

PREMIER TECHNOLOGY &amp; SKILL EDUCATION

# GENERATIVE AI & PROMPT ENGINEERING

Master Large Language Models (LLMs), Transformer Architectures, Prompt Engineering, Retrieval-Augmented Generation (RAG), Vector Databases, Diffusion Models & AI Agents through 70% hands-on model deployment and production AI pipelines.

**1 YEAR**48 WEEKS  
COMPREHENSIVE**70 : 30**HANDS-ON LABS :  
THEORY**25+**PRODUCTION GEN AI  
APPS**100%**

PLACEMENT SUPPORT

LLMs &amp; Transformers • Advanced Prompting &amp; RAG • LangChain &amp; AI Agents • Diffusion &amp; Multimodal • AI Governance

**WINNOVATION EDUCATION PVT. LTD.**Building Careers Since 2017 | Greater Noida,  
Delhi NCRHotline: +91 92112 28030 | Email:  
[admissions@winnovation.org](mailto:admissions@winnovation.org)Web: [www.winnovation.org](http://www.winnovation.org) | Campus: 1157, i-Thum Galleria,  
Alpha 2

# Accelerate Your Career with Winnovation

Bridging the divide between speculative AI hype and enterprise-grade generative intelligence engineering.



"At Winnovation, our purpose is driven by the **future of our youth**. Generative Artificial Intelligence is redefining global industries, cognitive automation, and creative problem solving. We established Winnovation to bridge the divide between speculative AI hype and enterprise-grade software architecture—ensuring our students master **Large Language Models, Retrieval-Augmented Generation (RAG), multimodal diffusion, and autonomous agents** to solve real enterprise challenges while strictly upholding responsible AI governance."

**Sarbarinder Singh**

Director, Winnovation Education Pvt. Ltd.

"Win With Winnovation"

Recognized Skill Incubator

## NEP 2020 & Competency-Based Education (CBE) Blueprint

Winnovation curricula strictly align with India's **National Education Policy (NEP 2020)** and **CBSE Vocational Skill Education** paradigms. We replace rote memorization with experiential problem solving using Bloom's Taxonomy.

### 70% Hands-On AI Labs

Building live conversational AI systems, fine-tuning LLMs with LoRA/QLoRA, and architecting RAG pipelines using Pinecone and ChromaDB.

### Enterprise Responsible AI

Rigorous adherence to ethical AI principles, bias detection, hallucination guardrails, and compliance with India's **DPDP Act, 2023**.

### Outcome-Driven Portfolios

Every module produces verifiable public software systems (document Q&A engines, multimodal marketing studios, autonomous agents).

## CBSE Vocational Assessment Scheme (100 Marks Blueprint)

| Assessment Component                   | Weightage | Evaluation Criteria                                                              | Frequency                      |
|----------------------------------------|-----------|----------------------------------------------------------------------------------|--------------------------------|
| Continuous Formative AI Sprints        | 30 Marks  | Weekly prompt engineering labs, vector search setups, and agent testing          | Weekly Milestones (12 Sprints) |
| Mid-Term LLM & RAG Hackathon           | 20 Marks  | Live 4-hour hackathon building an end-to-end RAG knowledge assistant             | End of Month 1 & Month 2       |
| Comprehensive Production Capstone      | 20 Marks  | Full production AI system (Enterprise RAG, Multi-Agent Copilot, Creative Studio) | Final Capstone Showcase        |
| Certified AI Code Repository & Journal | 15 Marks  | GitHub repository with clean modular code, evaluation metrics & live demos       | Terminal Evaluation            |
| Technical Whiteboard & Model Viva      | 15 Marks  | Oral defense justifying prompt architecture & guardrails before AI jury          | Final SDE Jury Review          |

# Surging Global Demand for Generative AI Engineers

Transforming enterprise automation, cognitive workflows, and creative production across global technology and Fortune 500 enterprises.

## 88%

### Enterprises Adopting Gen AI

Companies across SaaS, FinTech, Healthcare, and E-Commerce actively recruit certified Gen AI and LLM prompt engineers.

## 3.8×

### Higher Compensation Multiplier

Specialists who combine Python engineering with LLM prompt architecture and RAG pipelines command premium industry packages.

## \$1.3T

### Projected Global AI Market

Unprecedented exponential expansion creating over 1.2 million new cognitive computing and AI engineering jobs globally.

## Industry Salary Potential in India (AmbitionBox & Levels.fyi Benchmarks)

### Entry-Level (0 – 2 Years)

## ₹8 – ₹16 LPA

**Target Roles:** Junior AI Engineer, Prompt Engineer, LLM Application Developer, AI Content Automation Specialist.

### Mid-Level (3 – 6 Years)

## ₹16 – ₹32 LPA

**Target Roles:** Senior Generative AI Engineer, RAG Systems Architect, AI Solutions Consultant, ML Specialist.

### Senior-Level (7+ Years)

## ₹32+ – ₹65+ LPA

**Target Roles:** Principal AI Architect, Head of Generative AI, Director of AI Engineering, Chief AI Officer.

## Who Should Pursue This Program?

### Computer Science & IT Graduates

B.Tech, BCA, MCA, and M.Sc students looking to master cutting-edge generative AI, transformer architectures, and modern agentic workflows.

### Software Engineers & Developers

Software professionals looking to transition from traditional software development to high-paying generative AI engineering and RAG design.

### Entrepreneurs & Startup Founders

Founders seeking to build AI-native SaaS products, intelligent conversational assistants, and automated cognitive workflow pipelines.

### Product Managers & Analytics Leads

Technical leads wanting to master enterprise prompt engineering, LLM evaluation metrics, multimodal workflows, and AI integration.

**THE ECONOMIC TIMES:** “Generative AI and Prompt Engineering lead the fastest-growing technology job categories across India’s tech hubs.”  
**GARTNER:** “By 2026, generative AI will be integrated into over 80% of enterprise software applications worldwide.”

# Roadmap to Master Generative AI

A structured competency ladder transforming learners into production-ready Generative AI architects and LLM engineers.

1

## AI Foundations, Python & Neural Network Basics

Weeks 1 – 8 (Months 1–2)

Master Python for AI, numerical computing with NumPy and Pandas, deep learning fundamentals, backpropagation, and pre-trained NLP pipeline execution.

2

## Transformer Architectures & Attention Mechanisms

Weeks 9 – 16 (Months 3–4)

Deconstruct the Transformer model, multi-head self-attention mechanics, encoder-decoder models (BERT/T5), decoder-only LLMs (GPT/LLaMA), and Byte-Pair tokenization.

3

## Advanced Prompt Engineering & Cognitive Patterns

Weeks 17 – 24 (Months 5–6)

Implement zero-shot, few-shot, Chain-of-Thought (CoT), Tree-of-Thoughts, directional stimulus prompting, structured JSON output extraction, and prompt evaluations.

4

## Retrieval-Augmented Generation (RAG) & Vector DBs

Weeks 25 – 32 (Months 7–8)

Build semantic search architectures with dense text embeddings, recursive document chunking, vector databases (ChromaDB, Pinecone, FAISS), and hybrid retrieval.

5

## LangChain, LlamaIndex & Autonomous AI Agents

Weeks 33 – 40 (Months 9–10)

Orchestrate multi-step LLM chains, conversational memory buffers, external tool execution (function calling), and autonomous multi-agent systems using LangGraph.

6

## Multimodal Diffusion, Model Fine-Tuning & Deployment

Weeks 41 – 48 (Months 11–12)

Deploy vision LLMs, Stable Diffusion text-to-image models, parameter-efficient fine-tuning (LoRA/QLoRA), FastAPI model serving, safety guardrails, and interview defense.

## The CAISEN Immersive Learning Cycle

### 1. STUDY

Live masterclasses & 1:1 expert mentoring with 24x7 recordings.

### 2. ATTEMPT

Daily timed prompt engineering drills & vector embedding exercises.

### 3. MAKE

Build live production RAG pipelines & deploy AI agent workflows.

### 4. REVISE

Model evaluation benchmarks, hallucination audits & safety tests.

### 5. TEST

Mock whiteboard rounds before senior engineering leaders & FAANG juries.

# Curriculum Blueprint: Month 1 & 2

AI foundations, neural computing, Large Language Models, and advanced prompt engineering.

## Month 1: Foundations of AI, Python & Neural Networks

Weeks 1 – 12 | 120 Contact Hours

### Core Theoretical & Applied Topics

- Introduction to AI & ML: History and evolution of Generative AI, rule-based vs statistical vs neural models
- Python for AI: Vectorized operations with NumPy, data manipulation in Pandas, tensor basics in PyTorch
- Neural Network Mechanics: Perceptrons, activation functions (ReLU, GELU), loss functions, backpropagation
- Natural Language Processing: Text tokenization, n-grams, TF-IDF, Word2Vec, GloVe embeddings
- Pre-trained Models: Hugging Face ecosystem, loading transformer weights, transfer learning pipelines
- Ethics, Bias & Safety: Algorithmic bias, intellectual property, hallucinations, and DPDP Act 2023 compliance

### Guided Laboratory Practical & Takeaways

- **Lab 1:** Python tensor pipeline training a multi-layer neural network for text classification
- **Lab 2:** Pre-trained Hugging Face transformer pipeline for zero-shot text generation
- **Lab 3:** Algorithmic bias and toxicity audit benchmark evaluating language model outputs
- **Competency:** Python AI computation, neural network training, responsible AI governance

### Milestone Capstone 1: Enterprise Document Summarization & Sentiment Intelligence Engine

A production Python system utilizing Hugging Face transformer pipelines to ingest long-form corporate reports, generate executive summaries, and perform multi-dimensional sentiment scoring.

## Month 2: Large Language Models, Transformers & Prompt Engineering

Weeks 13 – 24 | 120 Contact Hours

### Core Theoretical & Applied Topics

- LLM Landscape: Understanding GPT-4, LLaMA 3, Claude 3.5 Sonnet, Gemini 1.5, and open-source models
- Transformer Architecture: Self-attention mechanisms, scaled dot-product attention, multi-head attention
- Tokenization & Embeddings: Byte-Pair Encoding (BPE), token cost optimization, managing context windows
- Prompt Engineering Fundamentals: System instructions, role prompting, zero-shot and few-shot exemplars
- Advanced Prompting Patterns: Chain-of-Thought (CoT), Tree-of-Thoughts, ReAct pattern, self-consistency
- Output Structuring & Security: JSON mode, Pydantic validation, prompt injection defense, red-teaming

### Guided Laboratory Practical & Takeaways

- **Lab 4:** Multi-persona prompt engineering suite generating deterministic, schema-validated JSON
- **Lab 5:** Automated Chain-of-Thought reasoning engine solving multi-step logical & math puzzles
- **Lab 6:** LLM evaluation harness benchmarking accuracy, hallucination rates, and latency
- **Competency:** Advanced prompt architecture, hallucination reduction, structured schema extraction

### Milestone Capstone 2: Multi-Persona Enterprise AI Content Generator & Compliance Validator

An automated generative suite creating targeted marketing copy, technical documentation, and customer responses with automated schema validation and corporate brand voice compliance.

# Curriculum Blueprint: Month 3 & Enterprise AI

RAG architectures, vector databases, autonomous agents, diffusion models, and cloud deployment.

## Month 3: RAG Architectures, Autonomous Agents & Multimodal AI

Weeks 25 – 48 | 240 Contact Hours

### RAG Architectures & Vector Systems

- Vector Embeddings: Dense representations with OpenAI text-embedding-3 and BGE models
- Vector Databases: Indexing and query execution in ChromaDB, Pinecone, and FAISS
- Advanced RAG Pipelines: Semantic chunking, metadata filtering, query rewriting, re-ranking
- LangChain & LlamaIndex: Modular chains, prompt templates, vector retrievers, output parsers
- Autonomous AI Agents: ReAct loops, tool execution, external API calling, memory stores
- LangGraph Workflows: Multi-agent coordination, human-in-the-loop validation, stateful graphs

### Multimodal, Fine-Tuning & Deployment

- Multimodal LLMs: Image understanding with GPT-4o, audio transcription with Whisper
- Diffusion Models: Stable Diffusion text-to-image architecture, latent space manipulation
- Parameter-Efficient Fine-Tuning: PEFT, LoRA, and QLoRA for domain-specific adaptations
- Production Serving: Model APIs with FastAPI, web frontends in Streamlit / Next.js
- AI Safety & Monitoring: Hallucination guardrails (NeMo), telemetry with LangSmith
- FAANG Technical Sprints: Whiteboarding AI system design, prompt security, portfolio defense

### Milestone Capstone 3: Autonomous Enterprise Knowledge Base Assistant with Hybrid RAG & Re-ranking

A cloud-native conversational AI assistant indexing hundreds of complex enterprise PDFs, performing hybrid keyword-vector retrieval with Cohere re-ranking, and providing verifiable cited answers with zero hallucinations.

## Industry Standard Generative AI & Engineering Stack

### Foundation Models & APIs

- OpenAI (GPT-4o, Embeddings)
- Anthropic Claude 3.5 Sonnet
- Meta LLaMA 3 & Mistral AI
- Google Gemini 1.5 Pro & Hugging Face

### RAG & Orchestration Frameworks

- LangChain & LangGraph
- LlamaIndex Data Framework
- Vector DBs: Pinecone, Chroma, FAISS
- Cohere Re-ranker & Unstructured.io

### Multimodal, Dev & Serving Tools

- PyTorch & Hugging Face PEFT/LoRA
- Stable Diffusion & Midjourney
- FastAPI, Streamlit, Docker & AWS
- LangSmith & Weights & Biases

**Certification Alignment:** Fully prepares candidates for AWS Certified AI Practitioner, Google Cloud Professional Machine Learning Engineer, and EC-Council Certified AI Security Specialist **Enterprise AI Ready** credentials.

# Industry-Ready Project Portfolio

Production-grade Generative AI applications and autonomous agent pipelines engineered for enterprise scale.

## Project 1: Enterprise Hybrid Agentic RAG & GraphRAG Multi-Source Intelligence Engine

LlamaIndex + Neo4j + Qdrant + Cohere Rerank

**Business Problem:** Fortune 500 enterprise requires an audit-compliant cognitive search engine over 100,000+ SEC filings, engineering schematics, and tabular reports with verifiable citation lineage and zero hallucination.

Multi-Format Doc  
Ingestion



GraphRAG Entity  
Extraction (Neo4j)



Qdrant Dense/Sparse  
Hybrid Index



Guardrails-Verified  
Synthesis (Ragas)

**Deliverable:** Production enterprise GraphRAG pipeline in FastAPI combining vector search with Neo4j entity graphs, reciprocal rank fusion (RRF), Ragas faithfulness scoring (>0.94), and sub-800ms latency.

## Project 2: Autonomous Multi-Agent Software Engineering & Code Review Copilot

LangGraph + Claude 3.5 Sonnet + Docker + Tree-sitter

**Business Problem:** Engineering teams face code review bottlenecks and test suite regressions, requiring an autonomous multi-agent swarm to analyze pull requests, generate unit tests, and patch security vulnerabilities.

GitHub Webhook  
PR Event



Planner Agent  
AST Analysis



Code & Test  
Generator Agent



Sandboxed Docker  
Test Verification

**Deliverable:** Multi-agent autonomous code swarm orchestrating planner, coder, and critic agents with human-in-the-loop approvals, automated AST parsing with Tree-sitter, and isolated Docker container execution.

## Project 3: Enterprise Multimodal Generative Studio & Fine-Tuned LoRA Asset Engine

FLUX.1 / SDXL + ComfyUI + LoRA + GPT-4o Vision

**Business Problem:** Global commercial brands require on-demand photorealistic product visual generation and localized marketing ad copy while enforcing rigorous corporate typography, brand palettes, and style consistency.

Creative Brief &  
Style Tokens



LoRA-Conditioned  
Diffusion Engine



ControlNet Pose  
& Edge Lock



Multi-Channel Brand  
Asset Delivery

**Deliverable:** High-throughput distributed visual generation microservice serving custom enterprise LoRA adapters, ControlNet spatial conditioning, automated safety moderation, and programmatic asset exports.

# Industry-Recognized Certifications

4 official credentials validating your generative AI engineering, prompt architecture, and enterprise cloud skills to global recruiters.



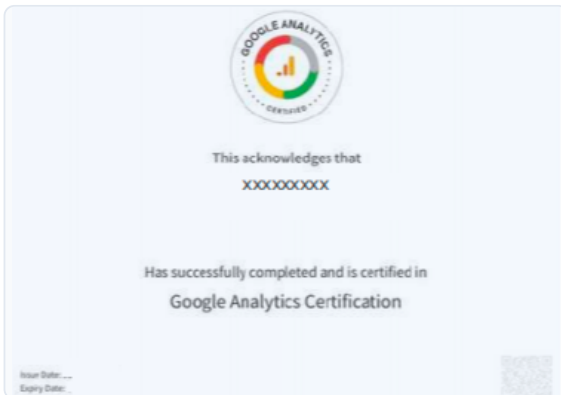
## Winnovation Master Certificate in Gen AI

Awarded on successful completion of 48 weeks of intensive 1-year training, 15+ production Gen AI applications, and jury defense of all 3 milestone capstones. Features verified QR code.



## Executive AI Security & Governance Credential

ANSI-accredited international certification validating secure AI development lifecycles, prompt injection defense, model safety, and responsible AI governance.



## Google Cloud Professional Machine Learning

Industry gold standard credential verifying proficiency in scalable cloud AI architectures, Vertex AI, foundation model fine-tuning, and MLOps deployment.



## AWS Certified AI Practitioner Credential

Official Amazon Web Services credential validating foundational knowledge of generative AI concepts, AWS Bedrock, Amazon SageMaker, and responsible AI implementations.

### Curriculum Endorsed & Co-Accredited By Global Learning Standards

Google Cloud Recognized • AWS Academy Partner • NASSCOM FutureSkills Prime • EC-Council Accredited • Open Source AI Community Aligned

# Learn from Industry Experts

Seasoned AI researchers, transformer architects, and enterprise prompt engineers guiding you through every lab, pipeline, and model defense.

**Abhishek Mishra****8+ Yrs Exp****Senior AI & Generative Modeling Lead**

Specializes in deep transformer architectures, PyTorch fine-tuning with LoRA/QLoRA, Large Language Model alignment, and production API serving.

LLM Alignment

LoRA / QLoRA

PyTorch AI

**Surekha Kanwar****10+ Yrs Exp****Senior AI Research & Neural Systems Specialist**

Expert in vector embeddings mathematical modeling, semantic search optimization, high-dimensional similarity metrics, and NLP feature spaces.

Vector Search

Embeddings

Transformer NLP

**Saurabh Dwivedi****5+ Yrs Exp****Senior Cloud AI & MLOps Infrastructure Lead**

Architects cloud AI serving pipelines on AWS Bedrock, Pinecone vector clusters, model quantization, and low-latency API gateways.

AWS Bedrock

Pinecone Clusters

Cloud MLOps

**Nisha Pal****5+ Yrs Exp****Senior AI Application & User Experience Lead**

Crafts full-stack AI user interfaces in Streamlit, Next.js, FastRTC conversational interfaces, and interactive prompt evaluation portals.

LangChain UI

Streamlit Apps

AI Interfaces

**Arun Kumar****5+ Yrs Exp****Senior Edge AI & Model Optimization Engineer**

Focuses on Small Language Models (SLMs), model quantization with GGUF / AWQ, edge LLM deployment, and fast local inference engines.

GGUF / AWQ

Small Language Models

Edge AI

**Priyanka Saini****7+ Yrs Exp****Senior Multimodal AI & Creative Systems Lead**

Directs diffusion model workflows with Stable Diffusion, vision-language model integration (GPT-4o), and automated AI creative pipelines.

Diffusion Models

Vision LLMs

Multimodal AI

**Pavneet Kaur****5+ Yrs Exp****Senior AI Career Coach & Interview Strategist**

Prepares candidates for elite AI technical interviews, whiteboarding system design rounds, and behavioral defense before corporate juries.

System Whiteboard

STAR Defense

AI Careers

**Diksha Sachan****8+ Yrs Exp****Head of Technical Curriculum & Prompt Engineering**

Designs advanced prompt patterns (CoT, ReAct), LangChain autonomous agent workflows, and enterprise Retrieval-Augmented Generation labs.

Advanced Prompting

LangChain / Agents

RAG Systems

**Prince Pal****5+ Yrs Exp****Enterprise AI Safety & Governance Specialist**

Ensures prompt injection defense, LLM output guardrails (NeMo), algorithmic bias mitigation, and compliance with the DPDP Act 2023.

AI Guardrails

Prompt Security

DPDP Act 2023

**1:1 Dedicated AI Mentorship & Live Pipeline Reviews**

Weekly personalized office hours, model architecture reviews, and mock technical whiteboard interviews tailored to your target AI engineering role.

**50+ Hours Live Mentorship**

# Student Success Stories

Hear how Winnovation graduates transitioned into high-growth Generative AI and cognitive engineering roles.

**Syed Vernice Kashani****B.Tech (CSE)****Generative AI Engineer**

"Mastering Generative AI and RAG architectures at Winnovation was a game-changer for my career. The hands-on labs with LangChain, Pinecone, and LLM fine-tuning gave me the exact skills needed to build production AI systems."

**Prabjyot Singh****B.Tech (CSE)****Enterprise AI Solutions Associate**

"I am deeply grateful to Winnovation for providing cutting-edge training in Large Language Models and vector databases. The faculty made complex concepts like attention mechanisms and LoRA fine-tuning clear and actionable."

**Rabinder Singh****Govt. Technical Trainer****Senior AI & Cognitive Systems Trainer**

"Winnovation's structured curriculum bridges academic concepts and production AI deployment. Mastering advanced prompt patterns and autonomous agents elevated my technical problem-solving and teaching career."

**Suhaib Muzaffar****B.Tech (CSE)****LLM Application Developer**

"I sincerely thank Winnovation and mentors Mr. Abhishek Mishra and Ms. Diksha Sachan for equipping me with real-world knowledge in prompt engineering and LangChain. The placement support gave me complete confidence."

**Lakshay Suryavanshi****RA at NextX Tech****Generative AI Research Associate**

"The practical training at Winnovation gave us direct exposure to production AI models, hybrid RAG pipelines, and diffusion systems. Building real capstone projects set my portfolio apart during hiring rounds."

**Aryan Choudhary****B.Tech (CSE)****Junior AI Software Engineer**

"The practical training I received in Generative AI, PyTorch, and Vector Search from Winnovation played a decisive role in shaping my career path. Their guidance and mock interviews prepared me to succeed."

**100% Placement Record: Highest AI Package: ₹22 LPA | Average Starting CTC: ₹8.5 LPA****Verified Alumni Network**

## Backed by 100+ Hiring Partners

Leading technology enterprises, cutting-edge AI startups, and global multinationals recruiting Winnovation AI engineers.

**SAMSUNG****SOTI****vivo****SOPHOS****FORTRA****Emcure****we360.ai****Medtronic****FORTINET****100+****Active Corporate Recruiters**

AI Product Companies, Unicorns &  
Global IT MNCs

**15+****Interview Drives Annually**

Exclusive On-Campus & Direct Hiring  
Drives

**100%****Placement Assistance**

GitHub reviews, mock whiteboards &  
SDE interviews

# Holistic Guidance & Admissions

The complete CAISEN support framework powering your journey from aspiring learner to elite Generative AI engineer.

## CAISEN 10 Core Competencies for Generative AI & Cognitive Excellence

Transformer Logic

Prompt Architecture

Vector Search

RAG Pipelines

Autonomous Agents

Model Fine-Tuning

Multimodal AI

Clean Code Architecture

AI Ethics &amp; Safety

FAANG Whiteboarding

### 100% SDE Placement Support

Dedicated placement cell conducting exclusive hiring rounds with top product tech enterprises until successful career placement.

### AI & GitHub Portfolio Building

ATS-compliant tech resume architecture, GitHub repository optimization, and production AI model audits by senior architects.

### Rigorous Mock Whiteboards

Simulated 1-on-1 technical whiteboard rounds, live prompt defense, and behavioral STAR interviews before AI engineering leads.

### Lifetime Code Repository Access

Unlimited access to high-definition recorded masterclasses, project notebooks, and continuously updated prompt template libraries.

### Personal Tech Mentorship

Individual career mentoring, technical project roadmap guidance, and personal coaching to overcome technical bottlenecks.

### 24x7 Coding Community & TAs

Dedicated Discord and WhatsApp peer discussion channels with active teaching assistants resolving code queries within minutes.

## The Winnovation Technology Ecosystem

Generative AI &amp; Prompt Engineering

Full Stack Web Development

Data Structures &amp; Algorithms (DSA)

Data Science &amp; AI/ML

Data Analytics &amp; BI

Digital Marketing &amp; Growth

Cloud Computing &amp; DevOps

Internet of Things (IoT)

Cyber Security &amp; CEH

### Ready to Master Generative AI & Prompt Engineering?

**Website:** [www.winnovation.org](http://www.winnovation.org)

**Admissions Email:** [admissions@winnovation.org](mailto:admissions@winnovation.org) | [abhishek@winnovation.org](mailto:abhishek@winnovation.org)

**Mobile & Helpline:** +91 92112 28030 / +91 92112 28031

**Campus Headquarters:** 1157, i-Thum Galleria, Alpha 2, Greater Noida, Uttar Pradesh - 201308

### ADMISSIONS OPEN

Batch Size: 25 Students  
Max

**APPLY TODAY**