

# Data Analyst Course Curriculum by 10Pie

👉 Whether you want to start your IT career or looking for guidance on how to plan your future career path, [10Pie](#) is your learning hub for tech career knowledge.

Here's a Data Analyst course syllabus at a glance:

Sl. No.	Module Name	Topics Covered	Projects
1	Data Fundamentals	Introduction to Data Analysis, Data Types and Structures (Arrays, Lists, Dictionaries), Data Formats (CSV, Excel, JSON), Exploratory Data Analysis Techniques (Summary Statistics, Data Visualization)	-Analyze a dataset of your favorite sports team's performance over the past season, -Explore a publicly available dataset and perform exploratory data analysis to identify patterns, correlations, and outliers
2	Business Statistics	Descriptive Statistics (Measures of Central Tendency, Measures of Variability), Inferential Statistics (Hypothesis Testing, Confidence Intervals), Regression Analysis (Simple Linear Regression, Multiple Linear Regression)	-Conduct a hypothesis test to determine whether there is a significant difference in the average salary of men and women in a particular industry, -Analyze the relationship between two variables using regression analysis
3	Microsoft Excel	Introduction to Excel, Basic Excel Operations, Excel Formulas and Functions (SUM, AVERAGE, COUNT), Data Management and Analysis, Data Visualization using Excel	-Create a budget template for a personal or fictional business using Excel formulas and functions -Analyze a dataset of sales data and create pivot tables, charts, and dashboards to identify trends and insights
4	SQL	Introduction to SQL, Basic SQL Syntax, SQL Data Types, SQL Functions, Data Definition Language (DDL), Data Manipulation Language (DML), Data Query Language (DQL)	-Create a database schema and populate it with sample data using SQL -Analyze a publicly available database and write SQL queries to answer business questions
5	Data Visualization	Introduction to Data Visualization, Importance of Data Visualization, Types of Visualizations, Best Practices for Data Visualization,	-Create a dashboard using Tableau to visualize a dataset of your choice -Analyze a publicly available dataset and create visualizations to identify trends and insights

		Tableau Fundamentals, Power BI Fundamentals	
6	Machine Learning	Introduction to Machine Learning, Supervised Learning, Unsupervised Learning, Machine Learning Workflow, Advanced Machine Learning Topics (Neural Networks, Deep Learning)	-Build a supervised learning model to predict a continuous outcome variable, -Implement an unsupervised learning algorithm to identify clusters in a dataset
7	Data Mining	Introduction to Data Mining, Data Mining Process, Data Mining Techniques, Data Preprocessing, Pattern Discovery, Evaluation and Deployment	-Analyze a dataset and identify patterns using data mining techniques -Develop a data mining model to predict customer churn
8	Big Data	Introduction to Big Data, Characteristics of Big Data, Big Data Ecosystem, Big Data Storage and Processing, Big Data Analytics, Big Data Visualization	-Analyze a large dataset using big data tools and techniques -Develop a big data analytics project to predict customer behavior
9	Cloud Computing	Introduction to Cloud Computing, Cloud Computing Models, Cloud Infrastructure, Cloud Security and Compliance, Cloud Data Services	-Deploy a cloud-based data warehouse using Amazon Redshift -Develop a cloud-based data integration pipeline using AWS Glue
10	Cybersecurity	Introduction to Cybersecurity, Types of Cybersecurity Threats, Cybersecurity Best Practices, Network Security, Data Security	-Implement a network security protocol using SSL/TLS -Develop a data encryption algorithm using AES
11	Artificial Intelligence	Introduction to Artificial Intelligence, Types of Artificial Intelligence, Artificial Intelligence Applications, Machine Learning Fundamentals, Deep Learning, Natural Language Processing	-Develop a machine learning model to classify handwritten digits using MNIST dataset -Implement a natural language processing algorithm to perform sentiment analysis on a dataset of movie reviews

## Module 1: Data Fundamentals

### Introduction to Data Analysis

- Definition of Data Analysis
- Types of Data Analysis

## Data Types and Structures

- Types of Data (Quantitative, Qualitative, Categorical)
- Data Structures (Arrays, Lists, Dictionaries)
- Data Formats (CSV, Excel, JSON)

## Exploratory Data Analysis Techniques

- Summary Statistics (Mean, Median, Mode)
- Data Visualization (Histograms, Box Plots, Scatter Plots)
- Data Cleaning and Preprocessing

## Data Visualization Basics

- Introduction to Data Visualization
- Types of Visualizations (Tables, Charts, Maps)
- Best Practices for Data Visualization

## ★ Hands-on projects to practice:

- Analyze a dataset of your favorite sports team's performance over the past season.
- Explore a publicly available dataset and perform exploratory data analysis to identify patterns, correlations, and outliers.
- Create a dashboard using Tableau or Power BI to visualize a dataset of your choice.

## Module 2: Business Statistics

### Descriptive Statistics

- Measures of Central Tendency (Mean, Median, Mode)
- Measures of Variability (Range, Variance, Standard Deviation)
- Data Visualization for Descriptive Statistics

### Inferential Statistics

- Hypothesis Testing (Null and Alternative Hypotheses)
- Confidence Intervals (Point Estimates, Interval Estimates)
- Types of Errors (Type I, Type II)

### Regression Analysis

- Simple Linear Regression
- Multiple Linear Regression
- Regression Analysis Assumptions

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## Hypothesis Testing and Confidence Intervals

- Hypothesis Testing for Means and Proportions
- Confidence Intervals for Means and Proportions
- Non-Parametric Tests

### ★ Hands-on projects to practice:

- Conduct a hypothesis test to determine whether there is a significant difference in the average salary of men and women in a particular industry.
- Analyze the relationship between two variables using regression analysis.
- Create a confidence interval to estimate the population mean of a characteristic.

## Module 3: Microsoft Excel

### Introduction to Excel

- Basic Excel Operations (Creating and Editing Worksheets)
- Excel Formulas and Functions (SUM, AVERAGE, COUNT)
- Data Management (Sorting, Filtering, Grouping)

### Data Management and Analysis

- Data Validation and Error Handling
- Data Analysis Tools (PivotTables, Charts, Conditional Formatting)
- Advanced Excel Formulas and Functions (VLOOKUP, INDEX/MATCH)

### Data Visualization using Excel

- Creating Charts and Graphs
- Customizing Charts and Graphs
- Best Practices for Data Visualization in Excel

### Advanced Excel Topics

- Macros and VBA
- Power Query and Power Pivot
- Excel Add-ins and Plugins

### ★ Hands-on projects to practice:

- Create a budget template for a personal or fictional business using Excel formulas and functions.
- Analyze a dataset of sales data and create pivot tables, charts, and dashboards to identify trends and insights.

- Develop a forecasting model using Excel's built-in functions to predict future sales or revenue.

## **Module 4: SQL**

### **Introduction to SQL**

- Basic SQL Syntax (SELECT, FROM, WHERE)
- SQL Data Types (Integer, String, Date)
- SQL Functions (SUM, COUNT, AVG)

### **Data Definition Language (DDL)**

- Creating and Modifying Tables
- Indexing and Constraints
- Views and Stored Procedures

### **Data Manipulation Language (DML)**

- Inserting, Updating, and Deleting Data
- Transactions and Locking
- SQL Injection and Security

### **Data Query Language (DQL)**

- Selecting and Filtering Data
- Joining and Aggregating Data
- Subqueries and Window Functions

### **★ Hands-on projects to practice:**

- Create a database schema and populate it with sample data using SQL.
- Analyze a publicly available database and write SQL queries to answer business questions.
- Design and implement a data warehouse using SQL to store and analyze data from multiple sources.

## **Module 5: Data Visualization**

### **Introduction to Data Visualization**

- Importance of Data Visualization
- Types of Visualizations (Tables, Charts, Maps)
- Best Practices for Data Visualization

## **Tableau Fundamentals**

- Connecting to Data Sources
- Creating and Customizing Visualizations
- Using Dimensions and Measures

## **Advanced Tableau Topics**

- Using Calculated Fields and Parameters
- Creating Dashboards and Stories
- Using Advanced Visualization Tools (e.g. treemaps, scatter plots)

## **Data Visualization with Power BI**

- Introduction to Power BI
- Creating and Customizing Visualizations
- Using DAX Formulas and Measures

## **★ Hands-on projects to practice:**

- Create a dashboard using Tableau to visualize a dataset of your choice.
- Analyze a publicly available dataset and create visualizations to identify trends and insights.
- Design and implement a data visualization project using Power BI.

## **Module 6: Machine Learning**

### **Introduction to Machine Learning**

- Definition of Machine Learning
- Types of Machine Learning (Supervised, Unsupervised, Reinforcement)
- Machine Learning Workflow

### **Supervised Learning**

- Linear Regression
- Logistic Regression
- Decision Trees and Random Forests

### **Unsupervised Learning**

- Clustering (K-Means, Hierarchical)
- Dimensionality Reduction (PCA, t-SNE)
- Anomaly Detection

## Advanced Machine Learning Topics

- Neural Networks and Deep Learning
- Natural Language Processing (NLP)
- Recommendation Systems

### ★ Hands-on projects to practice:

- Build a supervised learning model to predict a continuous outcome variable.
- Implement an unsupervised learning algorithm to identify clusters in a dataset.
- Develop a recommendation system using collaborative filtering.

## Module 7: Data Mining

### Introduction to Data Mining

- Definition of Data Mining
- Data Mining Process
- Data Mining Techniques

### Data Preprocessing

- Data Cleaning and Handling Missing Values
- Data Transformation and Feature Engineering
- Data Reduction and Dimensionality Reduction

### Pattern Discovery

- Association Rule Mining
- Clustering and Classification
- Regression and Prediction

### Evaluation and Deployment

- Evaluating Data Mining Models
- Deploying Data Mining Models
- Ethics and Privacy in Data Mining

### ★ Hands-on projects to practice:

- Analyze a dataset and identify patterns using data mining techniques.
- Develop a data mining model to predict customer churn.

- Evaluate the performance of a data mining model using metrics such as accuracy and precision.

## Module 8: Big Data

### Introduction to Big Data

- Definition of Big Data
- Characteristics of Big Data (Volume, Velocity, Variety)
- Big Data Ecosystem

### Big Data Storage and Processing

- Distributed File Systems (HDFS)
- NoSQL Databases (HBase, Cassandra)
- Big Data Processing Frameworks (MapReduce, Spark)

### Big Data Analytics

- Big Data Analytics Tools (Hive, Pig)
- Big Data Machine Learning (Mahout, Spark MLlib)
- Big Data Visualization (Tableau, Power BI)

### Big Data Case Studies

- Real-world examples of Big Data applications
- Big Data challenges and limitations
- Future of Big Data

### ★ Hands-on projects to practice:

- Analyze a large dataset using big data tools and techniques.
- Develop a big data analytics project to predict customer behavior.
- Design and implement a big data architecture for a real-world application.

## Module 9: Cloud Computing

### Introduction to Cloud Computing

- Definition of Cloud Computing
- Cloud Computing Models (IaaS, PaaS, SaaS)
- Cloud Computing Benefits and Challenges

### Cloud Infrastructure

- Virtualization and Containerization



- Cloud Storage and Networking
- Cloud Security and Compliance

### **Cloud Data Services**

- Cloud-based Data Warehousing (Amazon Redshift, Google BigQuery)
- Cloud-based Data Integration (AWS Glue, Google Cloud Dataflow)
- Cloud-based Machine Learning (AWS SageMaker, Google Cloud AI Platform)

### **Cloud Case Studies**

- Real-world examples of cloud computing applications
- Cloud computing challenges and limitations
- Future of Cloud Computing

### **★ Hands-on projects to practice:**

- Deploy a cloud-based data warehouse using Amazon Redshift.
- Develop a cloud-based data integration pipeline using AWS Glue.
- Design and implement a cloud-based machine learning model using Google Cloud AI Platform.

## **Module 10: Cybersecurity**

### **Introduction to Cybersecurity**

- Definition of Cybersecurity
- Types of Cybersecurity Threats (Malware, Phishing, Ransomware)
- Cybersecurity Best Practices

### **Network Security**

- Network Fundamentals (TCP/IP, DNS, DHCP)
- Network Security Protocols (SSL/TLS, SSH)
- Network Security Threats (DDoS, SQL Injection)

### **Data Security**

- Data Encryption (AES, RSA)
- Data Backup and Recovery
- Data Loss Prevention (DLP)

### **Cybersecurity Case Studies**

- Real-world examples of cybersecurity breaches
- Cybersecurity challenges and limitations

- Future of Cybersecurity

### ★ Hands-on projects to practice:

- Implement a network security protocol using SSL/TLS.
- Develop a data encryption algorithm using AES.
- Design and implement a cybersecurity awareness program for a fictional organization.

## Module 11: Artificial Intelligence

### Introduction to Artificial Intelligence

- Definition of Artificial Intelligence
- Types of Artificial Intelligence (Narrow, General, Super)
- Artificial Intelligence Applications

### Machine Learning Fundamentals

- Supervised Learning (Regression, Classification)
- Unsupervised Learning (Clustering, Dimensionality Reduction)
- Reinforcement Learning

### Deep Learning

- Introduction to Deep Learning
- Convolutional Neural Networks (CNNs)
- Recurrent Neural Networks (RNNs)

### Natural Language Processing

- Introduction to Natural Language Processing
- Text Preprocessing (Tokenization, Stemming, Lemmatization)
- Sentiment Analysis and Text Classification

### ★ Hands-on projects to practice:

- Develop a machine learning model to classify handwritten digits using MNIST dataset.

- Implement a natural language processing algorithm to perform sentiment analysis on a dataset of movie reviews.
- Design and implement a chatbot using natural language processing and machine learning.

## B.Sc Data Analyst syllabus

The BSc (Hons) in Data Analytics is a 3-year undergraduate (UG) program that equips students with a solid foundation in data analysis techniques and tools.

The average fees for the BSc (Hons) in Data Analytics course range from INR 30,000 to INR 2,70,00 per annum, depending on the college and location.

Here's the BSC Data Analyst course curriculum:

Semester No.	Subject Name	Topics Covered
1	Introduction to Data Analysis	Introduction to Data Analysis, Data Types, Data Visualization, Descriptive Statistics
	Computer Fundamentals	Introduction to Computers, Hardware, Software, Networking, Internet
	Mathematics for Data Analysis	Algebra, Calculus, Probability, Statistics
2	Data Visualization	Data Visualization Tools (Tableau, Power BI), Data Visualization Best Practices, Interactive Visualizations
	Database Management Systems	Introduction to DBMS, Data Modeling, Database Design, SQL
	Statistics for Data Analysis	Inferential Statistics, Hypothesis Testing, Confidence Intervals, Regression Analysis
3	Data Mining	Introduction to Data Mining, Data Preprocessing, Pattern Evaluation, Clustering, Association Rule Mining
	Machine Learning	Introduction to Machine Learning, Supervised Learning, Unsupervised Learning, Model Evaluation
	Data Warehousing	Introduction to Data Warehousing, Data Warehouse Design, ETL Process, Data Mart
3	Big Data Analytics	Introduction to Big Data, Hadoop, Spark, NoSQL Databases, Big Data Analytics Tools

	Cloud Computing	Introduction to Cloud Computing, Cloud Service Models, Cloud Deployment Models, Cloud Security
	Project Development	Project Development, Project Management, Agile Methodology, Version Control Systems
5	Advanced-Data Visualization	Advanced-Data Visualization Techniques, Geospatial Visualization, Interactive Visualizations
	Advanced Machine Learning	Advanced Machine Learning Topics, Deep Learning, Natural Language Processing
	Business Intelligence	Introduction to Business Intelligence, BI Tools, BI Applications
6	Capstone Project	Project Development, Project Implementation, Project Evaluation
	Internship	Industry Internship, Project Development, Project Implementation
	Viva-Voce	Viva-Voce Examination, Project Presentation

## M.Sc Data Analyst Syllabus

The M.Sc. in Data Analytics is a 2-year postgraduate program focused on advanced data analysis, statistical modeling, and data-driven decision-making.

This program is designed for graduates with a relevant background in computer science, mathematics, or engineering.

Semester No.	Subject Name	Topics Covered
1	<b>Fundamentals of Data Analytics</b>	Introduction to Data Analytics, Data Types, Data Visualization, Descriptive Statistics
	<b>Programming for Data Analytics</b>	Python/R Programming, Data Structures, Algorithms, Data Manipulation
	<b>Data Management</b>	Data Storage, Data Retrieval, Data Warehousing, ETL Process
	<b>Statistical Inference</b>	Hypothesis Testing, Confidence Intervals, Regression Analysis, Time Series Analysis

2	<b>Data Mining</b>	Introduction to Data Mining, Data Preprocessing, Pattern Evaluation, Clustering, Association Rule Mining
	<b>Machine Learning</b>	Introduction to Machine Learning, Supervised Learning, Unsupervised Learning, Model Evaluation
	<b>Data Visualization</b>	Data Visualization Tools (Tableau, Power BI), Data Visualization Best Practices, Interactive Visualizations
	<b>Research Methodology</b>	Research Design, Data Collection, Data Analysis, Research Report Writing
3	<b>Big Data Analytics</b>	Introduction to Big Data, Hadoop, Spark, NoSQL Databases, Big Data Analytics Tools
	<b>Cloud Computing</b>	Introduction to Cloud Computing, Cloud Service Models, Cloud Deployment Models, Cloud Security
	<b>Advanced Machine Learning</b>	Advanced Machine Learning Topics, Deep Learning, Natural Language Processing
	<b>Business Intelligence</b>	Introduction to Business Intelligence, BI Tools, BI Applications
4	<b>Advanced-Data Visualization</b>	Advanced-Data Visualization Techniques, Geospatial Visualization, Interactive Visualizations
	<b>Predictive Modeling</b>	Predictive Modeling Techniques, Model Evaluation, Model Deployment
	<b>Data Science with Python/R</b>	Advanced Python/R Programming, Data Science Applications, Data Science Tools
	<b>Elective</b>	Choose one from: Data Engineering, Natural Language Processing, Computer Vision, or Specialized Domain Knowledge
	<b>Project Development</b>	Project Development, Project Management, Agile Methodology, Version Control Systems
	<b>Internship</b>	Industry Internship, Project Development, Project Implementation
	<b>Viva-Voce</b>	Viva-Voce Examination, Project Presentation

## Diploma Data Analyst Syllabus:

To be eligible for Diploma Data Analyst courses, aspiring students typically need to hold a bachelor's degree in a relevant field such as statistics, information technology, economics, computer science, or mathematics with a minimum of 60% overall or equivalent CGPA.

Semester No.	Subject Name	Topics Covered
1	<b>Introduction to Data Analysis</b>	Overview of Data Analysis, Data Types, Data Quality, Data Visualization
	<b>Microsoft Office and Excel</b>	Microsoft Office Suite, Excel Basics, Formulas, Functions, Charts, and Graphs
	<b>Computer Applications and IT</b>	Computer Fundamentals, IT Applications, Internet, and Web Technologies
	<b>Statistics for Data Analysis</b>	Descriptive Statistics, Inferential Statistics, Probability, Hypothesis Testing
2	<b>Data Management and SQL</b>	Data Modeling, Database Design, SQL Basics, Data Normalization
	<b>Data Analysis using Python</b>	Introduction to Python, Data Types, Functions, Data Structures, Pandas, NumPy
	<b>Data Visualization using Tableau</b>	Introduction to Tableau, Data Connection, Data Visualization, Dashboards
	<b>Business Communication and Soft Skills</b>	Communication Skills, Team Management, Time Management, Presentation Skills
3	<b>Data Mining and Machine Learning</b>	Introduction to Data Mining, Machine Learning, Supervised and Unsupervised Learning
	<b>Advanced Excel and VBA</b>	Advanced Excel Formulas, Macros, VBA Programming, Automation
	<b>Data Visualization using Power BI</b>	Introduction to Power BI, Data Modeling, Data Visualization, Dashboards
	<b>Business Analytics and Decision Making</b>	Business Analytics, Decision Making, Problem-Solving, Case Studies
4	<b>Industry Project and Internship</b>	Industry Project, Internship, Project Report, and Presentation

	<b>Advanced Data Analysis and Visualization</b>	Advanced Data Analysis, Data Visualization, Storytelling with Data
	<b>Big Data and NoSQL Databases</b>	Introduction to Big Data, NoSQL Databases, Hadoop, Spark
	<b>Career Development and Entrepreneurship</b>	Career Development, Entrepreneurship, Business Planning, and Pitching

## M.Tech Data Analytics Curriculum:

M.Tech Data Analyst Syllabus The M.Tech in Data Analyst is a 2-year postgraduate program designed to provide students with a strong foundation in data analysis principles, tools, and applications.

To be eligible for the M.Tech in Data Analyst program, candidates must have:

- A bachelor's degree in Computer Science, Information Technology, Statistics, Mathematics, or a related field with a minimum of 50-60% marks.
- A valid GATE score in Computer Science, Statistics, or a related discipline. Qualifying in an interview conducted by the university.

Semester No.	Subject Name	Topics Covered
1	<b>Mathematical Foundations of Data Science</b>	Linear Algebra, Calculus, Probability Theory, Statistics
	<b>Programming for Data Science</b>	Python, R, Data Structures, Algorithms
	<b>Data Preprocessing and Visualization</b>	Data Cleaning, Data Transformation, Data Visualization using Matplotlib, Seaborn, Plotly
	<b>Database Management Systems</b>	Relational Databases, SQL, NoSQL Databases, Data Modeling
	<b>Data Science and Analytics Lab</b>	Python, R, Data Preprocessing, Data Visualization
2	<b>Machine Learning</b>	Supervised Learning, Unsupervised Learning, Reinforcement Learning, Model Evaluation
	<b>Data Mining</b>	Association Rule Mining, Clustering, Decision Trees, Text Mining
	<b>Statistical Inference</b>	Hypothesis Testing, Confidence Intervals, Regression Analysis

	<b>Big Data Analytics</b>	Hadoop, Spark, MapReduce, Hive, Pig
	<b>Data Science and Analytics Lab</b>	Machine Learning, Data Mining, Big Data Analytics
3	<b>Deep Learning</b>	Neural Networks, Convolutional Neural Networks, Recurrent Neural Networks
	<b>Natural Language Processing</b>	Text Preprocessing, Sentiment Analysis, Named Entity Recognition
	<b>Data Warehousing and Business Intelligence</b>	Data Warehousing, OLAP, Data Visualization, Business Intelligence
	<b>Advanced Data Visualization</b>	Interactive Visualization, Geospatial Visualization, Network Visualization
	<b>Elective (Choose one)</b>	Advanced Machine Learning, Advanced Data Mining, Advanced Big Data Analytics
4	<b>Project Development and Implementation</b>	Project Proposal, Project Development, Project Implementation
	<b>Research Methodology and Academic Writing</b>	Research Methodology, Academic Writing, Plagiarism
	<b>Seminar and Presentation</b>	Seminar, Presentation, Communication Skills
	<b>Elective (Choose one)</b>	Advanced Data Science, Advanced Analytics, Advanced AI

## Data Analyst course subjects and topics to learn

### Data structure and algorithms

Data structures and algorithms play a great role in data processing and analysis. They allow you to organize, manage, and process data efficiently and ensure better data retrieval and manipulation. For example, hash tables and binary search tree data structures help in faster data search and updates, which is essential for real-time data analytics.

Some essential topics of data structures and algorithms include arrays, lists, stacks, queues, iteration, recursion, hash tables, binary search trees, searching, and sorting.



## **Probability and Statistics**

Knowledge of probability and statistics in mathematics is important for data analysis. It is essential for data interpretation, hypothesis testing, and building predictive models, which help analysts interpret data accurately and make better predictions of future events.

Some primary areas to focus on include probability and probability distribution, sampling distributions, estimation and hypothesis testing, data cleaning, imputation techniques, and correlation and regression.

A few courses cover business statistics that includes statistical analysis, and data analytics together.

## **Data Collection and Cleaning**

You often work with raw data that is messy and incomplete. Therefore, learning how to collect and clean that data is essential to ensure accurate and reliable analysis. Focus on data collection methods, data cleaning techniques, and data processing to ensure the data you work with is of high quality and can provide valid outputs.

This includes learning about survey sampling, observational results, statistical techniques, analysis of unstructured data, and extracting and presenting statistics.

## **Microsoft Excel**

You need knowledge of spreadsheet software like Excel to sort, filter, and manage data and perform complex calculations. This includes learning basic concepts like text-to-columns, concatenation, absolute cell references, data validation, conditional formatting, using the IF function, pivot tables, filtering and sorting a power table, Macros, and VBA programming for automating data analysis tasks.

## **Database Management**

Data is often stored in databases, which makes understanding how to manage and query these databases essential. This helps you access and manipulate data effectively and efficiently for data storage and retrieval.

Some basic things to know in database management are the relational database concepts, SQL for querying databases, database designing and normalization, and knowledge of NoSQL databases.

## **Tableau and PowerBI**

Both these software are essential for data visualization, which helps you understand complex data and communicate insights clearly. Tableau can analyze data efficiently, and PowerBI can convert raw data collected from spreadsheets, the cloud, or a data warehouse into valuable insights.

## **Python Programming Language**

Python programming skills are necessary for data analysts to automate different tasks, perform advanced data manipulation, and develop custom solutions. You need to learn the basics of Python, including its data structures and data types, string operations, operators, functions, control flow, and error and exception handling.

## **Knowledge of Python Libraries**

Python provides multiple data manipulation, analysis, visualization, and machine learning libraries like Matplotlib, Seaborn, Pandas, NumPy, TensorFlow, Scikit-Learn, Keras, and more. This makes the data analysis process easy and smooth.

For example, Pandas is used for data cleaning and transformation, performing operations like margin, joining and reshaping data, and implementing exploratory data analysis (EDA). Similarly, Matplotlib is used for creating static, animated, and interactive visualizations. They can generate high-quality plots for reports and presentations.

## **R programming**

Having knowledge of R programming is also good for data analysts. It helps in statistical computing and graphics. You need to learn the basic concepts like fundamentals of R programming and its data structures, variables, data types, and vector operations, manage and manipulate the data structures, and implement statistical methods and data visualization techniques.

## Advanced Data Analysis Techniques

You must know the four main types of data analysis: descriptive, predictive, diagnostic, and prescriptive.

In descriptive analytics, you need to learn about data aggregation and data mining. These allow you to gather data and present it in a summarized format, then mine that data to discover hidden patterns.

In diagnostic analytics, you will learn to identify anomalies in data. Then to predict the future, and get actionable, data-driven insights, you must implement predictive analytics techniques. Finally, using prescriptive analytics you can advise on what actions and decisions to take based on the predictions.

Two other data analysis techniques to know are Exploratory Data Analysis and Time Series Data Analysis.

## Machine Learning Basics

Some advanced-level data analytics courses include Machine Learning concepts. ML algorithms are designed to feed machines with data and utilize them for conducting independent research. You need to learn their basic concepts to develop predictive models that automate the data-driven decision-making process.

Explore top [Data Analytics Courses In Pune](#) and [Data Analytics Courses in Hyderabad](#) to learn the skills needed to turn data into insights and make smarter decisions.

## Data Analyst Course Fees and Duration 2024

Course name	Course provider	Course duration	Course fees	Training mode
Data Analyst Certification Course Training in India	<a href="#">ExcelR</a>	150+ hours/ 6 months	₹75,999	Live virtual classroom

Data Analytics Training (Beginner)	<a href="#">Techcanvass</a>	6 weeks	₹22,500	Online
Data Analytics Mentorship Program	<a href="#">WSCube Tech</a>	20 weeks	₹53,400	Live Online
Data Analytics Course in India	<a href="#">Intellipaat</a>	7 months	₹85,044	Online Classroom
Certified Data Analyst Course	<a href="#">Datamites</a>	6 months	₹67,416.15 (1,22,39,708 IDR)	Live Virtual
Data Analyst Course in Vijayawada	<a href="#">360DigiTMG</a>	20+ live hours	₹84,400	Virtual instructor-led training

## What is the course fee of Data Analyst courses?

The course fee of Data Analyst courses ranges between ₹10,000 to ₹85,500. But this fee structure may vary depending on different reasons like the type of course, institutional offering, reputation of the institute, and its location.

For example, institutes in tier-1 cities of India charge more than tier-2 and tier-3 cities. Similarly, if you are doing a certificate or diploma course in data analyst, it will be cheaper than UG and PG level courses.

## Data Analyst course duration

Data Analyst course usually extends from 3 months to 1 year or more. It varies with the course syllabus, type of course, number of practical classes, and hours of training. If you choose a certificate course, it will usually be between 3 to 6 months.

However, self-paced courses give you the flexibility to choose your learning hours and complete the course according to your learning abilities.

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## Who is eligible for Data Analyst courses?

If you want to enroll in any online training course for **Data Analyst**, there is no such criteria or eligibility. However, knowing the basic understanding of computers, programming concepts, and data structures will be helpful.

**For academic courses in India:** Students are eligible for Artificial Intelligence courses after completing their 12th grade, with specific criteria depending on the course type:

- **Diploma in Data Analyst:** A bachelor's degree in any relevant field, with a minimum of 60% overall or equivalent CGPA.
- **B.Sc in Data Analyst:** Eligible for students who have completed 10+2 with Physics, Mathematics, Chemistry also need at least 50% marks.
- **Postgraduate Courses:** A bachelor's degree in IT or related fields is necessary, with a minimum of 50% marks required.

## Apply for Data Analyst courses with 10Pie

Data Analyst courses are on the hype now, since businesses are increasingly hiring data analysts. This is because they largely depend on data to make tough company decisions. At 10Pie, we understand the hurdle of students finding the best data analyst course in India.

So we provide you a brief overview of how a data analyst course syllabus must be and what kind of projects you should do. This will help you find suitable courses that meet the present market demands and by the end of the course, you become job-ready.