GENERATIVE AI (GEN AI)

COURSE CURRICULUM

BSATES EDTECH

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Introduction

This workshop has been designed to provide a holistic learning experience. The curriculum balances theoretical knowledge and hands-on practice, ensuring participants gain both foundational understanding and practical expertise. Interactive sessions, real- world use cases, and collaborative hackathons help embed key concepts effectively. The structured flow, from basic concepts to advanced applications, caters to diverse learning paces while promoting teamwork and problem-solving. This methodology ensures a robust, engaging, and outcome-driven learning journey for all participants.





DAY 1: FUNDAMENTALS OF DATA SCEINCE

Session 1: Welcome, Orientation & Introduction to AI (1 Hour)

- Welcome, workshop agenda, learning objectives and participant expectations.
- Overview of Artificial Intelligence, Machine Learning, Deep Learning and Generative AI.
- Traditional AI versus Generative AI: key differences and examples.
- Applications of Generative AI across education, business, research, healthcare and creative sectors.

Hands-on activity: Interactive discussion: Participants identify tasks in their own academic or professional settings where GenAI could be useful.

Session 2: Understanding Generative AI and Large Language Models (2 Hours)

- What is Generative AI? Overview of generative models and content generation.
- Introduction to Large Language Models (LLMs): how they interpret prompts and generate responses.
- Core concepts: tokens, context window, training data, model parameters and inference.
- Capabilities of text-based GenAI tools: answering questions, summarisation, drafting, translation and reasoning support.
- Understanding limitations: hallucinations, bias, outdated information and inconsistent responses.

Hands-on activity: Guided exploration: Ask an AI tool the same question in different ways, compare responses and identify inaccuracies that require verification.

Session 3: Prompt Engineering – Communicating Effectively with AI (2 Hours)

- What is prompt engineering and why does prompt quality matter?
- Anatomy of an effective prompt: role, task, context, constraints, examples and output format.
- Zero-shot and few-shot prompting techniques.
- Prompt refinement, iterative instructions and breaking complex tasks into smaller steps.
- Using prompts to generate summaries, reports, emails, lesson plans, ideas and structured tables.

Hands-on activity: Prompt challenge: Participants convert vague instructions into clear prompts and compare the quality of the outputs.

Session 4: GenAI for Productivity, Learning & Professional Work (1.5 Hours)

- Using GenAI for drafting and improving emails, reports, proposals and presentations.
- Summarising long text, extracting key information and organising unstructured content.
- AI-assisted brainstorming, planning, research support and preparation of learning materials.
- Creating repeatable prompt templates for common academic and workplace tasks.

Hands-on activity: Practical exercise: Create a small productivity workflow using prompts for a selected real-world task.

Session 5: Wrap up & Reflection

Recap of Day 1 Concepts
Review the day's activities and key learnings.

Q&A Session
Open discussion for clarifications.

Preview of Day 2
·Recap of AI fundamentals, LLM concepts and prompt-engineering methods.
·Participant questions, discussion of challenges and preview of Day 2.



DAY 2: Multimodal Generative AI (2 Hours)

Session 1: Multimodal Generative AI (2 Hours)

- Introduction to multimodal AI and working across text, images, documents and audio.
- Image generation: writing descriptive prompts, styles, composition and iterative refinement.
- Document-based interaction: summarising documents, asking questions and extracting information using supported tools.
- Overview of AI-assisted audio, speech and presentation-content workflows.

Hands-on activity: Hands-on activity: Create an image from a text prompt and use an AI tool to summarise or extract information from a sample document.

Session 2: Real-World Applications of Generative AI (2 Hours)

- Education: lesson planning, quiz generation, explanations, learning support and feedback.
- Business and entrepreneurship: idea generation, market research assistance, customer communication and content development.
- Research: topic exploration, outlining, summarisation and research communication with source verification.
- Workplace productivity: report preparation, meeting summaries, planning and information management.
- Selecting appropriate tasks for AI assistance and identifying tasks that need human judgement.

Hands-on activity: Use-case exercise: In groups, identify a practical problem and design a GenAI-assisted workflow to address it.

Session 3: Responsible, Ethical & Secure Use of GenAI (1 Hour)

- Accuracy and verification: checking facts, references and AI-generated outputs.
- Privacy and data protection: handling confidential, personal and sensitive information.
- Bias, fairness, copyright, attribution and academic integrity.
- Human oversight: reviewing, editing and validating AI-generated content before use.

Hands-on activity: Discussion: Review sample AI outputs and identify privacy, accuracy, bias or attribution concerns.

Session 4: Collaborative GenAI Mini-Project / Hackathon (1.5 Hours)

- Participants work individually or in teams on an academic, professional or everyday problem.
- Define the problem, select a suitable GenAI tool and design effective prompts.
- Generate, refine and validate AI-assisted outputs.
- Prepare a short demonstration explaining the workflow, result and limitations.

Hands-on activity: Suggested projects: AI-assisted study resource, professional communication kit, research brief, business content plan or productivity assistant workflow.

Session 5: Project Presentations, Q&A & Closing (30 Minutes)

- Short presentation of selected mini-projects and peer feedback.
- Key takeaways, questions and guidance for continued learning.

Workshop Outcomes

- Understand the fundamentals of Generative AI and the working concepts behind LLMs.
- Write, test and refine prompts for a range of practical tasks.
- Use GenAI tools for content generation, summarisation, document interaction and productivity.
- Explore introductory multimodal AI applications, including image and document workflows.
- Identify risks and apply responsible-use practices, including verification and data privacy.
- Develop and present a small GenAI-assisted solution to a practical problem.

What Next?

- Continue practising with GenAI tools and maintain a library of effective prompts.
- Apply workshop learning to domain-specific academic and professional tasks.
- Explore advanced topics such as Retrieval-Augmented Generation (RAG), AI agents, workflow automation and custom AI applications.