ARBOR
ACADEMY

DATA SCIENCE WITH AI

IT TRAINING INSTITUTE & PLACEMENT CENTER

PAY AFTER PLACEMENT

www.arboracademy.in

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What is Arbor

Arbor Academy is an online IT course provider based in Pune, offering a wide range of courses designed to equip individuals with the skills needed to thrive in today's technology-driven world. We begin by assessing your background, skills, and career aspirations in the IT field. Based on this assessment, we create a personalized action plan to help you achieve your goals and prepare for the job market.

Our academy also provides excellent placement opportunities, boasting a high placement rate compared to other IT training institutes. The best part is that we pay you upon course completion, allowing you to fully focus on your studies and career preparation during your time at Arbor Academy.

Our Mission

At Arbor Academy, our mission is to empower individuals with the essential IT skills and knowledge required to excel in the technology-driven world. We are dedicated to providing personalized education, hands-on experience, and exceptional placement opportunities to ensure our students achieve their career aspirations and contribute meaningfully to the tech industry.

Our Vision

Our vision is to be a leading online IT education provider recognized for our commitment to quality, innovation, and student success. We strive to create a dynamic learning environment that fosters growth, encourages continuous learning, and bridges the gap between education and employment in the ever-evolving field of technology.

Key Features

- **Flexible Learning**
  Learn Anytime, Anywhere, and on Any Device.
- **Real-World Experience**
  Work on Live Projects.
- **Guided Education**
  Mock Interviews and Training.
  QA Discussion Forums.
  Bi-weekly Mock Interviews.
- **Unmatched Opportunities**
  Unlimited Placement Drives.
  Soft Skills Sessions: Mastering HR Rounds.
- **Comprehensive Resources**
  Unlimited Video Access with Source Code & Assignments.
- **Recorded Sessions**
  Provide flexibility and Accessibility to learner.
- **Personalized Attention**
  Small Training Batches.
- **Ongoing Support**
  Job Support Assistance.

Placement Companies

What We Provide

Our comprehensive Data Science with AI course is designed to equip you with top industry skills in machine learning, deep learning, NLP, and advanced analytics. Whether you're looking to analyze data, forecast trends, or develop intelligent systems, this course helps you become a job-ready data professional.

You'll work with clustering, PCA, SVD, and recommendation engines, and gain insights through network analytics, association rules, and text mining. Learn supervised models like Decision Trees, Naive Bayes, and k-NN, along with advanced ensemble techniques such as Random Forest and Gradient Boosting.

The course also covers deep learning with CNNs and RNNs, and NLP applications like chatbots and text analysis. Through hands-on projects, real-world case studies, and strong placement support, you'll be ready to succeed in data science, AI, and analytics roles

Syllabus

1 Data Science

1. Clustering Segmentation

A. Clustering Segmentation

- Basics of Clustering
- Types of Clustering
- Distance Metrics
- Elbow Method for Optimal Clusters
- Silhouette Analysis
- Case Studies and Applications

B. Clustering Segmentation

- K-means Clustering
- Hierarchical Clustering
- DBSCAN
- Gaussian Mixture Models
- Evaluating Clustering Performance
- Clustering for Market Segmentation

2. Dimension Reduction

PCA & SVD

- Principal Component Analysis (PCA)
- Eigenvalues and Eigenvectors
- Explained Variance
- Singular Value Decomposition (SVD)
- Matrix Factorization
- Applications of PCA and SVD
- Visualization Techniques

3. Association Rules

- Basics of Association Rules
- Support, Confidence, and Lift
- Apriori Algorithm
- Market Basket Analysis
- Applications of Association Rules

4. Recommendation Engine

- Collaborative Filtering
- Content-based Filtering
- Evaluating Recommendation Systems
- Case Studies and Applications

5. Network Analytics

- Basics of Network Analytics
- Graph Theory Concepts
- Centrality Measures
- Degree, Betweenness, Closeness, Eigenvector Centrality
- Community Detection
- Network Visualization
- Applications in Social Networks

6. Text Mining

- Text Preprocessing
- Tokenization
- Stop Words Removal
- Lemmatization and Stemming
- Term Frequency-Inverse Document Frequency (TF-IDF)
- Text Classification
- Sentiment Analysis
- Topic Modeling
- LDA (Latent Dirichlet Allocation)
- Applications of Text Mining

7. Naive Bayes

- Basics of Naive Bayes Classifier
- Gaussian Naive Bayes
- Advantages and Disadvantages
- Applications in Spam Filtering, Text Classification

8. kNN (k-Nearest Neighbors)

- Basics of k-Nearest Neighbors
- Distance Metrics
- Choosing the Value of k
- Weighted kNN
- Advantages and Disadvantages
- Applications in Pattern Recognition

9. Decision Tree

- Basics of Decision Trees
- Information Gain and Gini Index
- Pruning Methods
- Overfitting and Underfitting
- Decision Tree for Classification and Regression
- Applications and Case Studies

10. Ensemble Models

- Basics of Ensemble Learning
- Bagging
- Random Forest
- Boosting
- AdaBoost, Gradient Boosting
- Stacking
- Blending
- Applications and Advantages

11. Simple Linear Regression

- Basics of Linear Regression
- Least Squares Method
- Assumptions of Linear Regression
- Residual Analysis
- Evaluating Model Performance
- Applications

12. Multiple Linear Regression

- Basics of Multiple Linear Regression
- Multicollinearity
- Feature Selection
- Model Evaluation
- Interaction Effects
- Applications

13. Logistic Regression

- Basics of Logistic Regression
- Sigmoid Function
- Odds and Log Odds
- Assumptions of Logistic Regression
- Model Evaluation
- Applications in Binary Classification

14. Survival Analytics

- Basics of Survival Analysis
- Kaplan-Meier Estimator
- Cox Proportional Hazards Model
- Survival and Hazard Functions
- Applications in Medical Research
- Case Studies

15. Forecasting

- Time Series Analysis
- ARIMA Models
- Exponential Smoothing
- Seasonal Decomposition
- Prophet
- Applications in Demand Forecasting

16. Exam / Assignment / Project

- Basics of Logistic Regression
- Sigmoid Function
- Odds and Log Odds
- Assumptions of Logistic Regression
- Model Evaluation
- Applications in Binary Classification

1 AI

1. Deep Learning & AI - CNN (Convolutional Neural Networks)

- Basics of CNN
- Convolutional Layers
- Pooling Layers
- Fully Connected Layers
- Applications in Image Recognition
- Case Studies

2. Deep Learning & AI - RNN (Recurrent Neural Networks)

- Basics of RNN
- Long Short-Term Memory (LSTM)
- Gated Recurrent Units (GRU)
- Sequence Modeling
- Applications in Time Series, Natural Language Processing
- Case Studies

1. Natural Language Processing (NLP)

- Basics of NLP
- Named Entity Recognition (NER)
- Part-of-Speech Tagging
- Text Generation
- Applications in Chatbots, Machine Translation

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Thank You