

CERTIFICATION COURSE ON

Professional Data Analytics

Excel, Tableau, Power BI, SQL & Python

Duration: 30-40 days

Course Syllabus

INTRODUCTION

This industry oriented course is developed by both the Software development division & Training division of **ipsr solutions limited**. IPSR is a **public limited IT company** with 22+ years of expertise in [Software product development](#), [Training services](#), [Placement services](#) & [Digital Marketing services](#). During the past 2 decades, IPSR has trained candidates from **60+ countries** and helped **more than One lakh candidates** to build their IT career. Our IT services division is a pioneer in development of **Academic solution products**, incorporating cutting edge technologies like Artificial Intelligence, Data Analytics and Machine learning. Live industry experts from this IT division contribute a major role in delivering this course. Our placement division is having **1600+ placement tie-up companies** and we are conducting [recruitment on all days](#).

The Course curriculum is designed and developed by a team of expertise panel lead by following academicians

- ❑ **Dr. Mendus Jacob, M.Sc., M.Phil., Ph.D., MloD**
 - ❑ M.D & C.E.O - IPSR & Valin Technologies, U.K.
 - ❑ Director - MCA, Marian College, Kuttikkanam (Autonomous)
 - ❑ Former Director of School of Applicable Mathematics, M.G. University.
 - ❑ Academician and Entrepreneur with 30+ years experience



- ❑ **Dr. Sunil Job K.A, M.Sc, M.Ed, M.Phil, Ph.D., RHCE**
 - ❑ Chief of Academic Solutions - IPSR
 - ❑ Former college Principal and a Specialist in Data Analytics & Machine Learning
 - ❑ Blogger and a Resource person for National conferences
 - ❑ Academician with 25+ years experience

What you'll learn

- ✔ Importance of data in data analysis and machine learning and different visualization methods.
- ✔ How to visualize real world data and analyse the data using Excel and Tableau.
- ✔ How to execute SQL queries, retrieve data from multiple tables, SQL joins.
- ✔ Perform descriptive and relationship analysis using statistics
- ✔ Perform exploratory data analytics using visualizations
- ✔ Create interactive dashboards and do story telling using tableau
- ✔ Perform data analytics using Power BI and Goole Studio
- ✔ Python Language Basics, Sequences, Functions, OOPS, Database Programming using Python and MySql
- ✔ Python Packages for Basic Data Analytics - numpy, pandas, matplotlib, seaborn



Description

This course is aimed for students who want to become a data analyst or as a first step for those who want to become a data scientist or machine learning engineer or AI programmer.

This course also covers the Python Language basics and upto database programming using MySQL. It even covers important data analytics packages as numpy, pandas, matplotlib and seaborn

Course Outcome (CO)

On successful completion of this course, the learners will be able to:

- Explain the relevance of data, data analytics and its scope in various domains.
- Demonstrate ability to collect data from multiple sources using appropriate tools and techniques.
- Use various steps of preprocessing data in excel and prepare data appropriate for analysis.
- Analyze data using various visualization tools like Tableau, Power BI, Data Studio and apply python programming for data analytics and visualization.
- Make various types of dashboards and reports appropriate to the stakeholders requirements.

What does this course give you?

Skills needed for Data Analytics.



SECTION 1:

Environment setting

Installation of Tableau Public

Integration of Data Analytics Pack in Excel

Integration of Web Scraper Extension to Chrome browser

Installation of MySQL for excel

Installation of sqlite odb. Driver

Course Contents

1. Data Explained

- What is data?
- Relevance of data
- Types of data
- Data formats
- Data source

2. Introduction to Data Analytics

- Meaning and Scope



- Types of Data Analytics
- Steps in Data Analytics

3. Data collection.

- Collect data using Questionnaire, Web forms, Jot forms etc
- Web Scraping - ecommerce data using chrome extension
- Data from Twitter, Facebook etc using Octoparse
- Get data from a database to an excel file using database connector
- Get data from websites using excel

4. Data Pre-processing

- Text-to-columns
- Find and replace
- Filter
- Remove duplicates
- Delete all Formatting

- Remove Extra Spaces
- Missing value replacing
- Numbers Stored as Text into Numbers



- Change Text case
- Outliers Removal (What is outlier, how to identify, boxplot to remove outlier)
- Label encoding and dealing with categorical data
- Data scaling and reverting the scaled data to original format
- Column splitting
- Conditional function in excel like if...else, vlook, sumif, countif etc

5. Data visualization

- Visualization examples
- Types of data visualization
- Right method of chart selection
- Data visualization tasks using real world data

6. Dashboard

- What is a dashboard?
- Various types of Dashboards
- Ingredients for creating an effective dashboard.

7. Workflow for creating dashboard

- Steps for creating Dashboard



8. Pivot table using excel

- Summarizing data
- Rows and fields

9. Pivot chart using excel

- Creating various summarized graphs
- Selecting right data columns

10. Dashboard using excel

- Taking real world data to create excel dashboard
- Various settings in Dashboard design options

11. Tableau initialization

- Tableau installation
- Data source settings in tableau
- Data Interpreter
- Interface of Tableau sheet
- Various menu options



12. Data Integration using Tableau

- Inner join
- Left and right join
- Outer join

13. Visualization using Tableau

- Various graphs in tableau
- Real world data visualization tasks

14. Dashboard using Tableau

- Taking real world data to create Tableau dashboard
- Various settings in Dashboard design options

SECTION 2:

1. SQL Basics



- What is Database and Types of Databases?
- Creation of Database and Table
- Data Types in SQL and Constraints in SQL
- DDL Commands in SQL
- DML Command in SQL
- Retrieve Data from Multiple Tables
- Inbuilt Functions in SQL
- SQL Joins

2. Descriptive Statistics Analysis using Excel

- What is Statistical Analysis and why statistical Analysis
- Measures of Central Tendency (Mean, Median, Mode)
- Measures of Dispersion (Range, Standard Deviation, Variance)
- Skewness and Kurtosis

3. Relationship Analysis using Statistics

- Scatter Plot
- Correlation Analysis
- Linear Regression Analysis

4. Filters in Tableau

- What is Filter?
- Ways to Filter Tableau



- Interactive Filters and Different Layout of Interactive Filters •

Filters Shelf in Tableau

- Parameter and Set Filter
- Date Filter

5. Table Calculation and Create Calculated Field in Tableau

6. Exploratory Data Analysis using Visualization

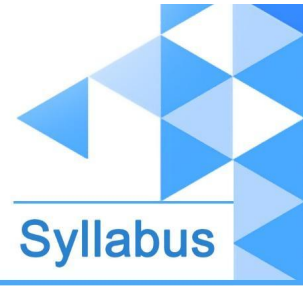
1. Using Common Chart Types

- i. Column Chart/Bar Chart
- ii. Area Chart
- iii. Scatter Chart
- iv. Map Chart
- v. Pie Chart
- vi. Tree Maps
- vii. Bubble Chart

2. Using Advanced Chart Types

- i. Lollipop Chart
- ii. Pareto Chart
- iii. Candle Stick Chart
- iv. Waterfall chart

7. Analyse Data in Tableau



1. Trend Analysis

- Add Reference Lines, Bands, Distributions, and Boxes
- Add Trend Lines to a Visualization

2. Find Clusters in Data

3. Forecasting

8. Interactive Dashboards and storytelling using tableau

1.Actions in Tableau

- Action by Filter
- Action by Highlight
- Action by URL

2. Dashboard Format in Tableau

3. Story Point in Tableau

9. Data Analytics Using Tableau in Different Sectors

- Retail Store Data Set
- HR Data Set

10. Power BI

- Introduction to Power BI
- What is Power BI?



- Power BI V/S Tableau

11. Power BI Desktop

- Install and run Power BI Desktop
- Connect to Data
- Transforming Data Using Power BI
- Data Modelling

12. Build Reports and Dashboard Using Power BI

- Power BI-Visualization Options
- Filters and Slicer in Power BI
- Create Report and Dashboard
- Sharing Reports

13. Q & A in Power BI Desktop

14. Analyse Data in Power BI Desktop

15. Data Analytics Using Power in Different Sectors

- Event Data Set
- Revenue Data Set

16. Google Data Studio

What is Google Data Studio?



Advantages of Google Data Studio

SECTION 3:

1. Python Basics

- Language Structure
- Control & Loop Constructs
- Sequences
- Functions
- OOPS
- Database programming with MySQL

2. Python Data Analytics packages

1. Numpy

- Ndimensional array
- Datatypes
- Random numbers
- Matrix operations

2. Pandas



- Series,Dataframe
- importing csv, Exporting csv
- Group by
- Describe, Info
- Iloc,loc
- Filtering
- Slicing

3. Matplotlib

- Line plot
- Scatter plot
- Histogram
- Box plot

· 4. Seaborn

- Heatmap

5. Mini Project

- Mini Project Using Data Visualization Tools.



- Mini Project Using Python Data Analytics Package

Next Recommended Module: Machine Learning and AI

Recommended Learning Path

1. Certification on Professional Data Analytics with Python -----> Data Analytics Professional using Python

2. Certification on Machine Learning and AI -----> Machine Learning and AI

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