FULL STACK ACADEMY
www.fullstackacademy.in

BEST AI COURSE
Beginner to Professional

Become An

AI ARTIFICIAL INTELLIGENCE SPECIALIST

120 HOURS OF HANDS-ON PROJECT BASED LEARNING

DELIVERED BY A LEAD AI ENGINEER

Duration: 03 Months Course + 3 Months Internship

OFFLINE / ONLINE

Many More Advance Concepts

Any Graduate can Join
Build 30 AI Projects !
Join Internships !
Placement Drives !

Admissions Open !
Register now

70757 60262, 93916 15630,
79893 71143, 80198 58800

Gachibowli, Hyderabad.

FULL STACK ACADEMY
www.fullstackacademy.in

Become An
ARTIFICIAL INTELLIGENCE SPECIALIST

BEST AI COURSE
Beginner to Professional
Any Graduate can Join

COURSE CONTENT

Python & Data Science Foundations

- Python Basics: Introduction, Variables, Data Types, Operators
- Control Structures: Conditional statements (if-else), Loops (for, while), Control flow
- Functions: Definition, Parameters, Return values, Lambda functions, Scope
- Strings & Data Structures: String methods, Lists, Tuples, Dictionaries, Sets
- OOP Fundamentals: Classes, Objects, Constructors, Methods, Inheritance
- Project: ML Model Development with Streamlit GUI

Data Analysis Libraries

- NumPy: Array creation, Indexing, Slicing, Operations, Broadcasting
- Pandas Basics: Series, DataFrames, Data reading, Inspection
- Pandas Operations: Filtering, Handling missing values, Data cleaning
- Data Transformation: GroupBy, Aggregation, Merging, Concatenation
- Data Visualization: Matplotlib & Seaborn basics, Plot types, Customization
- Project: Data Cleaning & Analysis Case Study

Statistics & Machine Learning

Basics to Advance

- Statistics Fundamentals: Descriptive statistics, Central tendency, Dispersion
- Inferential Statistics: Probability, Distributions, Correlation
- ML Introduction: Types of ML, Workflow, Data preprocessing, Feature engineering
- Supervised Learning: Linear & Logistic Regression, Model evaluation
- Classification Models: KNN, Decision Trees, Random Forests basics
- Project: ML Model Development with Streamlit GUI

Deep Learning & Neural Netowrks, CNN, RNN

- Neural Networks: Perceptron, Multi-layer networks, Activation functions
- Backpropagation, Gradient descent, Loss functions, Optimizers
- CNN Basics: Convolutional layers, Pooling, Image classification
- RNN & LSTM: Sequence models, Time series, Text sequences
- Model Optimization: Hyperparameter tuning, Regularization, Overfitting prevention
- Project: Deep Learning Image or Text Classification

Admissions Open !
Register now

70757 60262, 93916 15630,
79893 71143, 80198 58800

Gachibowli, Hyderabad.

FULL STACK ACADEMY
www.fullstackacademy.in

Become An AI ARTIFICIAL INTELLIGENCE SPECIALIST

BEST AI COURSE

Beginner to Professional
Any Graduate can Join

Natural Language Processing (NLP)

- NLP Introduction: Text preprocessing, Tokenization, Normalization
- Lexical Processing: Stop words, Stemming, Lemmatization, POS tagging
- Text Representation: Bag of Words, TF-IDF, N-grams
- Word Embeddings: Word2Vec, GloVe, Embedding layers
- Syntactic & Semantic Processing: Dependency parsing, Named Entity Recognition
- Project: Text Classification & Sentiment Analysis Application

Transformer Architecture & LLMs

- Attention Mechanism: Self-attention, Multi-head attention, Scaled dot-product
- Transformer Architecture: Encoder-decoder, Positional encoding, Layer normalization
- BERT & Transfer Learning: Pre-training, Fine-tuning, Masked language modeling
- GPT Architecture: Autoregressive models, Decoder-only transformers, Token generation
- LLM Fundamentals: How LLMs work, Training process, Model sizes, Parameters
- Project: Fine-tuning a Transformer Model for Text Tasks

Prompt Engineering & LLM APIs

- Tokenization Deep Dive: BPE, WordPiece, SentencePiece, Token limits
- Embeddings & Semantic Search: Vector representations, Cosine similarity, Semantic meaning
- Prompt Engineering Fundamentals: Prompt structure, Clear instructions, Context setting
- Advanced Prompting: Zero-shot, Few-shot, Chain-of-thought, Role prompting
- Prompt Parameters: Temperature, Top-p, Top-k, Max tokens, Frequency/presence penalties
- Project: Prompt Engineering Playground & Optimization

Working with LLM APIs

- OpenAI API: Setup, Authentication, Chat completions, API parameters
- Function Calling: Tool use, JSON mode, Structured outputs, Function definitions
- Streaming & Async: Streaming responses, Async API calls, Token optimization
- Cost Optimization: Token counting, Caching strategies, Model selection
- Error Handling: Rate limits, Retry logic, Exponential backoff, Monitoring
- Project: LLM-Powered Application with OpenAI API

Admissions Open !
Register now

70757 60262, 93916 15630,
79893 71143, 80198 58800

Gachibowli,
Hyderabad.

FULL STACK ACADEMY
www.fullstackacademy.in

Become An
ARTIFICIAL INTELLIGENCE SPECIALIST

BEST AI COURSE

Beginner to Professional
Any Graduate can Join

LangChain Framework

- LangChain Basics: Components overview, Chains, Prompt templates
- Output Parsers: Structured output, Pydantic parsers, JSON parsing
- Memory Systems: Conversation memory, Buffer memory, Summary memory, Vector store memory
- Document Loaders & Text Splitters: Loading PDFs, Web pages, Text splitting strategies
- Retrieval Chains: RetrievalQA, Conversational retrieval, Multi-query retrieval
- Project: Advanced RAG Application with LangChain

MCP & AGENTIC AI, AI Agents Architecture

- Agent Fundamentals: What are AI agents?, Agent components, Agent loop
- ReAct Pattern: Reasoning and Acting, Thought-Action-Observation cycles
- Plan-and-Execute Pattern: Planning phase, Execution phase, Re-planning
- Tool Use & Function Calling: Defining tools, Tool selection, Tool execution
- Agent Memory: Short-term memory, Long-term memory, Episodic memory, State management
- Project: Building a ReAct Agent with Tools

RAGS Multi-Agent Systems & Production

- Multi-Agent Design: Agent collaboration, Communication protocols, Task delegation
- AutoGen Framework: Agent setup, Conversation patterns, Group chat, Human-in-the-loop
- CrewAI Framework: Crew creation, Role assignment, Task management, Sequential/parallel execution
- Agent Testing & Debugging: Unit testing agents, Integration testing, Logging strategies
- Production Considerations: Monitoring, Cost tracking, Rate limiting, Safety guardrails
- Final Capstone Project: Multi-Agent System or Production RAG Application

Admissions Open ! REGISTER TODAY

70757 60262, 93916 15630,
79893 71143, 80198 58800

Gachibowli,
Hyderabad.