Logicraft.ai

CRAFTING CODE . ARCHITECTING SCALE

AI Engineer Program
Complete Syllabus

From Python fundamentals to production-grade agentic AI systems.

14	71+	15+
modules	topics	production-grade projects

How you learn: online or offline batches · 3 classes a week on alternate days · 1.5–2 hour sessions · pre-read material before every class · a graded assignment in every class · weekly tests and module tests · your own laptop for code and projects · a shared GitHub workspace to push, merge and collaborate.
Duration – 24–30 weeks

MODULES 01–05 · FOUNDATIONS TO NLP

01 Python Foundations

Core programming · Files · Packages

- Setup and interpreter basics
- Control flow and functions
- Core data structures
- Modules
- File I/O, JSON and error handling
- Virtual environments and packages

02 Data Science with NumPy & Pandas

NumPy · Pandas · Matplotlib

- NumPy arrays and vectorization
- DataFrames
- Data cleaning and joins
- Exploratory data analysis and visualization with Pandas and Matplotlib

03 Machine Learning with Scikit-Learn

Modeling · Evaluation · Deployment

- Frame a machine learning problem
- Regression and classification
- Model evaluation
- Pipelines and preprocessing
- Cross-validation and hyperparameter tuning
- Model serving with FastAPI
- End-to-end deployment project

04 Deep Learning with PyTorch

Tensors · Networks · Training

- Deep learning mental models
- Tensors and autograd
- Neural networks
- Training and regularization
- Production-grade deep learning project

05 NLP with Hugging Face

Text · Embeddings · Transformers

- Working with text inputs
- Embeddings
- Transformers and attention
- Running inference
- Production-grade NLP project

The topics in the above syllabus would increase as per industry need/standard
If you have any query, please write to **support@logicraft.ai** or call **9827710731**

MODULES 06–10 · LLMS TO PRODUCTION SYSTEMS

06 LLMs — OpenAI, Anthropic & Gemini

APIs · Prompting · Structured outputs

- Build an LLM mental model
- Work with LLM APIs
- Prompt engineering
- Structured outputs
- Model comparison
- Production-grade LLM projects

07 Retrieval-Augmented Generation (RAG)

LangChain · LangGraph · Vector databases

- RAG architecture
- Chunking and embeddings
- FAISS, Milvus, PgVector and MongoDB
- LangChain and LangGraph
- LangSmith evaluation
- OWASP LLM Top 10 security

08 AI Agents

Tool calling · Memory · Multi-agent systems

- The agent loop
- Tool calling
- State and routing in LangGraph
- Memory and human-in-the-loop
- Multi-agent systems

09 Production Engineering, DevOps & AI Security

FastAPI · Docker · AWS · CI/CD

- Production APIs with FastAPI and OpenAPI
- Docker
- AWS
- CI/CD with GitHub Actions
- LLMOps with OpenTelemetry and LangSmith
- OWASP Top 10 AI security
- Enterprise architecture

10 Advanced Protocols — MCP, A2A & Agentic Systems

MCP · A2A · AI Harness

- Model Context Protocol (MCP)
- Agent-to-Agent (A2A)
- Agentic RAG
- AI harnesses
- Production-grade projects around MCP, A2A and AI harnesses

MODULES 11–13 · CAREERS & ENGINEERING PRACTICE

11 Interview Prep

Speaking · Coding · Mock interviews

- How to speak and behave in an interview
- How to code and explain in an interview
- What questions to ask during an interview
- What to discuss and how to approach the HR round
- 5 mock interviews

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12 Job Readiness

LinkedIn · Resume · Etiquette

- Support for LinkedIn profile, summary, skills and projects upgrade
- Support for 10 LinkedIn posts
- Recommendations
- Resume writing support with keywords so that it passes ATS
- Business etiquette: writing emails
- Business etiquette: talking to the technical team
- Business etiquette: talking to HR
- Business etiquette: talking to leadership

13 AI / Software Engineering

SDLC · Git · CI/CD · AWS

- AI / software development lifecycle
- Agile methodology
- Scrum meetings
- 12-factor application development
- Software and AI development best practices, standards and guardrails
- Git essentials
- CI/CD pipeline
- AWS
- Deployment
- Monitoring
- Alerts
- Observability
- Debugging
- Security essentials including OWASP Top 10 and OWASP AI
- JIRA tickets

MODULE 14 · PUT IT TO WORK

14 Final Capstone Projects

Capstone

- 15+ production-grade capstone projects spanning deployment, security, observability and delivery

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