Program Catalog Page: Applied Generative AI and its Applications (GenAI)

Program Overview

- **Program Main Code Name:** GenAI

- **Program Code:** GenAI

- **Program Length:** 16 Weeks (4 Months)

- **Total Contact Hours:** 192 Hours

- **Total Credit Hours:** 7.6 Credits

- **Delivery Method:** In-person Live Instructor-Led, Virtual Live Instructor-Led, or 1-on-1 Personalized Mentorship

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Admissions Requirements

Applicants must:

- Hold a high school diploma or GED

- Be at least 18 years old (or have parental/legal guardian consent if under 18)

- Demonstrate familiarity with Python programming

- Successfully complete the NVIT Admissions Interview

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Program Description

The **Applied Generative AI and its Applications (GenAI)** program delivers an immersive, project-based experience into the world of Generative AI. Students gain real-world skills in building, fine-tuning, and deploying AI models for creative, design, media, and practical applications.

Graduates will:

- Build and deploy generative AI applications for image, text, voice, and video.
- Fine-tune GANs, VAEs, Diffusion Models, and Large Language Models (LLMs).
- Create AI Agents and multimodal content systems.
- Apply LLMOps, Retrieval-Augmented Generation (RAG), and voice cloning techniques.
- Implement responsible AI practices focusing on ethics, governance, and safety.

Occupations for Which Training Will Be Provided

- Generative AI Engineer
- Creative AI Developer
- LLM Application Designer
- AI Researcher / AI Artist
- Prompt Engineer for GenAI Workflows

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Work Settings for Program Graduates

- AI Innovation Labs and Research Teams

- Creative Media, Gaming, and Storytelling Industries

- UX/UI Product Development Teams

- AI Startups and Consulting Firms

- Freelance AI Development

Instructional Components

Instructional Component	Hours
Live Lectures (LIT) + Live Proctored Exams (LPE)	49
Labs & Projects (LLP)	80
On-the-Job Training (OJT)	36
Capstone Project (CAP)	27
Total Contact Hours	**192**
Total Credit Hours	**7.6**

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Course Outline

Subject #	Subject Title	Lecture Hrs	Lab/Project Hrs	OJT + Capstone Hrs	Contact Hrs	Credit Hrs
GenAI 101	Foundations of Generative AI	6	18	0	24	1.0
GenAI 102	Generative Neural Networks (GANs & VAEs)	6	18	0	24	1.0
GenAI 103	Diffusion Models & Stable Diffusion	6	18	0	24	1.0
GenAI 104	LLMs & Prompt Engineering	6	18	0	24	1.0
GenAI 105	Multimodal & Creative AI	6	18	0	24	1.0
GenAI 106	AI Agents, Voice, and Real-Time Applications	6	18	0	24	1.0
GenAI 107	Ethics, Bias, Safety, and Governance in GenAI	3	9	0	12	0.5

Subject #	Subject Title	Lecture Hrs	Lab/Project Hrs	OJT + Capstone Hrs	Contact Hrs	Credit Hrs
GenAI 108	Capstone Project & Showcase	2	2	32	36	2.5

Subject Descriptions

GenAI 101 – Foundations of Generative AI

(Weeks 1–2 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Understand the core principles of Generative AI, including generative modeling techniques.

• Differentiate between GANs, VAEs, Diffusion Models, and LLMs.

• Explore applications of GenAI in various industries (art, media, healthcare, gaming).

Prerequisite: Basic Python programming knowledge

Tools: Google Colab, OpenAI Playground

GenAI 102 – Generative Neural Networks (GANs & VAEs)

(Weeks 3–4 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Build and train basic Generative Adversarial Networks (GANs).

• Implement Variational Autoencoders (VAEs) for data generation.

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• Analyze training instability issues and apply stabilization techniques.

Prerequisite: GenAI 101 – Foundations of Generative AI

Tools: TensorFlow, PyTorch, Hugging Face

GenAI 103 – Diffusion Models & Stable Diffusion

(Weeks 5–6 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Understand and implement diffusion-based generative models.

• Fine-tune Stable Diffusion models for image generation tasks.

• Explore latent diffusion and conditional generation workflows.

Prerequisite: GenAI 102 – Generative Neural Networks (GANs & VAEs)

Tools: Hugging Face Diffusers, DreamBooth

GenAI 104 – LLMs & Prompt Engineering

(Weeks 7–8 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Understand Large Language Models (LLMs) and tokenization techniques.

• Apply prompt engineering to control outputs for tasks like summarization, Q&A, and chatbots.

• Explore few-shot, zero-shot, and chain-of-thought prompting strategies.

Prerequisite: GenAI 103 – Diffusion Models & Stable Diffusion

Tools: OpenAI API, Hugging Face Transformers

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GenAI 105 – Multimodal & Creative AI

(Weeks 9–10 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Design AI systems combining text, image, audio, and video inputs/outputs.

• Work with CLIP models, DALL·E, and Imagen architectures.

• Build applications for generative storytelling, art, and video synthesis.

Prerequisite: GenAI 104 – LLMs & Prompt Engineering

Tools: OpenAI CLIP, DALL·E, Runway ML

GenAI 106 – AI Agents, Voice, and Real-Time Applications

(Weeks 11–12 | Lec 6 Hrs / Lab 18 Hrs / Ext 0 Hrs | 24 Total Hrs | 1.0 Credit Hour)

Students will:

• Build autonomous AI agents capable of real-world tasks (search, retrieval, execution).

• Implement voice cloning and text-to-speech generation.

• Integrate real-time LLM pipelines for dynamic interaction.

Prerequisite: GenAI 105 – Multimodal & Creative AI

Tools: LangChain, ElevenLabs, OpenAI APIs

GenAI 107 – Ethics, Bias, Safety, and Governance in GenAI

(Weeks 13 | Lec 3 Hrs / Lab 9 Hrs / Ext 0 Hrs | 12 Total Hrs | 0.5 Credit Hour)

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Students will:

• Analyze bias, fairness, and explainability challenges in Generative AI.

• Apply AI ethics frameworks and governance best practices.

• Understand current and emerging regulations impacting GenAI use.

Prerequisite: GenAI 106 – AI Agents, Voice, and Real-Time Applications

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GenAI 108 – Capstone Project and Showcase

(Weeks 14–16 | Lec 2 Hrs / Lab 2 Hrs / OJT + Capstone 32 Hrs | 36 Total Hrs | 2.5 Credit Hours)

Students will:

• Complete a real-world Generative AI project applying full program concepts.

• Develop, document, and deploy a creative AI solution or product.

• Present a final portfolio including working demos, project reports, and model deployment.

Prerequisite: GenAI 107 – Ethics, Bias, Safety, and Governance in GenAI

Class Schedule:

- **Day Students:** Monday and Wednesday, 9:30 AM – 12:30 PM
- **Afternoon Students:** Monday and Wednesday, 1:30 PM – 4:30 PM
- **Evening Students:** Monday and Wednesday, 6:00 PM – 9:00 PM
- **Weekend Students:** Thursday to Saturday (Morning, Afternoon, Evening)
- **Virtual Mentorship Students:** 8–10 flexible hours/week
- Day students will attend class Monday through Wednesday.

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- Weekend students will attend class Thursday through Saturday.

- A 10-minute break will be taken every instructional hour for all in-person students.

- Lunch break for day students is from 12:30 PM to 1:30 PM.

- Evening students have a 10-minute break every instructional hour but no meal break.

Dates School Will Be Closed:

- New Year's Day

- Martin Luther King Day

- Presidents' Day

- Good Friday

- Memorial Day

- Independence Day

- LBJ's Birthday

- Labor Day

- Veteran's Day

- Thanksgiving Day

- Day After Thanksgiving

- Christmas Eve

- Christmas Day

- Day After Christmas

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Class Start Dates:

- Classes for all students (Day, Afternoon, Evening, Weekend) begin **May 26, 2025**.

- New classes start approximately every eight weeks for in-person students.

- Virtual Mentorship students have rolling admissions with flexible start dates.

Tuition and Fees

Fee Type	Cost
Registration Fee	$50.00
Books and Supplies (estimated)	~$400.00
Background Check (if applicable)	$150.00
Tuition (In-person Live Instruction)	$4,999.00
Tuition (Virtual Live Instruction)	$3,199.00
Tuition (1-on-1 Virtual Mentorship)	$5,999.00

Total Program Cost:

- **In-person:** $5,599.00

- **Virtual Live:** $4,199.00

- **Virtual Mentorship:** $6,599.00

Cost Per Single Subject

Hourly Tuition Rate (Based on Total Program Cost Divided by 192 Contact Hours):

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- **In-Person:** $29.16 per hour
- **Virtual Live:** $21.87 per hour
- **Virtual Mentorship:** $34.37 per hour

Each single subject cost is calculated based on the tuition per contact hour multiplied by the number of contact hours for each subject.

Subject Code	Subject Title	Contact Hours	In-Person Cost	Virtual Live Cost	Virtual Mentorship Cost
GenAI 101	Foundations of Generative AI	24	$699.84	$524.88	$824.88
GenAI 102	Generative Neural Networks (GANs & VAEs)	24	$699.84	$524.88	$824.88
GenAI 103	Diffusion Models & Stable Diffusion	24	$699.84	$524.88	$824.88
GenAI 104	LLMs & Prompt Engineering	24	$699.84	$524.88	$824.88
GenAI 105	Multimodal & Creative AI	24	$699.84	$524.88	$824.88
GenAI 106	AI Agents, Voice, and Real-Time Applications	24	$699.84	$524.88	$824.88

Subject Code	Subject Title	Contact Hours	In-Person Cost	Virtual Live Cost	Virtual Mentorship Cost
GenAI 107	Ethics, Bias, Safety, and Governance in GenAI	12	$349.92	$262.44	$412.44
GenAI 108	Capstone Project & Showcase	36	$1,049.76	$787.32	$1,237.32

Important Note

Registration Fee, Books and Supplies, and Background Check are already included in the total program cost calculations but apply separately if students enroll in individual subjects only.