- Filtering data for selected view (AutoFilter)
- Using advanced filter options

Data Validation

- Specifying a valid range, list of values for a cell
- Specifying custom validations based on formula for a cell

Text Function

- Upper, Lower, Proper, Left, Mid, Right
- Trim, :en, Exact, Concatenate

Function & Formula

- Basic Function – Sum, Average, Min, Max, Count, Count A
- Conditional Formatting
- Logical Functions (AND, OR, NOT)
- Lookup and reference functions (VLOOKUP, HLOOKUP, MATCH, INDEX
- V-lookup with Exact Match, Approximate Match
- V-lookup with Tables, Dynamic Ranges
- Nested V-V-lookup with Exact Match
- Using V-lookup to consolidate Data from Multiple Sheets
- Mathematical Functions, Sumif, Countif, Averageif etc.
- Date & Time Function

Pivot Tables

- Creating Simple Pivot Tables
- Basic and Advanced value field setting
- Grouping based on number and dates
- Calculated field and items

Charts & Slicers

- Using and Formatting Charts
- Using 3D Graphs and Using Bar & Line Chart together
- Using secondary Axis in Graphs
- Sharing Charts with PowerPoint / Word, dynamically

Working with Templates

- Designing the structure of a template
- Using templates for standardization of worksheets

VBA – Macro / Variable in VBA

- Intro to VBA, What is VBA and What can you do with VBA
- Procedures and Function in VBA
- What are Variables, Using Non-declared variable and Variable Data Types

Message-Box and Input-Box Functions

- Customize Message-Box and Input-Box
- Reading cell values into messages
- Various button groups in VBA

VBA Coding – Advanced Function

- If and Select statements, Looping in VBA
- Mail Function – Send automated email
- Automated report

SQL

Introduction to Databases

- Databases, Intro to DBMS and Popular DBMS Software
  - Concepts of RDBMS – Tables, Tuples, Attributes
  - Normalization - First Normal Form, Second Normal Form, Third Normal Form
  - NoSQL Databases - Types of NOSQL
- Comparison

SQL Commands

- Types of SQL Commands
- Data Definition Language - Create, Drop, Truncate, Alter and Rename Objects
- Data Query Language - Select Statements
- Data Manipulation Language
- DCL and TCL - Grant, Revoke and transaction statements
- SQL Data Types - Numeric, Date and Time, LOB Types
- DML Commands, Insert, Update and Delete Statements,
- DDL Commands, Create and Drop Databases

Database Constraints

- Types of Constraints
  - Relational Integrity Constraints, Key Constraints, Domain Constraints
  - Referential Integrity
- Types of Constraints
  - Primary and Foreign Keys, Application of Indexes and Checking Constraints
- Alter Tables

SQL Transactions

- SQL Transactions – with Examples
- ACID Properties - TCL Statements - Start, Commit and Rollback Statements
- Auto Commit - SavePoints – Identifier, Rollback and Release

Database Objects

- Tables - Creating, Altering and Dropping tables
- Sequences - Auto Increments, Re-Sequencing
- Views - Advantages, Creating and Dropping Views
- Indexes - Types of Indexes, B-Tree and Hash Indexes, Creating and dropping Indexes

Stored Procedures and Functions

- Stored Objects - Types of Stored Objects
- Stored Procedures - Create, call and drop stored procedures, Using Variables, Handling Exceptions, Named Errors and Resignals
- Programming - If-then-Else and Case Statements, Loops, Repeat and Leave Statements, Cursors, Operators and Functions
- Joining Tables - Inner Join, Left Join, Right Join
- Advantages of Procedures

Database Triggers Accessing Database from R and Python

- Triggers
  - Database Triggers, Data Definition Language (DDL) Triggers
  - Data Manipulation Language (DML) Triggers
  - CLR Triggers, Logon Triggers
  - Triggers v/s Stored Procedures
- Accessing Database from R
  - Install R Packages, Configuration Information
- Python Database Access
  - Databases Supported, Libraries
  - Read Operations, Insert, Update and Delete
  - Performing Transactions and Handling Errors

Tableau

What is Data Visualization

- Advantages & Disadvantages of visualizations

Age of Big Data

- Why is Data Visualization Important
- Understanding Data
- Examples of Data Visualizations in Action
- Different Data Visualizations

Principles of Visualizations

- Design Principles
- Best Practices
- Data Visualization Inspiration

Tableau - Data Visualization Tool

Introduction to Tableau

- What is Tableau
- Overview of Tableau Tool (Servers, data, visualizations)
- Tableau Architecture
- Advantages & Disadvantages

Different Products of Tableau

- Tableau Desktop
- Tableau Public
- Tableau Reader
- Tableau Mobile
- Tableau Prep
- Tableau Server & Online
- Tableau Analytics (Embedded Analytics)

Extensions in Tableau

- Tableau Workbook, Tableau Data Source, Tableau Data Extract
- Tableau Packaged Workbook (TWBX)
- Tableau Packaged Data Source (TDSX)
- Tableau Book Mark, Tableau Map Source, Tableau Preferences

Features of Tableau

- Connecting to Data from Servers
- Connecting Data from ODBC
- Connecting Data from Local Repositories

Tableau – Joins and Data Pane

- What are Joins in Tableau
- Types of Joins in Tableau
  - Inner Join, Left Join, Right Join, Full Outer Join, Union
- Creating Joins Using Data

Tableau Data Pane

- Dimensions, Measures, Parameters, Sets

Pivot Table and Split Tables in Tableau

In built Charts in Tableau

- Basic Charts, Text Tables, Highlight Tables
- Bar Charts, Stacked Bar, Line Graphs, Dual Axis, Pie Charts etc.

Maps in Tableau

- Symbol Maps, Filled Maps, Combined Maps, Map Layers, WMS, Polygon Maps
- Custom Coding etc.

How to Interpret Bullet Graphs

- Actual Profit vs. Budget Profit Analysis, Market Wide Analysis etc.

How to Interpret Scatter Plot

- Correlation Analysis, Direction of Relationship, Strength of Relationship etc.

How to Interpret Histogram

- Distributive Analysis, Bin Sizes, Custom Bin Sizing etc.

How to Interpret Box Plot Chart

- Distributive Analysis, Quartile Analysis, 5 Point Chart Analysis

Data Interpretation

- Understanding of data types, discussing about dimensions and measures etc.

Creating Calculated Fields

- Attribute Functions, Quick Table Calculations, Creation of Calculated Fields
- Aggregate and Disaggregate Functions etc.

Logical Functions

- Understanding if-else statements, application of if-else statements (ex: high profit, low profit etc.)

Case-If Function

- Understanding Case Statements with examples, Applications of Case Statements

ZN Function

- Creation of ZN Functions, Application of ZN Functions
- Dealing with Calculated Fields etc.

Ad-Hoc Calculations

- Calculations using parameters, Sets, Filters etc. and applications

Manipulating Text – Left & Right Functions

- Understanding different string functions etc.

Pre-Defined Analytics

- Forecasting, LOD Expressions, Functions, Groups, Filters etc.

Dashboards Hands-On in Tableau

- Understanding concept of Dashboards, Building Interactive Dashboards
- Dashboard Actions etc.

Story Telling – Hands-On in Tableau

- Relevance of Stories in Dashboards, Working with examples on Stories etc.

Animated Visualization Hands-On

- Animation Charts, Play Controls, Page Shelf, Application of Animation Charts

Tools for Sharing Information

- Understanding Tableau Reader, Tableau Online etc.

Publishing our Workbooks in Tableau Server

- Exploring publishing options using Tableau, Discussing sharing of Workbooks etc.

Connecting Tableau with Tableau Server

- Overview of how to connect Tableau with Tableau Server

What is R?

- R Software, Installation, R Studio, Understanding Basic Interface of R

Connecting Tableau with R

- Rserve Package, using functions such as SCRIPTS_REAL etc., Understanding with examples

How to Integrate Tableau with R

- Rserve Package, external connections, ports, Understanding with examples.

R for Data Analytics

Basics of R

- Introduction of R, Data Types, Data Structures
- Decision Making Statements – If, Nested If, While, Do While, For Loop, Conditional Loops
- Flow Control Statements - If Statements, While Loop
- Built Functions in R: Base, Datasets, dplyr and ggplot2

Python for Data Analytics

Introduction to Python

- Introduction to Python & Data Science, Python Installation

Basics of Python

- Data Types – Numeric, String, Lists, Tuples, Dictionaries
- Decision Making Statements – If, Nested if, While, Do While, For Loops, Break & Continue
- Variables & Operators
- Functions – Library & User Defined
- Flow Control Statements - If Statements, While Loop
- Date & Times Module, Interfaces in Python
- Python Libraries Installation using PIP

Python Modules for Data Analysis

- Python Basics, Web Scrapping, Custom Functions, Lambda Function, Regular Expressions
  - Python Modules: Numpy, Pandas, Matplotlib

Power BI

Introduction

- Introduction to Power BI Preview, Download the Data files
- Introduction to Signing Up for Power BI, Signing Up for Power BI Preview
- Load Data into the Power Bi Service Preview, Practical Hands-On Activity

The Power BI Desktop

- Introduction to Power BI Desktop Preview

Creating Reports in Power BI Desktop

- Create Reports in Power BI Desktop, Creating Tables in Power BI
- Table Styles and Formatting Preview
- Matrix Visualization, Tables and Metrics Hands-On
- Changing the Method of Aggregation, Methods of Aggregation Challenge with Hands-On
- Cards and Multi Row cards, Cards, Matrix and Multi Row Challenge,
- Percentage Calculations
- Filtering Data: Using Slicers, Visual Filters, Page Filters and Drill Through Filter
- Hands-On – Filters

Graphs and Visualizations

- Introduction to Visualization
- Clustered Column Graph, Stacked and 100% Graphs
- Column Graph Challenge with Hands-On
- Graph Options, Trend Analysis Graph, Area Graph, Ribbon Graphs, Additional Graphs
- Scatterplots and Bubble

Interactive Dashboards

- Creating Interactive Dashboards, Hands-On Challenge – Create an Interactive Dashboard

- Publishing Reports to the Power BI Service, Pinning Visualizations to Dashboards
- Mobile Reports, Q and A
- App Workspaces, Publishing an App
- Using Themes in Power BI, Using Custom Visualizations

DAX Formulas

- DAX Formulas, Date Functions, Formatting Dates, Date Master Tables

DAX Measures

- Introduction to DAX Measures, DAX Measures – Hands-On
- The CALCULATE function

Relationships

- Introduction to Relationships in Power BI
- Creating and Managing Relationships in Power BI
- Relationship Calculations

Power BI Query Editor

- Introduction to Power BI Query Editor
- Basic Transformations
  - Import Data, Change Table Name, Remove First Row
  - Replace Null Value, Remove Unnecessary Rows
  - Rename Column Headings, Separating Columns, Merge Columns
  - Unpivot the Columns, Change Data Type, Append Queries
  - Conditional Columns
- Aggregate Data