



IDM TECHPARK

GUIDE'S FOR PERFECT CAREER PATHWAY



Machine Learning Course Syllabus



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



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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.

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+91 9585305700

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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.

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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



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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

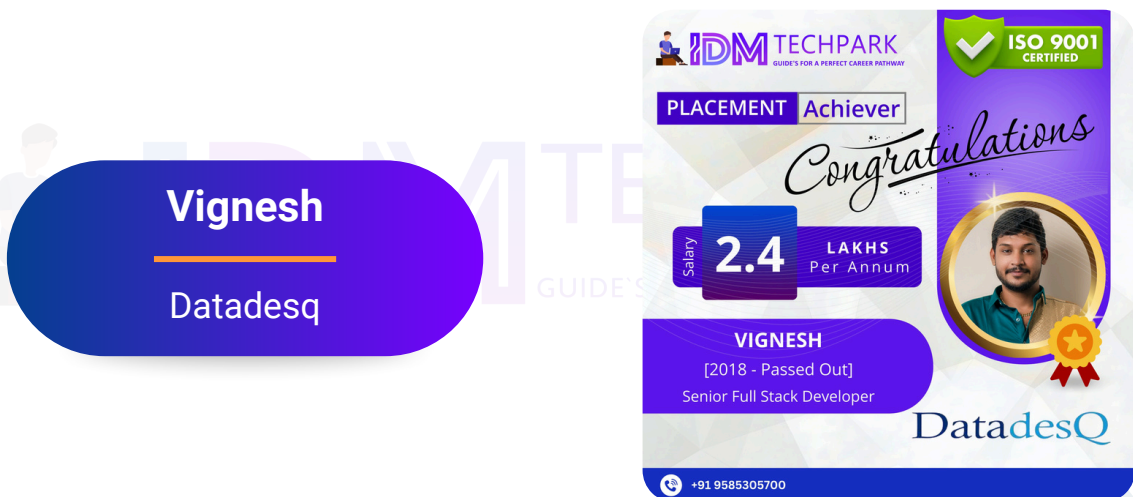
Frutterlabs





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Gowthami

Genpact



Surya

ZUCI

Pavithra

Vel Info Tech



Poovitha

Gray Matter



Ramesh

TDT

Siva Sankar
ST Cloudspark tech

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PLACEMENT Achiever

Congratulations

Salary **3.2** LAKHS Per Annum

Siva sankar
[2018 - Passed Out]
Software Engineer

ISO 9001 CERTIFIED

Cloudspark Tech
Knowledge | Growth | Success

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PLACEMENT Achiever

Congratulations

Salary **1.4** LAKHS Per Annum

Mohammed Nabeel Hisham
[2019 - Passed Out]
Digital Marketing Executive

ISO 9001 CERTIFIED

VTail
COMMERCE POLICE

+91 9585305700

Nabeel Hisham
VTail

Kalayarasan
Violet Infotech

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PLACEMENT Achiever

Congratulations

Salary **3** LAKHS Per Annum

Kalayarasan
[2021 - Passed Out]
Junior Python Developer

ISO 9001 CERTIFIED

Violet Infotech
Software Solutions

+91 9585305700

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Our Alumni Working At



MODULE 1

Introduction to Machine Learning

- What is ML? Types (Supervised, Unsupervised, Reinforcement)
- Real-world applications
- ML lifecycle and workflow

MODULE 2

Python for Machine Learning

- Python basics recap
- Jupyter Notebook, Colab setup
- Libraries: NumPy, Pandas, Matplotlib, Scikit-learn

MODULE 3

Mathematics Foundation – Linear Algebra

- Vectors, Matrices, Dot product
- Matrix Operations
- Applications in ML

MODULE 4

Mathematics Foundation – Calculus & Optimization

- Derivatives, Gradients

- Cost Functions

- Gradient Descent

MODULE 5

Statistics & Probability for ML

- Mean, Variance, Standard Deviation
- Probability distributions
- Bayes' Theorem

MODULE 6

Data Preprocessing

- Handling missing data
- Encoding categorical variables
- Feature scaling (Normalization, Standardization)



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MODULE 7

Exploratory Data Analysis (EDA)

- Data visualization techniques
- Correlation & heatmaps
- Outlier detection

MODULE 8

Feature Engineering

- Feature selection (filter, wrapper methods)
- Feature transformation (log, polynomial)
- Dimensionality reduction basics



MODULE 9

Supervised Learning Overview

- Train/Test split
- Underfitting vs Overfitting
- Cross-validation

MODULE 10

Linear Regression

- Simple & Multiple Linear Regression
- Assumptions & residual analysis
- Model evaluation (R^2 , RMSE)



MODULE 11

Logistic Regression

- Binary classification
- Sigmoid function
- Confusion matrix, Precision, Recall



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MODULE 12

Decision Trees

- Splitting criteria: Gini, Entropy
- Pruning & tree depth
- Overfitting in trees



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MODULE 13

Support Vector Machines (SVM)

- Hyperplanes & margins
- Kernels (linear, polynomial, RBF)
- Tuning C and gamma

MODULE 14

K-Nearest Neighbors (KNN)

- Distance metrics
- Choosing K
- Lazy learning

MODULE 15

Naive Bayes Classifier

- Gaussian, Multinomial models
- Text classification example
- Laplace smoothing



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MODULE 16

Ensemble Learning – Bagging & Boosting

- Random Forest
- AdaBoost, Gradient Boosting
- XGBoost, LightGBM basics

MODULE 17

Model Evaluation & Tuning

- K-Fold Cross Validation
- ROC-AUC Curve
- Grid Search, Randomized Search

MODULE 18

Unsupervised Learning Overview

- Use cases and concepts
- Clustering vs Association



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MODULE 19

K-Means Clustering

- lbow method
- Silhouette score
- Cluster labeling



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MODULE 20

Hierarchical Clustering

- Dendrograms
- Agglomerative vs Divisive
- Distance metrics & linkage methods

MODULE 21

Principal Component Analysis (PCA)

- Eigenvalues and eigenvectors
- Dimensionality reduction
- PCA in Scikit-learn

MODULE 22

Association Rule Learning

- Apriori Algorithm
- Support, Confidence, Lift
- Market Basket Analysis

MODULE 23

Time Series Forecasting

- Trends, seasonality
- Moving Averages
- ARIMA basics

MODULE 24

Introduction to Deep Learning

- Perceptron & Neural Networks
- Activation Functions
- Keras/TensorFlow Basics

MODULE 25

Capstone Project + Deployment

- End-to-end ML project (regression/classification)
- Model saving (joblib/pickle)
- Deployment using Streamlit or Flask

Thank You

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