



**FRONTLINES
EDUTECH**

Building Trust & Careers

GEN AI COURSE



FRONTLINES EDUTECH PRIVATE LIMITED



ABOUT US

Frontlines Edutech Private Limited envisions bridging the gap between academia and industry. We understand the pain of unemployment and are trying to wipe off the words of impossible and unemployment from the brains of youth by training and turning them into diamonds. We provide tailor-made, hands-on, and need-based programs on par with industry standards. We believe that the youth of today is the future of tomorrow. And so our courses are tutored by experts from top industries who are passionate about mentoring the youth. Since its inception, Frontlines Edutech has earned the trust and gained recognition from thousands of learners across the state.



**FRONTLINES
EDUTECH**
Building Trust & Careers

**FOCUSED ON REFINING TALENT AND TURNING LEARNERS INTO
HIGHLY SKILLED PROFESSIONALS SOUGHT AFTER BY TOP
COMPANIES.**



OUR MISSION AND VISION

At Frontlines Edutech Private Limited, our mission is to bridge the gap between academia and industry by offering practical, customized training programs that equip youth with the skills needed for easy employment. We aim to eliminate unemployment by fostering a mindset of possibility and transforming learners into skilled professionals. With expert industry mentorship, we empower the next generation with the tools to succeed in today's competitive world.

It is in our vision that each young person be prepared with the skill, confidence, and opportunity to succeed in their career. We want to lead an online skills development platform that provides focus on determining the needs of industries through education, so that it would be well-prepared in nurturing professionals who will shape the future of employment. Innovative training eliminates unemployment and helps in unlocking the potential of thousands of learners.





WHY CHOOSE US

We are Success Trainers, Mentors, and Motivators, passionate about helping you reach your full potential with a blend of warmth, wisdom, positivity, and proactivity. Our goal is always your highest good and greatest growth, offering support that is both caring and daring, fun and focused. We ensure learning is not only powerful but also enjoyable, making every step of your growth journey meaningful and engaging.





WHY LEARN THIS COURSE

- This course is for those who want to start their coding journey, whether a beginner or an expert.
- This course covers basics to advanced concepts straightforwardly and systematically.
- We take special care of Non-IT students
- Easy to learn
- Beginner Friendly
- The diversity of our learners adds richness to course discussions and interactions.





DELIVERABLES

8.PLACEMENT UPDATES

7.Q&A SESSIONS

6.COURSE COMPLETION CERTIFICATE

5.INTERVIEW GUIDANCE

4.LINKEDIN PROFILE BUILDING

2.RESUME BUILDING

3.DAILY ASSIGNMENTS

9.ON-DEMAND VIDEO COURSE CONTENT

10.DOWNLOADABLE RESOURCES

1.FROM SCRATCH TO MASTER LEVEL TRAINING

10



TOP COMPANIES HIRING

Infosys

tcs TATA
CONSULTANCY
SERVICES

accenture

cognizant

Capgemini

wipro

IBM

BOX8

KPMG



TOP CITIES FOR GEN AI DEMAND

- BANGALORE (BENGALURU)
- GURGAON (GURUGRAM)
- HYDERABAD
- PUNE
- MUMBAI
- CHENNAI
- NOIDA

KEY SECTORS DRIVING DEMAND FOR GEN AI

- TECHNOLOGY AND SOFTWARE DEVELOPMENT
- DATA SCIENCE AND ANALYTICS
- ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
- MEDIA AND ENTERTAINMENT
- STARTUPS AND TECH INCUBATORS



GEN AI SYLLABUS

MODULE 1. PYTHON FOR DATA SCIENCE AND EXPLORATORY DATA ANALYSIS (EDA)

1. Python Basics for Data Science :

- Keywords
- Identifiers
- Comments
- Indentation
- Statements
- Variables
- Data Types
- Standard Input and Output
- Operators
- Control Flow: if-else
- While Loop
- For Loop
- Break and Continue
- Functions: Basics
- Types of Functions
- Function Arguments
- Functions Debugging Python
- Recursion
- Lambda
- Lambda Functions
- Modules
- Packages
- File Handling
- Exception Handling

2. Data Structures and Libraries :

- Lists
- Dictionaries
- Sets
- Tuples
- Strings
- Numpy: Arrays
- Numerical Operations
- Pandas: Dataframes
- Key Operations on DataFrames
- Data Manipulation

3. Visualization & EDA :

- Matplotlib and Seaborn:
 - Scatter Plots
- Introduction to IRIS Dataset and 2D Scatter Plot
- 3D Scatter Plot
- Pair Plots
- Limitations of Pair Plots
- Histograms
- Introduction to PDF (Probability Density Function)
- Univariate Analysis using PDF
- CDF (Cumulative Distribution Function)
- Mean
- Variance and Standard Deviation
- Median
- Percentiles and Quantiles
- IQR and MAD
- Box Plots
- Violin Plots
- EDA Techniques on Real-World Datasets
- Hands-on Practice After Every Theory Session



MODULE 2. FOUNDATIONS IN STATISTICS AND MACHINE LEARNING

1. Linear Algebra :

- Introduction to Vectors (2-D, 3-D, n-D)
- Row Vector and Column Vector
- Dot Product and Angle Between 2 Vectors
- Projection and Unit Vector
- Equation of a Line (2-D), Plane (3-D) and Hyperplane (n-D)
- Plane Passing Through Origin
- Normal to a Plane
- Distance of a Point from a Plane/Hyperplane
- Equation of a Circle (2-D), Sphere (3-D) and Hypersphere (n-D)
- Equation of an Ellipse (2-D), Ellipsoid (3-D) and Hyperellipsoid (n-D)
- Square, Rectangle, Hyper Cube, Hyper Cuboid

2. Statistics and Probability :

- Introduction to Probability and Statistics
- Population and Sample
- Distributions:
 - Gaussian
 - Binomial
 - Log-normal
- Discrete and Continuous Uniform Distributions
- Chebyshev's Inequality
- Power Law Distribution
- Box-Cox Transform
- Sampling

- Resampling and Permutation Test
- K-S Test for Similarity of Two Distributions
- Code Snippet for K-S Test
- Confidence Intervals
- Correlation
- Covariance
- Kernel Density Estimation

3. Supervised Learning Basics :

- Linear Regression:
 - Mathematical Intuition and Implementation
- Logistic Regression:
 - Binary Classification and Extensions
- k-Nearest Neighbors:
 - Distance Metrics
 - Limitations
 - Implementation

4. Performance Metrics :

- Accuracy
- Confusion Matrix
- TPR (True Positive Rate)
- FPR (False Positive Rate)
- FNR (False Negative Rate)
- TNR (True Negative Rate)
- Precision
- Recall
- F1-Score
- ROC-AUC
- Log-Loss
- R-Squared/Coefficient of Determination
- Median Absolute Deviation (MAD)

Approach :

- Geometric visualizations for all algorithms
- Real-world case studies for hands-on learning



MODULE 3. DEEP DIVE INTO MACHINE LEARNING AND BASICS OF DEEP LEARNING

1. Advanced Machine Learning :

- Decision Trees:
 - Entropy
 - Information Gain
 - Gini Impurity
 - Constructing a Decision Tree (DT)
 - Splitting Numerical Features
 - Feature Standardization
 - Categorical Features with Many Possible Values
 - Overfitting and Underfitting
 - Train and Run-Time Complexity
 - Regression using Decision Trees
 - Decision Tree Use Cases
 - Code Samples
- Ensemble Models:
 - Bagging:
 - Intuition
 - Random Forest and their Construction
 - Bias-Variance Tradeoff
 - Bagging: Train and Run-time Complexity
 - Extremely Randomized Trees
 - Boosting (XGBoost, AdaBoost):
 - Boosting Intuition
 - Residuals
 - Loss Functions and Gradients
 - Gradient Boosting
 - Regularization by Shrinkage
 - Boosting + Randomization
 - AdaBoost: Geometric Intuition

- Clustering:
 - K-Means:
 - Unsupervised Learning
 - Applications
 - Metrics for Clustering
 - K-Means: Geometric Intuition, Centroids
 - K-Means: Mathematical Formulation (Objective Function)
 - K-Means Algorithm
 - How to Initialize: K-Means++
 - Failure Cases/Limitations
 - K-Medoids
 - Determining the Right K
 - Code Samples

2. Introduction to Deep Learning :

- Neural Networks:
 - Perceptrons
 - Multi-Layer Perceptrons (MLPs)
 - Training an MLP
 - Memoization
 - Backpropagation
 - Deep Multi-Layer Perceptrons: 1980s to 2010s
 - Dropout Layers & Regularization
 - Rectified Linear Units (ReLU)
 - Weight Initialization
 - Batch Normalization
 - How to Train a Deep MLP?
- Keras: Framework Setup
 - GPU vs CPU for Deep Learning
 - Install TensorFlow
 - Online Documentation and Tutorials
 - MLP: Initialization
 - Basic Models:
 - Model 1: Sigmoid Activation
 - Model 2: ReLU Activation
 - Model 3: Batch Normalization
 - Model 4: Dropout



- MNIST Classification in Keras
- Hyperparameter Tuning in Keras

Practical Focus:

- Implementing models on datasets like MNIST
- Understanding Decision Boundaries with Geometric Intuition

MODULE 4. DEEP LEARNING FOR NLP (NATURAL LANGUAGE PROCESSING)

1. RNN and LSTM :

- Recurrent Neural Networks (RNNs)
- Training RNNs:
 - Backpropagation
- Types of RNNs
- Need for LSTM/GRU
- Vanishing Gradients
- LSTMs for Sequence Modeling
- GRUs for Sequence Modeling
- Bidirectional LSTMs

2. Advanced Architectures :

- Encoder-Decoder Models
- Transformer Architecture
- Attention Mechanism

3. Applications in NLP :

- Sentiment Analysis
- Text Summarization
- Machine Translation

4. Hands-On Projects:

- Build and evaluate NLP models using real-world datasets

MODULE 5. GENERATIVE AI AND INTERVIEW PREPARATION

1. Generative AI Concepts :

- Transfer Learning
- ChatGPT in Generative AI
- Building RAG with LangChain

2. Interview Preparation :

- Resume Building
- Portfolio Presentation
- Mock Technical Interviews
- Behavioral Interviews

3. Practical :

- Explore tools like Hugging Face
- GPT-based applications

MODULE 6. COMPREHENSIVE INTERVIEW PREPARATION

1. Algorithm and Coding Practice

2. Real-world ML and DL problem-solving sessions

3. Final Mock Interviews

4. Approach :

- Tailored Mock Interviews
- Feedback
- Revision of the Entire Syllabus



ALL THE BEST





FRONTLINES EDUTECH

Building Trust & Careers

Follow Us



FRONTLINES MEDIA



FRONTLINES EDUTECH



FRONTLINES SKILL ACADEMY



FRONTLINES MEDIA



FRONTLINES EDUTECH PRIVATE LIMITED



For Enquiry Contact Us:

📞 +(91)-83330 77727

✉️ media.frontlines@gmail.com

🌐 www.frontlinesedutech.com