



IDM TECHPARK

GUIDE'S FOR PERFECT CAREER PATHWAY



Data Science with Python Course Syllabus



N.S.D.C.
National
Skill Development
Corporation



1

About Us

IDMTECHPARK global retail & corporate training solutions provider in Coimbatore, Erode, Trichy & Salem that offers a comprehensive range of training and placement services for both fresher's and professionals seeking new opportunities. The company commenced its IT training business in 2016. A pioneer in IT education, over the years, we have trained over 50k students. Idmtechpark has a wide range of courses, maintains education standards & provides placement assistance.

www.idmtechparkcoimbatore.com
www.idmtechparkerode.com

+91 9585305700

**2**

About IDMTECHpark Education Quality

IDMTECHPARK is managed and developed by industry specialists with more than 8 years of expertise in the field. IDMTECHPARK offers a staff of highly skilled professional trainers who deliver effective IT training in a friendly setting, concentrating on the needs of each individual to help them succeed in a demanding work world. In the book of career and success, our staff never leaves a page unturned.

www.idmtechparkcoimbatore.com
www.idmtechparkerode.com

+91 9585305700

IDMTECHPARK's versatile instructor-led training class rooms and lower-class sizes enable people to engage more easily and absorb knowledge, resulting in remarkable results for both themselves and the organizations for which they work. Our training programmes are adaptable and customizable to ensure that each participant gets the most out of their time with us. IDMTECHPARK focuses in providing hands-on IT training in over 30 different courses.

- We teach in-demand courses
- We provide impactful learning material
- Our teachers are well-selected & trained
- We follow world-class teaching methods
- Our courses include E-Projects
- We conduct technical workshops
- Exams are held and based on Exams providing Certification
- Certificates are recognized the world over
- Our course timings are flexible



3

Our Recent Placement

Idmtechpark assists students in getting job placements on successful completion of their courses. Idmtechpark also provides recruitment assistance to organizations. Idmtechpark students are shortlisted based on the organization's requirement. To make students job-ready, Idmtechpark conducts workshops e.g. How to do Group Discussions, how to behave in a Personal Interview. From time to time, job fairs & campus recruitments are conducted. Workplace skills such as time management, making effective presentations and communication skills are also provided. All this helps students find appropriate jobs in the IT industry while also helping save companies recruitment costs.

Krishnaveni M

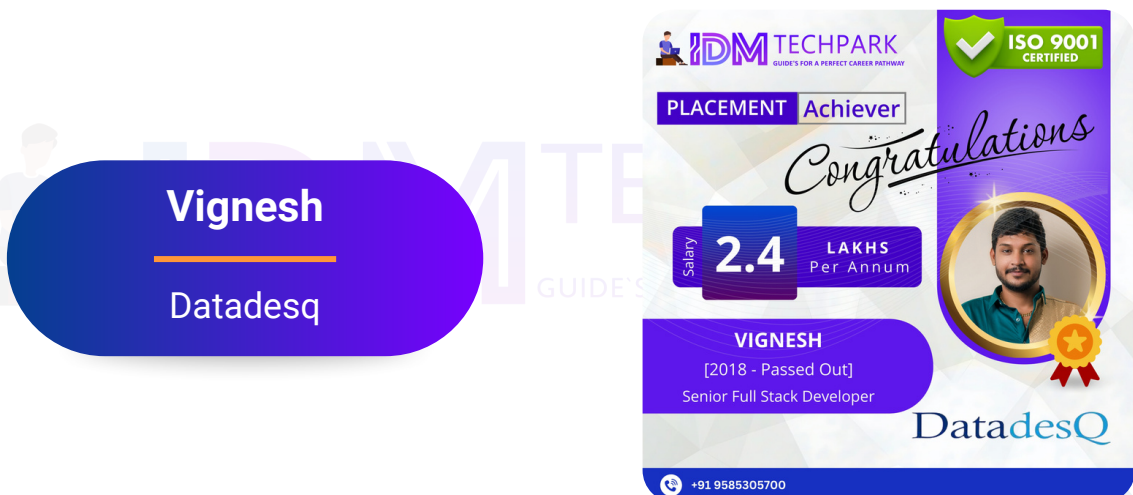
Frutterlabs





Joshwa

Xccessor



Vignesh

Datadesq



Madhumitha

Accenture

Keerthana

AJS



Brindha Boopathi

AJS



Kavın Kumar

AJS

Ajithkumar

AJS



Gowthami

Genpact



Surya

ZUCI

Pavithra

Vel Info Tech



Poovitha

Gray Matter



Ramesh

TDT

Siva Sankar
ST Cloudspark tech



Nabeel Hisham
VTail



Kalayarasan
Violet Infotech

4

Our Alumni Working At



MODULE 1

Introduction to Data Science

- What is Data Science?
- Data Science Lifecycle
- Roles: Analyst vs Scientist vs Engineer
- Tools: Jupyter, Colab, Anaconda

MODULE 2

Python for Data Science

- Python Basics: Syntax, Variables, Data Types
- Functions, Loops, Conditions
- Working with Lists, Tuples, Dictionaries

MODULE 3

NumPy for Numerical Computing

- Arrays vs Lists
- Array Operations
- Indexing, Slicing, Broadcasting

MODULE 4

Pandas for Data Manipulation

- DataFrames & Series
- Reading/Writing CSV, Excel, JSON
- Filtering, GroupBy, Aggregation

MODULE 5

Data Cleaning & Preparation

- Handling Missing Data
- Data Types & Conversions
- Duplicates, Renaming, Formatting

MODULE 6

Data Visualization with Matplotlib

- Line, Bar, Pie, Scatter Charts
- Subplots & Annotations
- Custom Themes and Styles

MODULE 7

Data Visualization with Seaborn

- Statistical Plots
- Distribution & Relationship Plots
- Correlation Heatmaps

MODULE 8

Exploratory Data Analysis (EDA)

- Summary Statistics
- Outlier Detection
- Data Distribution & Skewness

MODULE 9

Working with Real Datasets

- Kaggle, UCI, Open Data Sources
- Case Study: Titanic / Iris / House Prices



IDM TECHPARK
GUIDE'S FOR PERFECT CAREER PATHWAY

MODULE 10

Statistics for Data Science

- Mean, Median, Mode
- Standard Deviation, Variance
- Probability Basics

MODULE 11

Hypothesis Testing

- Null & Alternate Hypotheses
- t-test, ANOVA, Chi-square
- P-Values & Confidence Intervals



MODULE 12

Feature Engineering

- Feature Scaling (MinMax, Standardization)
- Encoding Categorical Variables
- Feature Selection Techniques



IDM TECHPARK
GUIDE'S FOR PERFECT CAREER PATHWAY

MODULE 13

Introduction to Machine Learning

- Supervised vs Unsupervised
- ML Workflow
- Model Evaluation Metrics

MODULE 14

Regression Algorithms

- Linear Regression
- Multiple Regression
- Polynomial Regression

MODULE 15

Classification Algorithms

- Logistic Regression
- Decision Trees
- K-Nearest Neighbors (KNN)

MODULE 16

Ensemble Methods

- Random Forest
- Gradient Boosting
- Voting & Bagging



IDM TECHPARK
GUIDE'S FOR PERFECT CAREER PATHWAY

MODULE 17

Clustering Algorithms

- K-Means Clustering
- Hierarchical Clustering
- Elbow Method & Silhouette Score

MODULE 18

Dimensionality Reduction

- (Principal Component Analysis)
- t-SNE
- Feature Importance

MODULE 19

Model Evaluation & Validation

- Confusion Matrix
- Cross-Validation
- Precision, Recall, F1 Score, ROC-AUC

MODULE 20

Time Series Analysis

- DateTime Handling
- Trend, Seasonality
- ARIMA, Prophet (Basics)



MODULE 21

Natural Language Processing (NLP)

- Text Preprocessing (Tokenization, Stopwords)
- Bag of Words, TF-IDF
- Sentiment Analysis (Intro)

MODULE 22

Introduction to Deep Learning

- Neural Networks Overview
- Keras & TensorFlow (Basic Demo)
- Use Cases: Image/Text

MODULE 23

Working with APIs & Web Scrapping

- APIs using requests
- Web Scrapping with BeautifulSoup
- Data Extraction Projects

MODULE 24

Deployment & Dashboarding

- Saving Models with pickle or joblib
- Streamlit for Interactive Dashboards
- Flask (Optional for API Deployment)

MODULE 25

Capstone Project & Career Prep

- End-to-End Data Science Project
- GitHub Portfolio
- Resume Tips, Interview Questions, Job Sites

Thank You

+91 9585305700

www.idmtechparkcoimbatore.com

www.idmtechparkerode.com