



(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G. Chidambara Nadar - C Nagammal Campus
S.P.G.C. Nagar, K. Vellakulam - 625 701 (Near VIRUDHUNAGAR)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Industry Certified Value Added Course on

“Comprehensive AI Creation & Innovation Boot Camp ”

14-07-2025 to 19-07-2025 (2025 – 2026 ODD)

COURSE OBJECTIVES

- Apply foundational knowledge of GPT models, GANs, and diffusion models to solve practical AI problems.
- Utilize advanced AI tools including OpenAI's GPT, Stable Diffusion, DALL•E, and Hugging Face Transformers.
- Implement responsible AI practices with ethical considerations and bias mitigation techniques.
- Construct custom AI models, chatbots, and web applications using modern deployment platforms.
- Execute complete end-to-end AI projects integrating multiple generative AI technologies.

UNIT 1: Foundations of Generative AI

(9 Hours)

Introduction to Generative AI concepts and definitions - History and evolution of Generative AI
- Overview of use cases and applications with visual demonstrations - Deep dive into core AI models: GPT (Generative Pre-trained Transformers), GANs (Generative Adversarial Networks), Diffusion Models (including Stable Diffusion)- Ethical considerations in Generative AI - Hands-on Activity: "GenAI in Your Life" - Case study analysis and group discussions

UNIT 2: Text Generation with GPT Models

(9 Hours)

Introduction to OpenAI's GPT models and architecture - Fine-tuning vs Prompt Engineering techniques - GPT tools and APIs overview - Understanding how GPT chatbots work - Building your first GPT chatbot - Customizing chatbot behavior and responses - Group Activity: "Prompt Tuning Challenge" - Practical experimentation with text generation models

UNIT 3 : Image Generation with GANs and Diffusion Models (9 Hours)

Comprehensive introduction to GANs and their applications - Understanding diffusion models and their mechanisms - Comparative analysis: GANs vs Diffusion Models - Tool setup and orientation for image generation - Prompt engineering techniques for image creation - Hands-on tasks using Stable Diffusion and DALL.E - Guided Activity: Create 3 themed images - Image modification tasks (inpainting/outpainting).

UNIT 4 : Advanced Techniques and API Integration (9 Hours)

Introduction to Hugging Face ecosystem - Hugging Face Transformers Library fundamentals - Fine-tuning basics for custom model development - Advanced API integration techniques - Mini-project ideas and briefing - Hands-on project development time - Integration of text and image generation tools - Creating custom pre-trained models for Hugging Face deployment

UNIT 5 : Multimodal AI and Professional Development (9 Hours)

Multimodal AI Applications: Text + Image + Audio + Video integration , Hands-on with multimodal tools , Story generator with voice narration creation - **App Development and Deployment:** Introduction to Gradio and Streamlit , Building and testing GenAI web applications , Deployment to Hugging Face Spaces - **Career Development:** Career opportunities in Generative AI, Industry applications and real-world use cases, Career path guidance and interview preparation, Final project presentations and feedback , Post-training resources and continued learning pathways.

COURSE OUTCOMES

Total: 45Hours

After successful completion of the course, the students will be able to

CO. No.	Course Outcome	Knowledge Level
CO1	Execute advanced prompt engineering strategies to optimize text generation, image creation, and Chabot behavior.	K3 - Apply
CO2	Construct multimodal AI applications that integrate text, image, audio, and video generation capabilities.	K3 - Apply
CO3	Implement functional AI applications using cloud platforms and deploy them through professional channels.	K3 - Apply
CO4	Modify existing AI models through fine-tuning processes to meet specific project requirements.	K3 - Apply
CO5	Solve real-world industry challenges by applying generative AI technologies to practical business solutions.	K3 - Apply

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1:

Professional Skills: The ability to understand, analyse and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient design of computer-based systems of varying complexity.

PSO2:

Problem - Solving Skills: The ability to apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success.

CO - PO MAPPING

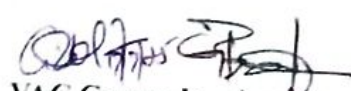
Course Name	CO. No.	POs											PSOs	
		1	2	3	4	5	6	7	8	9	10	11	1	2
VAC - Comprehensive AI Creation & Innovation Boot Camp	CO1	H	H	L	-	H	-	-	-	-	-	M	H	H
	CO2	H	L	H	M	H	-	-	M	-	M	L	H	H
	CO3	H	L	H	-	H	H	-	M	M	H	L	H	H
	CO4	H	H	H	H	H	-	-	-	-	-	M	H	H
	CO5	H	H	H	-	H	H	M	M	M	H	L	H	H

H - High, M - Moderate, L - Low

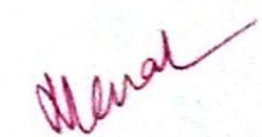
SDG MAPPING

VAC Course Name	SDGs																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	-	-	✓	✓	✓	-	-	✓	✓	✓	✓	✓	-	-	-	✓	✓


Trainer


VAC Course In-charges


VAC Coordinators
S. Athi Lakshmi
S. Ankhara Devi


HOD - CSE