ZINDERN ACADEMY OFFICIAL PROGRAM SPECIFICATION & CURRICULUM

AI-FIRST FULL STACK ENGINEERING PROGRAM

Master modern full-stack development supercharged by Generative AI. Build high-performance Next.js architectures, distributed microservices, autonomous AI agents, and production cloud systems.

DURATION	NEXT COHORT	MIN EXPERIENCE	CAPSTONES
12 Months	**October 2026**	**0-3 Years / Final Year**	**12+ Production**

CAREER PLACEMENT & COMPENSATION BENCHMARKS

Average CTC	Highest CTC	Average Salary Hike	Placement Rate	Alumni Hired
INR 18.5 LPA	**INR 52.0 LPA**	**145%**	**94.8%**	**1,200+ Alumni**

PROGRAM ARCHITECTURE & OBJECTIVES

An intensive, industry-crafted 12-month program designed to transform developers into elite modern AI-First full-stack software engineers. Master high-performance TypeScript/Next.js frontends, scalable Go/Node.js distributed backends, PostgreSQL/Redis data layers, autonomous AI agentic workflows (RAG, LangChain, Vector DBs), and production cloud deployments.

CORE PROGRAM HIGHLIGHTS & DIFFERENTIATORS

- Full Generative AI & Agentic Stack: LLMs, LangChain, LlamaIndex, Vector DBs, Multi-Agent Swarms & RAG
- Modern Full-Stack Engineering: Next.js 15, React 19, TypeScript, Tailwind CSS, Server Actions & WebSockets
- Distributed High-Throughput Backends: Go, Node.js, PostgreSQL, Redis, Apache Kafka, Docker & Kubernetes
- 1:1 Weekly Mentorship from Senior Engineers at Google, Microsoft, and Amazon
- Zero-Day Placement Support with 600+ vetted tier-1 tech hiring partners
- Dedicated Career Coach for portfolio engineering, system design mock interviews, and salary negotiation

PRIMARY HIRING PARTNERS & RECRUITING NETWORK

Google | Microsoft | Amazon | Meta | Uber | Razorpay | Flipkart | Swiggy | Atlassian | Stripe

Module 1: Core CS Fundamentals, Data Structures & Algorithmic Design

Weeks 1 - 8

Build deep computational intuition: algorithmic complexity, recursion, dynamic programming, graph algorithms, and competitive problem-solving patterns required by tier-1 product companies.

KEY SYLLABUS TOPICS:

- Time & Space Complexity Proofs
- Advanced Trees, Tries & Priority Queues
- Dynamic Programming on Subsequences, Trees & Bitmasks
- Graph Traversal (BFS, DFS, Dijkstra, Tarjan's SCC)

Stack & Tools: TypeScript | Python 3.12 | Go | LeetCode Curated 300+

Module 2: Modern Reactive Frontend Architecture with Next.js & React 19

Weeks 9 - 16

Architect blazing-fast, responsive web applications using React Server Components, server actions, optimistic UI, state synchronization, and accessible design systems.

KEY SYLLABUS TOPICS:

- React Server Components (RSC) & Streaming SSR Architecture
- State Management: Zustand, TanStack Query & Server State
- Tailwind CSS, Radix UI & Motion Micro-Interactions
- WebSockets, Real-Time Collaboration & Optimistic Mutations

Stack & Tools: Next.js 15 | React 19 | TypeScript | Tailwind CSS | Framer Motion

Module 3: Scalable Distributed Backends, Microservices & Databases

Weeks 17 - 26

Engineer resilient distributed backend services. Master SQL query optimization, connection pooling, Redis caching patterns, event-driven streaming with Kafka, and gRPC communication.

KEY SYLLABUS TOPICS:

- Relational Schema Design, Normalization, ACID Transactions & Indexing
- Distributed Caching Patterns (Cache-Aside, Write-Behind, Redis Cluster)
- Event-Driven Architecture with Apache Kafka & RabbitMQ
- gRPC, Protobuf & High-Throughput Microservice Interop

Stack & Tools: Node.js / Express | Go | PostgreSQL | Redis | Apache Kafka | Docker

Module 4: Generative AI Engineering, RAG Pipelines & Autonomous Multi-Agent Swarms

Weeks 27 - 36

Move beyond simple API wrappers. Build production-grade RAG systems with hybrid search, vector embeddings, fine-tuning, autonomous multi-agent systems, and latency evaluation guardrails.

KEY SYLLABUS TOPICS:

- LLM Fundamentals, Tokenization, Attention Mechanics & Prompt Engineering
- Vector Embeddings, Hybrid Search (Dense + Sparse), Chunking & Rerankers
- Vector Databases: Pinecone, Qdrant & pgvector
- Autonomous Multi-Agent Architectures (ReAct, Planning, Tool Calling)

Stack & Tools: OpenAI API | Anthropic Claude | LangChain | LlamaIndex | Pinecone | Qdrant | Ollama

Module 5: Cloud Infrastructure, DevOps, Containerization & CI/CD

Weeks 37 - 44

Package, containerize, and orchestrate scalable applications on the cloud. Master Docker multi-stage builds, Kubernetes pods & ingress, automated GitHub Actions CI/CD, and AWS infrastructure.

KEY SYLLABUS TOPICS:

- Containerization with Docker & Multi-Stage Production Builds
- Kubernetes Pods, Deployments, Services & Ingress Controllers
- CI/CD Pipelines with GitHub Actions, Automated Testing & Linting
- Cloud Architecture on AWS (ECS, S3, CloudFront, RDS, IAM)

Stack & Tools: Docker | Kubernetes | AWS | GitHub Actions | Prometheus | Grafana

Module 6: Enterprise Capstone: Production AI SaaS Platform

Weeks 45 - 52

Build and launch a production-grade multi-tenant AI SaaS application from scratch with authentication, billing, agentic workflows, distributed background jobs, and live user traffic.

FEATURED PRODUCTION CAPSTONES

LLM-Powered B2B SaaS Platform

1,200 Docs Indexed | Sub-1.8s RAG Response

Multi-tenant enterprise SaaS with GPT-4o agentic workflows, Stripe billing, and RAG knowledge base

Built a fully production-deployed multi-tenant SaaS with Next.js 15 App Router, Supabase row-level security, LangChain RAG

Technologies: Next.js 15 | Supabase | LangChain | Qdrant | Stripe | AWS ECS

Real-Time Collaborative Code Editor

500 Concurrent Users | 60ms Sync Latency

VS Code-like browser IDE with CRDT sync, Monaco editor, code execution sandbox, and AI pair-programming

Engineered with Yjs CRDTs for conflict-free collaborative editing across 500+ concurrent users, Monaco Editor, Docker-isolated

Technologies: TypeScript | Yjs | Monaco | Docker | Redis | Go

INDUSTRY LEADERSHIP & MENTORSHIP FACULTY

Google

Staff Software Engineer | Google

11+ yrs engineering scale | Distributed Systems

Amazon Web Services

Principal AI Architect | Amazon Web Servic

10+ yrs enterprise systems | AI/ML Specialist

Microsoft

Senior Engineering Manager | Microsoft

9+ yrs building scale | Cloud & Developer Tools

ADMISSIONS & TUITION FINANCING

Total Program Fee	Flexible 0% EMI	Scholarship Support
INR 1,25,000	**INR 7,200 / month**	**Up to 35% Merit Scholarship**

** Zero-cost 12/18 month EMI options available via Zindern educational financing partners.*

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