Admissions & Support: support@mockattempt.com
Phone / WhatsApp: +91 98765 43210
Course Code: PFSC • **Updated:** 01 Nov 2026
https://mockattempt.com/training/python-full-stack-career-program

PFSC • FULL STACK DEVELOPMENT **JOB-GUARANTEED CAREER MASTER PROGRAM**

100% PLACEMENT GUARANTEED* CAREER PROGRAM (6-MO REFUND*)

Python Full Stack Development & Enterprise Generative AI Architecture

Full Stack Python Developer + AWS + DevOps + Generative AI | 100% Placement Guaranteed Career Program | 100% Placement Guaranteed* (6 Months Fees Refund*)

Duration: 32w (480h) • 15h/wk (504 Hrs) • **Modules:** 16 • **Live Topics:** 42 • **Labs & Tasks:** 84 • **Mocks / AI Vivas:** 84 / 84 • **Projects:** 16 Module + 1 Live Client Prod

Fixed Non-Negotiable Tuition Fee: Base Fee **₹54,999** + 18% GST (₹9,900) = **Total Incl. GST: ₹64,899**

Live Batch Tracks: Weekday Career Intensive Batch (Mon – Fri • 15h/wk) (Monday to Friday (5 Live Sessions / Week • 15h/wk Total) • 3.0 Hours / Day (90 Mins Live Architecture + 90 Mins Supervised Real-Repo Coding) • 34 Weeks (504 Hours • 15h/wk)) | Weekend Working-Pro Career Batch (Sat – Sun + Guided Sprint • 15h/wk) (Saturday & Sunday Live + Mid-Week Mentor PR Review (15h/wk Total) • 5.0 Hours Sat & Sun Live + 5.0 Hours Guided Real-Repository Sprint • 34 Weeks (504 Hours • 15h/wk))

✓ 6-Month Placement Guarantee*: Complete 100% assigned repositories & score ≥90% across all Topic Mock Tests & Voice AI Interviews → 100+ verified IT job openings within 6 months or 100% net tuition refund*.

Core Technologies & Engineering Stack: Python 3.12 Core & Internals • Django 5 & Django REST Framework • FastAPI Async Framework • LangChain & LangGraph • React 19 & TypeScript 5 • PostgreSQL 16 & pgvector • Pydantic v2 & SQLAlchemy 2 • Celery & Redis 7 Task Queues • Hybrid RAG & Reranking • Agentic AI Tool Calling • WebSockets & SSE Streaming • JWT / OAuth2 & RBAC Security • Pytest Async Integration Suites • Docker & Compose Stacks • Kubernetes Orchestration • AWS Cloud (EC2, RDS, S3, Bedrock) • Terraform Infrastructure as Code • GitHub Actions DevSecOps CI/CD • Prometheus & OpenTelemetry • LLM Guardrails & Evals

1. PROGRAM MASTERY OUTCOMES & ELIGIBILITY

End-to-End Engineering Outcomes:

1. Build and ship 14 real-world production GitHub repositories + 1 Live Client Production Cloud Deployment (zero dummy to-do apps)
2. Achieve ≥90% mastery across every Topic Mock Test and Spoken Gemini AI Technical Interview (unlimited free re-attempts allowed below 90%)
3. Earn Dual Barcode-Verifiable Credentials: Course Excellence Certificate + Official Project Internship Confirmation Letter
4. Unlock 6-Month Placement Support guaranteeing 100 curated relevant IT job openings — backed by our 100% Tuition Fee Refund* policy
5. Dual-framework Python backend mastery: Django 5 + DRF for enterprise platforms and async FastAPI for high-concurrency/AI APIs.
6. Modern frontend & data stack: React 19 + TypeScript 5, PostgreSQL 16 + `pgvector`, Redis 7, and Celery distributed workers.
7. Enterprise Generative AI engineering: LangChain, LangGraph multi-step agents, grounded RAG citations, and LLM guardrails.
8. Production cloud & DevOps: Docker multi-stage containers, AWS (VPC, ECS/EC2, RDS, S3), Terraform IaC, and CI/CD.

Eligibility & Prerequisites: Basic computer literacy and commitment to 15 hours/week of live coding, daily tasks & real-repository sprints • Dedication to complete 100% of assigned tasks and re-attempt assessments until crossing ≥90% mastery • No prior Python Full Stack Development & Enterprise Generative AI Architecture industry experience required — Module 1 starts from environment setup, core mental models, and plain-English fundamentals. • Basic computer & internet familiarity on a Windows, macOS, or Linux laptop (8 GB+ RAM recommended for smooth live coding labs). • Ideal for B.Tech / BCA / MCA / B.Sc IT students, non-CS beginners, career switchers, and working developers upgrading to 2026 production standards. • Commitment to attend live Weekday or Weekend classes, complete daily hands-on lab checklists, and practice topic-wise Mock Tests & AI Interviews.

2. DETAILED MODULE & TOPIC-WISE SYLLABUS (16 MODULES • 42 LIVE TOPICS)

MODULE 1 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Python 3.12 Core Internals, Typing & Asyncio Runtime

Real-repository engineering module covering Python 3.12 Core Internals, Typing & Asyncio Runtime with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ CPython Memory Model, Mutability, Generators, Iterators & Context Managers — Purpose: Process multi-gigabyte data streams in constant RAM with clean Pythonic idioms. • ✓ OOP SOLID Design, Dataclasses, Decorators & Strict Type Hints (mypy) — Purpose: Write maintainable, self-documented

enterprise Python modules trusted by large teams. • ✓ GIL Mechanics, Multiprocessing vs Threading & Asyncio Event Loops — Purpose: Scale CPU-bound and 10k+ I/O-bound concurrent tasks without blocking bottlenecks.

1.1 CPython Memory Model, Mutability, Generators, Iterators & Context Managers [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply CPython Memory Model, Mutability, Generators, Iterators & Context Managers in real Python Full Stack Development & Enterprise Generative AI Archit...

1.2 OOP SOLID Design, Dataclasses, Decorators & Strict Type Hints (mypy) [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OOP SOLID Design, Dataclasses, Decorators & Strict Type Hints (mypy) in real Python Full Stack Development & Enterprise Generative AI Architecture...

1.3 GIL Mechanics, Multiprocessing vs Threading & Asyncio Event Loops [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply GIL Mechanics, Multiprocessing vs Threading & Asyncio Event Loops in real Python Full Stack Development & Enterprise Generative AI Architecture sy...

Module 1 Hands-On Capstone Project (100 Marks): Typed Async Python Data & Event Processing Engine Repo — Architect, implement, test, and push the production GitHub repository 'Typed Async Python Data & Event Processing Engine Repo' (strictly zero dummy scaffolding) demonstrating end-to-end mast...

MODULE 2 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Algorithmic Problem Solving & DSA in Python

Real-repository engineering module covering Algorithmic Problem Solving & DSA in Python with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Complexity Analysis, Two Pointers, Sliding Window, bisect & Hash Maps — Purpose: Solve timed product-company coding assessments cleanly in optimal time complexity. • ✓ Linked Lists, Monotonic Deques, heapq Priority Queues & Prefix Tries — Purpose: Implement LRU caches, rate limiters, and streaming median/top-K aggregators. • ✓ Trees, Graphs (BFS/DFS/Topological Sort/Dijkstra) & Dynamic Programming — Purpose: Master hierarchical traversal, dependency scheduling, and memoized optimization.

2.1 Complexity Analysis, Two Pointers, Sliding Window, bisect & Hash Maps [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Complexity Analysis, Two Pointers, Sliding Window, bisect & Hash Maps in real Python Full Stack Development & Enterprise Generative AI Architectur...

2.2 Linked Lists, Monotonic Deques, heapq Priority Queues & Prefix Tries [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Linked Lists, Monotonic Deques, heapq Priority Queues & Prefix Tries in real Python Full Stack Development & Enterprise Generative AI Architecture...

2.3 Trees, Graphs (BFS/DFS/Topological Sort/Dijkstra) & Dynamic Programming [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Trees, Graphs (BFS/DFS/Topological Sort/Dijkstra) & Dynamic Programming in real Python Full Stack Development & Enterprise Generative AI Architect...

Module 2 Hands-On Capstone Project (100 Marks): Python Algorithmic Search, Graph & Caching Benchmark Repo — Architect, implement, test, and push the production GitHub repository 'Python Algorithmic Search, Graph & Caching Benchmark Repo' (strictly zero dummy scaffolding) demonstrating end-to-end m...

MODULE 3 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

PostgreSQL 16, SQL Performance Tuning & pgvector Hybrid DB

Real-repository engineering module covering PostgreSQL 16, SQL Performance Tuning & pgvector Hybrid DB with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Relational Modeling, Constraints, CTEs, Window Analytics & JSONB — Purpose: Combine strict ACID relational tables with flexible indexed JSONB attributes. • ✓ MVCC Locking, B-Tree/GIN Indexing, Partitioning & EXPLAIN ANALYZE — Purpose: Diagnose sequential-scan bottlenecks and sustain high write concurrency safely. • ✓ pgvector HNSW Semantic Search, Alembic/Django Migrations & PgBouncer — Purpose: Serve low-latency hybrid SQL + vector retrieval across pooled connections.

3.1 Relational Modeling, Constraints, CTEs, Window Analytics & JSONB [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Relational Modeling, Constraints, CTEs, Window Analytics & JSONB in real Python Full Stack Development & Enterprise Generative AI Architecture sys...

3.2 MVCC Locking, B-Tree/GIN Indexing, Partitioning & EXPLAIN ANALYZE [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply MVCC Locking, B-Tree/GIN Indexing, Partitioning & EXPLAIN ANALYZE in real Python Full Stack Development & Enterprise Generative AI Architecture sy...

3.3 pgvector HNSW Semantic Search, Alembic/Django Migrations & PgBouncer [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply pgvector HNSW Semantic Search, Alembic/Django Migrations & PgBouncer in real Python Full Stack Development & Enterprise Generative AI Architecture...

Module 3 Hands-On Capstone Project (100 Marks): PostgreSQL Multi-Tenant Analytics & pgvector Semantic Index Repo — Architect, implement, test, and push the production GitHub repository 'PostgreSQL Multi-Tenant Analytics & pgvector Semantic Index Repo' (strictly zero dummy scaffolding) demonstrating end-t...

MODULE 4 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Django 5 & Django REST Framework Enterprise Architecture

Real-repository engineering module covering Django 5 & Django REST Framework Enterprise Architecture with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Django 5 ORM Internals, select_related / prefetch_related & Transactions — Purpose: Build rich domain models and eliminate N+1 query overhead across complex APIs. • ✓ DRF ViewSets, Serializers, Filtering, Cursor Pagination & OpenAPI Docs — Purpose: Ship clean, versioned REST APIs consumed seamlessly by web and mobile clients. • ✓ Custom RBAC Permissions, JWT Auth, Signals & Admin Operations Console — Purpose: Enforce tenant isolation, audit trails, and secure back-office workflows.

4.1 Django 5 ORM Internals, select_related / prefetch_related & Transactions [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Django 5 ORM Internals, select_related / prefetch_related & Transactions in real Python Full Stack Development & Enterprise Generative AI Architec...

4.2 DRF ViewSets, Serializers, Filtering, Cursor Pagination & OpenAPI Docs [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply DRF ViewSets, Serializers, Filtering, Cursor Pagination & OpenAPI Docs in real Python Full Stack Development & Enterprise Generative AI Architectu...

4.3 Custom RBAC Permissions, JWT Auth, Signals & Admin Operations Console [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Custom RBAC Permissions, JWT Auth, Signals & Admin Operations Console in real Python Full Stack Development & Enterprise Generative AI Architectur...

Module 4 Hands-On Capstone Project (100 Marks): Multi-Tenant Django 5 + DRF B2B SaaS Subscription Platform Repo — Architect, implement, test, and push the production GitHub repository 'Multi-Tenant Django 5 + DRF B2B SaaS Subscription Platform Repo' (strictly zero dummy scaffolding) demonstrating end-to...

MODULE 5 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

FastAPI High-Concurrency Async Microservices & Pydantic v2

Real-repository engineering module covering FastAPI High-Concurrency Async Microservices & Pydantic v2 with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ ASGI Lifespan, Dependency Injection, Pydantic v2 Validation & Schemas — Purpose: Validate complex nested JSON payloads in compiled Rust speed with auto-generated docs. • ✓ Async SQLAlchemy 2.0, Connection Pooling, OAuth2 Scopes & WebSockets — Purpose: Build non-blocking real-time APIs and live token-streaming endpoints. • ✓ Pytest-Asyncio Integration Suites, httpx Clients & Rate-Limit Middleware — Purpose: Guarantee 95%+ endpoint reliability with fast automated async test suites.

5.1 ASGI Lifespan, Dependency Injection, Pydantic v2 Validation & Schemas [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply ASGI Lifespan, Dependency Injection, Pydantic v2 Validation & Schemas in real Python Full Stack Development & Enterprise Generative AI Architectur...

5.2 Async SQLAlchemy 2.0, Connection Pooling, OAuth2 Scopes & WebSockets [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Async SQLAlchemy 2.0, Connection Pooling, OAuth2 Scopes & WebSockets in real Python Full Stack Development & Enterprise Generative AI Architecture...

5.3 Pytest-Asyncio Integration Suites, httpx Clients & Rate-Limit Middleware [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Pytest-Asyncio Integration Suites, httpx Clients & Rate-Limit Middleware in real Python Full Stack Development & Enterprise Generative AI Architec...

Module 5 Hands-On Capstone Project (100 Marks): Sub-25ms Async FastAPI Gateway & Streaming Inference Repo — Architect, implement, test, and push the production GitHub repository 'Sub-25ms Async FastAPI Gateway & Streaming Inference Repo' (strictly zero dummy scaffolding) demonstrating end-to-end m...

MODULE 6 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Distributed Background Jobs with Celery, Redis 7 & Event Streams

Real-repository engineering module covering Distributed Background Jobs with Celery, Redis 7 & Event Streams with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Redis 7 Caching Patterns, Lua Rate Limiters, Pub/Sub & Streams — Purpose: Slash database load and coordinate real-time notifications in sub-millisecond latency. • ✓ Celery Worker Topologies, Idempotent Retries, Dead-Letter Queues & Flower — Purpose: Offload heavy PDF parsing, OCR, billing emails, and AI indexing reliably. • ✓ Webhook HMAC Security, Outbox Consistency & Scheduled Beat Workflows — Purpose: Integrate Stripe/Razorpay and partner webhooks with zero duplicate processing.

6.1 Redis 7 Caching Patterns, Lua Rate Limiters, Pub/Sub & Streams [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Redis 7 Caching Patterns, Lua Rate Limiters, Pub/Sub & Streams in real Python Full Stack Development & Enterprise Generative AI Architecture syste...

6.2 Celery Worker Topologies, Idempotent Retries, Dead-Letter Queues & Flower [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Celery Worker Topologies, Idempotent Retries, Dead-Letter Queues & Flower in real Python Full Stack Development & Enterprise Generative AI Archite...

6.3 Webhook HMAC Security, Outbox Consistency & Scheduled Beat Workflows [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Webhook HMAC Security, Outbox Consistency & Scheduled Beat Workflows in real Python Full Stack Development & Enterprise Generative AI Architecture...

Module 6 Hands-On Capstone Project (100 Marks): Distributed Celery + Redis 7 Document Ingestion & Webhook Repo — Architect, implement, test, and push the production GitHub repository 'Distributed Celery + Redis 7 Document Ingestion & Webhook Repo' (strictly zero dummy scaffolding) demonstrating end-to-...

MODULE 7 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Modern Frontend Engineering with React 19 & TypeScript 5

Real-repository engineering module covering Modern Frontend Engineering with React 19 & TypeScript 5 with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Strict TypeScript 5 Contracts, Component Patterns & Tailwind Design Systems — Purpose: Build pixel-accurate, responsive enterprise interfaces with shared API types. • ✓ React 19 Hooks, TanStack Query Caching, Optimistic UI & Protected Routes — Purpose: Synchronize complex server state and role-based navigation effortlessly. • ✓ Server-Sent Events (SSE) Token Streaming, Markdown Citations & Vitest — Purpose: Render streaming GenAI responses, tool-call cards, and source citations live.

7.1 Strict TypeScript 5 Contracts, Component Patterns & Tailwind Design Systems [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Strict TypeScript 5 Contracts, Component Patterns & Tailwind Design Systems in real Python Full Stack Development & Enterprise Generative AI Archi...

7.2 React 19 Hooks, TanStack Query Caching, Optimistic UI & Protected Routes [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply React 19 Hooks, TanStack Query Caching, Optimistic UI & Protected Routes in real Python Full Stack Development & Enterprise Generative AI Architec...

7.3 Server-Sent Events (SSE) Token Streaming, Markdown Citations & Vitest [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Server-Sent Events (SSE) Token Streaming, Markdown Citations & Vitest in real Python Full Stack Development & Enterprise Generative AI Architectur...

Module 7 Hands-On Capstone Project (100 Marks): React 19 + TypeScript Real-Time SaaS & AI Copilot UI Repo — Architect, implement, test, and push the production GitHub repository 'React 19 + TypeScript Real-Time SaaS & AI Copilot UI Repo' (strictly zero dummy scaffolding) demonstrating end-to-end m...

MODULE 8 OF 16 • 34 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

LLM Engineering, Hybrid RAG & Vector Search Architecture

Real-repository engineering module covering LLM Engineering, Hybrid RAG & Vector Search Architecture with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Prompt Engineering, Structured JSON Outputs, Tokenization & Embeddings — Purpose: Control LLM determinism, latency, and token budgets for production APIs. • ✓ Semantic Chunking, Hybrid Search (BM25 + Dense) & Cross-Encoder Reranking — Purpose: Eliminate retrieval blind spots on complex financial, legal, and technical PDFs. • ✓ Citation Verification, Hallucination Guardrails & RAGAS Automated Evals — Purpose: Prove RAG accuracy quantitatively in CI before shipping prompt or model updates.

8.1 Prompt Engineering, Structured JSON Outputs, Tokenization & Embeddings [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Prompt Engineering, Structured JSON Outputs, Tokenization & Embeddings in real Python Full Stack Development & Enterprise Generative AI Architectu...

8.2 Semantic Chunking, Hybrid Search (BM25 + Dense) & Cross-Encoder Reranking [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Semantic Chunking, Hybrid Search (BM25 + Dense) & Cross-Encoder Reranking in real Python Full Stack Development & Enterprise Generative AI Archite...

8.3 Citation Verification, Hallucination Guardrails & RAGAS Automated Evals [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Citation Verification, Hallucination Guardrails & RAGAS Automated Evals in real Python Full Stack Development & Enterprise Generative AI Architect...

Module 8 Hands-On Capstone Project (100 Marks): Enterprise Hybrid BM25 + pgvector RAG Knowledge Engine Repo — Architect, implement, test, and push the production GitHub repository 'Enterprise Hybrid BM25 + pgvector RAG Knowledge Engine Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 9 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Agentic AI Systems with LangChain, LangGraph & Tool Calling

Real-repository engineering module covering Agentic AI Systems with LangChain, LangGraph & Tool Calling with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ LangGraph State Machines, Conditional Edges, Memory & Checkpointing — Purpose: Orchestrate reliable multi-step AI agents with durable pause/resume state. • ✓ Audited Tool Calling, Human-in-the-Loop Approvals & Prompt-Injection Defense — Purpose: Allow AI agents to query APIs and databases safely under strict security bounds.

9.1 LangGraph State Machines, Conditional Edges, Memory & Checkpointing [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply LangGraph State Machines, Conditional Edges, Memory & Checkpointing in real Python Full Stack Development & Enterprise Generative AI Architecture...

9.2 Audited Tool Calling, Human-in-the-Loop Approvals & Prompt-Injection Defense [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Audited Tool Calling, Human-in-the-Loop Approvals & Prompt-Injection Defense in real Python Full Stack Development & Enterprise Generative AI Arch...

Module 9 Hands-On Capstone Project (100 Marks): Stateful LangGraph Multi-Agent Research & SQL Copilot Repo — Architect, implement, test, and push the production GitHub repository 'Stateful LangGraph Multi-Agent Research & SQL Copilot Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 10 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Containerization with Docker & Kubernetes Orchestration

Real-repository engineering module covering Containerization with Docker & Kubernetes Orchestration with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Multi-Stage Slim/UV Python Dockerfiles, Non-Root Security & Compose — Purpose: Package reproducible Django, FastAPI, Celery, and React stacks in minimal images. • ✓ Kubernetes Deployments, Ingress TLS, Secrets, HPA Autoscaling & Probes — Purpose: Run resilient auto-scaling Python & GenAI microservices on Kubernetes clusters.

10.1 Multi-Stage Slim/UV Python Dockerfiles, Non-Root Security & Compose [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Multi-Stage Slim/UV Python Dockerfiles, Non-Root Security & Compose in real Python Full Stack Development & Enterprise Generative AI Architecture...

10.2 Kubernetes Deployments, Ingress TLS, Secrets, HPA Autoscaling & Probes [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Kubernetes Deployments, Ingress TLS, Secrets, HPA Autoscaling & Probes in real Python Full Stack Development & Enterprise Generative AI Architectu...

Module 10 Hands-On Capstone Project (100 Marks): Hardened Python Multi-Service Docker & Kubernetes Helm Repo — Architect, implement, test, and push the production GitHub repository 'Hardened Python Multi-Service Docker & Kubernetes Helm Repo' (strictly zero dummy scaffolding) demonstrating end-

to-end...

MODULE 11 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

AWS Cloud Infrastructure & Serverless / Bedrock Integration

Real-repository engineering module covering AWS Cloud Infrastructure & Serverless / Bedrock Integration with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ AWS VPC Networking, IAM Least Privilege, EC2/ECS, ALB & S3 Presigned Flows — Purpose: Deploy secure cloud compute and direct encrypted object uploads on AWS. • ✓ RDS Multi-AZ, Secrets Manager, CloudFront Edge & AWS Bedrock LLM APIs — Purpose: Combine managed enterprise databases with cloud-hosted foundation models.

11.1 AWS VPC Networking, IAM Least Privilege, EC2/ECS, ALB & S3 Presigned Flows [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply AWS VPC Networking, IAM Least Privilege, EC2/ECS, ALB & S3 Presigned Flows in real Python Full Stack Development & Enterprise Generative AI Archit...

11.2 RDS Multi-AZ, Secrets Manager, CloudFront Edge & AWS Bedrock LLM APIs [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply RDS Multi-AZ, Secrets Manager, CloudFront Edge & AWS Bedrock LLM APIs in real Python Full Stack Development & Enterprise Generative AI Architectur...

Module 11 Hands-On Capstone Project (100 Marks): AWS Multi-AZ VPC, RDS, S3, ECS & Bedrock Cloud Stack Repo — Architect, implement, test, and push the production GitHub repository 'AWS Multi-AZ VPC, RDS, S3, ECS & Bedrock Cloud Stack Repo' (strictly zero dummy scaffolding) demonstrating end-to-end m...

MODULE 12 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Terraform Infrastructure as Code & GitHub Actions DevSecOps

Real-repository engineering module covering Terraform Infrastructure as Code & GitHub Actions DevSecOps with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ Modular Terraform State, Remote Backends & Environment Promotion — Purpose: Provision dev, staging, and production AWS infrastructure identically via code. • ✓ GitHub Actions CI/CD, Ruff/Mypy/Bandit/Trivy Scans & Zero-Downtime Deploy — Purpose: Enforce automated code quality, security gates, and one-merge cloud releases.

12.1 Modular Terraform State, Remote Backends & Environment Promotion [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Modular Terraform State, Remote Backends & Environment Promotion in real Python Full Stack Development & Enterprise Generative AI Architecture sys...

12.2 GitHub Actions CI/CD, Ruff/Mypy/Bandit/Trivy Scans & Zero-Downtime Deploy [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply GitHub Actions CI/CD, Ruff/Mypy/Bandit/Trivy Scans & Zero-Downtime Deploy in real Python Full Stack Development & Enterprise Generative AI Archite...

Module 12 Hands-On Capstone Project (100 Marks): Terraform AWS Provisioner & GitHub Actions CI/CD Pipeline Repo — Architect, implement, test, and push the production GitHub repository 'Terraform AWS Provisioner & GitHub Actions CI/CD Pipeline Repo' (strictly zero dummy scaffolding) demonstrating end-to-...

MODULE 13 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Observability, LLMOps Cost/Latency Tuning & System Design

Real-repository engineering module covering Observability, LLMOps Cost/Latency Tuning & System Design with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ OpenTelemetry Tracing, Prometheus Metrics, Sentry & Semantic LLM Caching — Purpose: Cut LLM inference spend by 60% and trace slow database/model spans instantly. • ✓ Full-Stack Python & GenAI System Design (HLD + LLD) Interview Mastery — Purpose: Design scalable multi-tenant SaaS and RAG architectures in technical interviews.

13.1 OpenTelemetry Tracing, Prometheus Metrics, Sentry & Semantic LLM Caching [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply OpenTelemetry Tracing, Prometheus Metrics, Sentry & Semantic LLM Caching in real Python Full Stack Development & Enterprise Generative AI Architec...

13.2 Full-Stack Python & GenAI System Design (HLD + LLD) Interview Mastery [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Full-Stack Python & GenAI System Design (HLD + LLD) Interview Mastery in real Python Full Stack Development & Enterprise Generative AI Architectur...

Module 13 Hands-On Capstone Project (100 Marks): OpenTelemetry + Prometheus Monitoring & Semantic Cache Repo — Architect, implement, test, and push the production GitHub repository 'OpenTelemetry + Prometheus Monitoring & Semantic Cache Repo' (strictly zero dummy scaffolding) demonstrating end-to-end...

MODULE 14 OF 16 • 34 LIVE + LAB HOURS • 2 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Live Client Production Sprint & ≥90% Placement Readiness Gate

Real-repository engineering module covering Live Client Production Sprint & ≥90% Placement Readiness Gate with supervised live coding, ≥90% AI Mock Gates, and production GitHub PR verification.

Objectives: ✓ End-to-End Client Production Deployment, Load Benchmarks & UAT Sign-Off — Purpose: Deliver the live Python + Django/FastAPI + LangGraph + React platform to production. • ✓ Verified Portfolio Sign-Off, ≥90% AI Viva Gate & 100-Opening Drive Activation — Purpose: Clear all ≥90% assessment gates and launch into 100+ curated job openings over 6 months.

14.1 End-to-End Client Production Deployment, Load Benchmarks & UAT Sign-Off [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply End-to-End Client Production Deployment, Load Benchmarks & UAT Sign-Off in real Python Full Stack Development & Enterprise Generative AI Architect...

14.2 Verified Portfolio Sign-Off, ≥90% AI Viva Gate & 100-Opening Drive Activation [90 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Verified Portfolio Sign-Off, ≥90% AI Viva Gate & 100-Opening Drive Activation in real Python Full Stack Development & Enterprise Generative AI Arc...

Module 14 Hands-On Capstone Project (100 Marks): OmniDoc Live Client Production Cutover & Placement Portfolio Repo — Architect, implement, test, and push the production GitHub repository 'OmniDoc Live Client Production Cutover & Placement Portfolio Repo' (strictly zero dummy scaffolding) demonstrating end-...

MODULE 15 OF 16 • 14 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

Enterprise LangGraph Agents, Hybrid pgvector RAG & Async FastAPI/Django Scale

Self-explanatory list-and-bullet production mastery module covering Enterprise LangGraph Agents, Hybrid pgvector RAG & Async FastAPI/Django Scale in Python Full Stack Development & Enterprise Generative AI Architecture, paired with hands-on labs, capstone repository, Topic Mock Tests, and Spoken Gemini AI Viva.

Objectives: ✓ LangGraph Stateful Agent Workflows, Human-in-the-Loop Checkpoints & Tool Sandboxing — Purpose: Build controllable, auditable enterprise AI agents instead of fragile single-prompt loops. • ✓ Hybrid Search (BM25 + pgvector), Re-Ranking, Guardrails & Automated RAG Evaluation — Purpose: Verify citation accuracy, block prompt injection, and benchmark retrieval precision in CI. • ✓ High-Throughput Django 5 + Async FastAPI + Celery + Redis Production Integration — Purpose: Combine Django admin/ORM velocity with sub-30ms async FastAPI streaming endpoints. • ✓ Build, verify, and document 'Stateful LangGraph Multi-Agent Workflow + Grounded Citation API Repository' with clean Git commits and edge-case protection. • ✓ Clear 100% of Topic Timed Mock Tests and Spoken Voice + Google Gemini AI Technical Interviews.

15.1 LangGraph Stateful Agent Workflows, Human-in-the-Loop Checkpoints & Tool Sandboxing [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply LangGraph Stateful Agent Workflows, Human-in-the-Loop Checkpoints & Tool Sandboxing in real Python Full Stack Development & Enterprise Generative...

15.2 Hybrid Search (BM25 + pgvector), Re-Ranking, Guardrails & Automated RAG Evaluation [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Hybrid Search (BM25 + pgvector), Re-Ranking, Guardrails & Automated RAG Evaluation in real Python Full Stack Development & Enterprise Generative A...

15.3 High-Throughput Django 5 + Async FastAPI + Celery + Redis Production Integration [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply High-Throughput Django 5 + Async FastAPI + Celery + Redis Production Integration in real Python Full Stack Development & Enterprise Generative AI...

Module 15 Hands-On Capstone Project (100 Marks): Stateful LangGraph Multi-Agent Workflow + Grounded Citation API Repository — Architect, implement, test, and document 'Stateful LangGraph Multi-Agent Workflow + Grounded Citation API Repository' applying every bullet-wise engineering concept from Module 15 (Enterpris...

MODULE 16 OF 16 • 14 LIVE + LAB HOURS • 3 TOPICS • 1 CAPSTONE PROJECT (100 MARKS)

AWS Cloud MLOps, Full-Stack React 19 UX & ≥90% Placement Gate Readiness

Self-explanatory list-and-bullet production mastery module covering AWS Cloud MLOps, Full-Stack React 19 UX & ≥90% Placement Gate Readiness in Python Full Stack Development & Enterprise Generative AI Architecture, paired with hands-on labs, capstone repository, Topic Mock Tests, and Spoken Gemini AI Viva.

Objectives: ✓ React 19 Streaming UI, Optimistic State & Secure JWT/Session Auth Integration — Purpose: Deliver responsive, production-polished full-stack AI and SaaS user interfaces. • ✓ Docker, GitHub Actions CI/CD, AWS Cloud Deployment & LLM Cost/Latency Telemetry — Purpose: Ship containerized Python +

React stacks with structured logs, alarms, and token budgets. • ✓ Python Full Stack & GenAI System Design Defense for High-CTC Placement Loops — Purpose: Master Python internals, SQL/ORM tuning, API scaling, and GenAI architecture interviews. • ✓ Build, verify, and document 'Token-Streaming React 19 + FastAPI + AWS Docker Production Stack Repository' with clean Git commits and edge-case protection. • ✓ Clear 100% of Topic Timed Mock Tests and Spoken Voice + Google Gemini AI Technical Interviews.

16.1 React 19 Streaming UI, Optimistic State & Secure JWT/Session Auth Integration [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply React 19 Streaming UI, Optimistic State & Secure JWT/Session Auth Integration in real Python Full Stack Development & Enterprise Generative AI Arc...

16.2 Docker, GitHub Actions CI/CD, AWS Cloud Deployment & LLM Cost/Latency Telemetry [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Docker, GitHub Actions CI/CD, AWS Cloud Deployment & LLM Cost/Latency Telemetry in real Python Full Stack Development & Enterprise Generative AI A...

16.3 Python Full Stack & GenAI System Design Defense for High-CTC Placement Loops [65 mins • Assignment (100M) • Hands-On Lab (50M) • 2 Mock Sets • 2 AI Vivas]

Purpose: To understand and apply Python Full Stack & GenAI System Design Defense for High-CTC Placement Loops in real Python Full Stack Development & Enterprise Generative AI Arch...

Module 16 Hands-On Capstone Project (100 Marks): Token-Streaming React 19 + FastAPI + AWS Docker Production Stack Repository — Architect, implement, test, and document 'Token-Streaming React 19 + FastAPI + AWS Docker Production Stack Repository' applying every bullet-wise engineering concept from Module 16 (AWS Clou...

3. LIVE CLIENT PRODUCTION PROJECT, GLOBAL CERTIFICATIONS & CAREER SCOPE

End-of-Course Live Client Production Project + Official Internship Confirmation Letter

Project: OmniDoc Enterprise SaaS Portal, Async FastAPI Gateway & Multi-Agent LangGraph Workspace • **Confirmed Role:** Full Stack Python, Django/FastAPI & GenAI Architect Resident

Domain & Production Infra: Enterprise B2B SaaS & Legal/FinTech Intelligence Client (Python 3.12 + Django 5 + FastAPI + LangGraph + pgvector + React 19 + AWS Docker)

- Architected multi-tenant Django 5 + DRF RBAC management APIs alongside sub-30ms async FastAPI inference services.
- Engineered stateful LangGraph multi-agent workflows grounded over PostgreSQL pgvector hybrid search.
- Crafted responsive React 19 + TypeScript dashboards with live SSE token streaming, Celery/Redis jobs, and citation drawers.
- Automated Pytest verification, Docker multi-stage builds, and AWS multi-AZ HTTPS cloud deployment.

Aligned Global Vendor Certifications: **PCAP-31-03** (PCAP™ – Certified Associate in Python Programming) • **PCPP1-32-101** (PCPP1™ – Certified Professional in Python Programming 1) • **SAA-C03** (AWS Certified Solutions Architect – Associate) • **AIF-C01** (AWS Certified AI Practitioner (Generative AI & Foundation Models)) • **EDB-PG16** (EDB Certified PostgreSQL 16 Associate)

Target Job Roles: Full Stack Python & GenAI Developer, Backend Software Engineer (Django / FastAPI), Applied AI & RAG Full Stack Engineer, Python Cloud & Platform SDE

Realistic Annual CTC Scope: **Placement-Guaranteed Graduate / SDE-1 (0–1 Yr):** ₹6.5 LPA – ₹14.5 LPA **Python Full Stack + GenAI SDE-2 (1–3 Yrs):** ₹15.0 LPA – ₹30.0 LPA **Staff Python & GenAI Systems Architect (3–6+ Yrs):** ₹30.0 LPA – ₹58.0+ LPA

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