



GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP
DIRECTORATE GENERAL OF TRAINING

COMPETENCY BASED CURRICULUM

CERTIFICATE COURSE ON

BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI)



NSQF LEVEL- 3.5

SECTOR – IT & ITES

BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI)

Duration: 240 Hours

NSQF LEVEL- 3.5

(Version: 1.0)

Designed in 2024

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

&

CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE

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1. COURSE INFORMATION

1.1 GENERAL

This course has been developed for CTS/CITS trainees to take up as optional courses during course of study for technical and behavioural upgradation of trainees to meet industry related job roles. During the 240 hours duration of BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI) course, a candidate is trained on professional skills & knowledge related to job role. The Broad components covered during the course are given below:

During the course, the trainee will learn about the emerging trends Artificial Intelligence, crafting effective prompts using Open AI / GPT. They will perform Image Generation, Text Generation, Music Generation, Video Generation and working with Style Transfer Models, Language Models, Audio Synthesis Models, Animation Models. They will also perform Branding and e-commerce with AI tools and interpret the ethical challenges of generative AI and Responsible AI.

1.3 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of 6 weeks: -

S No.	Course Element	Notional Training Hours
1.	Professional Skill (Trade Practical)	180
2.	Professional Knowledge (Trade Theory)	60
	Total	240

1.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of course through assessment at the end of the course through skill testing at Training Center & CBT through examination conducted by DGT.

The minimum pass percentage for skill test is 60% and for theory will be 33% as in main CTS examination.

2. JOB ROLE

Brief description of Job roles:

Computer Network Professionals, Other; Covers computing professionals not classified elsewhere in Group 213, Computing Professionals.

Reference NCO-2015:

- i. 2523.9900 – Computer Network Professionals, Other

Mapped NOS: SSC/N9559

3. GENERAL INFORMATION

Name of the Trade	BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI)
Reference NCO - 2015	2523.9900
NOS Covered	SSC/N9559
NSQF Level	Level – 3.5
Duration of Craftsmen Training	240 Hours
Entry Qualification	10 th Class passed and pursuing/ passed out COPA, DBSA, CHNM, ICTSM, Software Testing, IT, DTPO, MASE under CTS OR CSA, CHNM, DTPO, IT, MASE under CITS Candidates
Unit Strength (No. of Student), Space & Power Norms	Same as COPA / IT / CHNM / ICTSM / DBSA / DTPO / MASE under CTS OR CSA / CHNM / IT / DTPO under CITS.
Instructors Qualification	B.Voc/Degree in Computer Science/ Information Technology from AITCE/UGC Recognized University with one year experience in the relevant field. OR Post Graduate in Computer Science /Computer Application / IT from UGC Recognized University or NIELIT B Level with one-year experience in the relevant field. OR Bachelor in Computer Science / Computer Application / ITOR PGDCA from UGC recognized University or NIELIT A Level with two-year experience in the relevant field. OR 03 years Diploma in Computer Science / IT from recognized Board/ Institute or relevant Advanced Diploma (Vocational) (ADIT) from DGT with two-year experience in the relevant field. OR NTC/NAC in Artificial Intelligence Programming Assistant or any trade in IT-ITeS sector trade with three-year experience in the relevant field.
List of Tools and Equipment	As per Annexure – I

4. LEARNING OUTCOME

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

4.1 LEARNING OUTCOMES

1. Introduction to AI and Crafting effective prompts using Open AI / GPT.
2. Perform Text Generation and working with Language Models.
3. Perform Image Generation and working with Style Transfer Models.
4. Perform Music Generation and working with Audio Synthesis Models.
5. Perform Video Generation and working with Animation Models.
6. Perform Branding and e-commerce with AI Tools and interpret the ethical challenges of generative AI and Responsible AI.

SYLLABUS – BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI)			
Duration: 240 Hours			
Duration Weeks	Reference Learning outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
Professional skills 20 Hrs. Professional Knowledge 10 Hrs.	LO-1: Introduction to AI and Crafting effective prompts using Open AI / GPT.	Perform the following using Open AI Tool: 1. Clarity and specificity in prompts 2. Define input format for various tasks 3. Context establishment and providing necessary information 4. Generate text: articles, stories, and essays 5. Code generation and programming-related tasks 6. Language translation and transformation tasks 7. Iterative approach to prompt improvement 8. Utilize system messages and temperature settings 9. Handle biases and generating unbiased content 10. Refine prompts based on practical results.	• Describe Human Learning process. • Describe Human Intelligence and Artificial Intelligence. • Explain need of AI and key components of AI. • What AI can do and can't do. • Types of AI, Future of AI. • Introduction to machine learning • Supervised learning, Unsupervised learning & Reinforcement learning • Real-life examples of machine learning • Understanding Generative AI: Concept, significance, and real-world applications. • Understanding the concept of prompts • Importance of well-structured prompts in AI interactions • Examples of successful and unsuccessful prompts • Overview of Open AI and GPT architecture.
Professional skills 35 Hrs.	LO-2: Perform Text Generation and working with	11. Perform text generation using language models. 12. Work with language	• Introduction to NLP and chatbots • Introduction to Bot Service • Introduction to language

Professional Knowledge 10 Hrs.	Language Models.	models such as GPT-3, BERT etc. 13. Develop creative writing projects using language models 14. Experiment the story generation and poetry. 15. Create a simple chatbot using any Bot Service. 16. Test and refine the chatbot. 17. Experiment the Alexa / Siri etc.	models such as GPT-3 and BERT. - Real-life examples of chatbots and their impact on customer service and user experience
Professional skills 35 Hrs. Professional Knowledge 10 Hrs.	LO-3: Perform Image Generation and working with Style Transfer Models.	18. Create art and images using pre-trained generative models. 19. Work with Style transfer: Applying artistic styles to images. 20. Explore various image generation techniques and artistic visualization.	- Explain the Generative Models for image Generation. - Explain Style transfer and artistic styles. - Explain image generation techniques and artistic visualisation.
Professional skills 35 Hrs. Professional Knowledge 10 Hrs.	LO-4: Perform Music Generation and working with Audio Synthesis Models.	21. Create music using AI-driven platforms. 22. Explore different musical styles and genres. 23. Work with Audio synthesis: Creating sounds and music. 24. Compose music and experiment with audio generation.	- Understanding generative models and their importance. - Explain the Generative Models for Music Composition. - Explain the audio synthesis and generation process.
Professional skills 35 Hrs. Professional Knowledge 10 Hrs.	LO-5: Perform Video Generation and working with Animation Models.	25. Create video synthesis and animation using AI tools. 26. Create animated stories and videos. 27. Develop storytelling through generative videos. 28. Explore complex video generation techniques.	- Explain the Generative Models for Video Composition. - Explain Storytelling, collaborative video. - Explain video generation techniques.

		29. Create collaborative video.	
Professional skills 20 Hrs. Professional Knowledge 10 Hrs.	LO-6: Perform Branding and e-commerce with AI Tools and interpret the ethical challenges of generative AI and Responsible AI.	30. Generate Product and Business names. 31. Taglines and slogans for brand. 32. Create product descriptions for offline / online store. 33. Work with predictive analysis. 34. Generate FAQ. 35. Create Chatbot for customer support and feedback.	• Privacy and security concerns • Understanding the ethical challenges of generative AI and deepfakes. • Promoting responsible AI usage and mitigating biases in generated content. • AI governance and regulation

6. ASSESSMENT CRITERIA

LEARNING OUTCOME	ASSESSMENT CRITERIA
1. Introduction to AI and Crafting effective prompts using OpenAI / GPT.	Bring Clarity and specificity in prompts.
	Define input format for various tasks.
	Perform Context establishment and providing necessary information.
	Generate text: articles/ stories/ essays.
	Perform Code generation and programming-related tasks.
	Perform Language translation and transformation tasks.
	Prompt improvement using iterative approach.
	Utilize system messages and temperature settings.
	Handle biases and generate unbiased content.
	Refine prompts based on practical results.
2. Perform Text Generation and working with Language Models.	Perform text generation using language models.
	Develop creative writing projects using language models
	Perform story generation and poetry.
	Create simple chatbot using any Bot Service.
	Test and refine the chatbot.
3. Perform Image Generation and working with Style Transfer Models.	Create art and images using pre-trained generative models.
	Apply artistic styles to images.
	Apply various image generation techniques and artistic visualization.
4. Perform Music Generation and working with Audio Synthesis Models.	Create music using AI-driven platforms.
	Explore different musical styles and genres.
	Create sounds and music with Audio synthesis.
	Compose music and experiment with audio generation.
5. Perform Video Generation and working with Animation Models.	Create video synthesis and animation using AI tools.
	Create animated stories and videos.
	Develop storytelling through generative videos.
	Apply complex video generation techniques.
	Create collaborative video.
6. Perform Branding and e-commerce with AI Tools and interpret the ethical challenges of generative	Generate Product and Business names.
	Generate Taglines and slogans for brand.
	Create product descriptions for offline / online store.
	Perform predictive analysis.

AI and Responsible AI.	Generate FAQ.
	Create Chatbot for customer support and feedback.

LIST OF TOOLS & EQUIPMENT			
BASICS OF GENERATIVE ARTIFICIAL INTELLIGENCE (AI)			
S No.	Name of the Tools and Equipment	Specification	Quantity
Same as COPA / IT / CHNM / ICTSM / DBSA / DTPO / MASE under CTS OR CSA / CHNM / IT / DTPO under CITS.			
Additional Tools & Equipment required			
A: TRAINEES TOOL KIT:			
1.	Registered Domain	At least 100 MB Web Space	As required
2.	Programming Language	Python	As Required
3.	Database	MySQL	As Required
4.	Cloud Services	AWS / Azure / Google / IBM etc.	As Required.
5.	Bot Services	AWS / Azure / Google / IBM etc.	
6.	Generative AI	Any open-source tool like Open AI GPT / DALL-E / Cloud based tools etc.	As Required
7.	Crafting effective prompts using OpenAI / GPT.	Any open-source tool like Open AI GPT / DALL-E / Cloud based tools etc.	As Required
8.	Image Generation and working with Style Transfer Models.	Any open-source tool like Open AI GPT / RunwayML / DALL-E / Cloud based tools etc.	As Required
9.	Text Generation and working with Language Models.	Any open-source tool like Open AI GPT / RunwayML / DALL-E / Cloud based tools etc.	As Required
10.	Music Generation and working with Audio Synthesis Models.	Any open-source tool like Open AI GPT / RunwayML / DALL-E / Cloud based tools etc.	As Required
11.	Video Generation and working with Animation Models.	Any open-source tool like Open AI GPT / Open CV / RunwayML / DALL-E / Cloud based tools etc.	As Required
12.	Branding and e-commerce with AI Tools	Any open-source tool like chatGPT / DALL-E / Cloud based tools etc.	As Required
13.	Tools	Crimping etc. (As per requirement), Wi-Fi dongles, Bluetooth Dongles	
B. Software			
14.	M365 Package	(Academic) latest version available	25 Licenses

		at the time of procurement	
15.	Antivirus for – clients / workstations in profile	As required	25 Licenses

ANNEXURE-II

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts and all others who contributed in designing/ revising the curriculum. Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

List of members attended the Trade Committee Meeting for designing of Generative AI Developing Assistant under Short Term Courses held on 21st March, 2024 at CSTARI, Kolkata.			
Sl. No.	Name and Designation (Shri/Smt./Kumari)	Organization with Address	Remarks
1.	Sunil Kumar Gupta, DDG (ER)	CSTARI, Kolkata	Chairman
2.	G.C. Saha, Jt. Director/HoD	CSTARI, Kolkata	Member
3.	Rama Nandi, Associate Manager	Accenture, Unitech Kolkata	Member
4.	Asok Bandyopadhyay, Scientist F, Head ICT&S Group	C-DAC, Kolkata	Member
5.	Amlan Raychaudhuri, Asst. Professor	BP Poddar Institute of Management & Technology, Kolkata	Member
6.	Niladri Roy, Enterprise Architect	TCS, Kolkata, Ecospace	Member
7.	Avishek Paul, Asst. Professor	Techno India Group, Kolkata	Member
8.	Diptadip Maiti, Asst. Professor	Techno College of Engineering, Agartala	Member
9.	Amit Kumar Mondal, Asst. Professor	Bengal Institute of Technology (A unit of Techno India Group), Kolkata	Member
10.	Anindya Sundar Das Gupta	Women ITI, Banipur	Member
11.	Subhendu Chakrabarty, Technical Expert	CSCOE, DITE, WB	Member
12.	P. Suresh, Sr. Executive	Vi Micro Systems Private Limited, Chennai	Member
13.	Goutam Roy	Prime Infoserv LLP	Member
14.	Brindaban Das, Dy. Director	CSTARI, Kolkata	Member
15.	Murari Barui, Asst. Director	CSTARI, Kolkata	Member
16.	Sk. Altaf Hossain, Asst. Director	CSTARI, Kolkata	Member
17.	Akhilesh Pandey, Asst. Director	CSTARI, Kolkata	Member
18.	Bhagat Singh, Asst. Director	CSTARI, Kolkata	Member
19.	Manish Mishra, Asst. Director	NSTI, Howrah	Member
20.	P.K. Bairagi, TO	CSTARI, Kolkata	Member
21.	B. Biswas, TO	CSTARI, Kolkata	Member
22.	K.V.S. Narayana, TO	CSTARI, Kolkata	Member

23.	Swapan Sen, TO	CSTARI, Kolkata	Member
24.	Pradip Biswas, Jr. D/man	CSTARI, Kolkata	Member
25.	Hemant Kujur, Jr. D/man	CSTARI, Kolkata	Member
26.	Jinendran PK, JC	CSTARI, Kolkata	Member