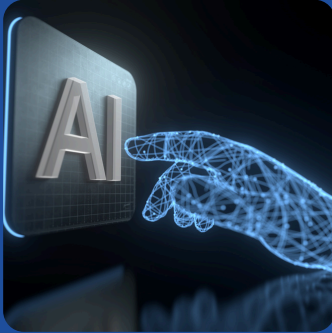# techgyan

ARTIFICIAL INTELLIGENCE

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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.

Duration: 2 Days (14 hours of learning)

DAY 1: FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE (AI)

SESSION 1: WELCOME & ICEBREAKER (1 HOUR)

- Welcome & Introduction (15 minutes)
  - Brief overview of workshop agenda and objectives.
  - Set the stage for learning and collaboration.

- History of AI & Icebreaker Activity (45 minutes)
  - Alan Turing and the Turing Machine.
  - Evolution of AI and key milestones.
  - The Turing Test and its significance.
  - Participants share examples of AI in their personal/professional lives.
  - Explore examples of AI in daily life (spam filters, recommendations, camera filters, etc.).

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SESSION 2: WHAT IS AI AND HOW AI PROBLEM IS RESOLVED?(1 HOUR)

- Core Concepts Overview
  - Difference between AI, Machine Learning(ML), Deep Learning(DL), and Generative AI (GenAI).
  - What are different technologies used to implement these concepts
  - How to solve any problems using AI
    - Finding Data
    - Selecting best model
    - Testing
    - Training

SESSION 3: CORE CONCEPTSOF AI (1 HOUR)

- Machine Learning Basics
  - Overview of Supervised, Unsupervised, and Reinforcement Learning.
  - Categorize examples into ML types.

- Hands-On Activity
  - Use Google's Teachable Machine to train a simple ML model (e.g., pose detection or image classification).

SESSION 4: EXPLORING USE CASES WITH TEACHABLE MACHINE (1.25 HOURS)

- Discussion
  - Applications of image, pose, and sound detection.
- Preparation for Hackathon
  - Brainstorm additional use cases:
    - Fitness Activity Tracker: Train a model to classify and count exercises (e.g., squats, push-ups).
    - Plant Disease Detection: Train a model to identify plant diseases based on leaf patterns.
    - Custom Hand Gesture Controls: Train a modelto control devicesusing gestures like thumbs-up or open palm.

SESSION 5: AI HACKATHON(1.5 HOURS)

- Team Activity
  - Solve real-world problems using TeachableMachine.
  - Each team creates a working model and discusses its real-world application.

- Resources Provided
  - Notebooks and step-by-step instructions to complete tasks.

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

- Q&A Session
  - Open discussion for clarifications.

- Preview of Day 2
  - Focus on Generative AI (GenAI) and Large Language Models (LLMs).

DAY 2: GENERATIVE AI (GENAI) AND LARGE LANGUAGE MODELS (LLMS)

SESSION 1: INTRODUCTION TO GENERATIVE AI (1 HOUR)

- Overview
  - What is Generative AI and LLMs?
  - Applications in content creation, chatbots, and marketing.

- Activity
  - Explore Generative AI tools like ChatGPT and DALLE.

SESSION 2: PRACTICAL INTRODUCTION TO HUGGING FACE (1 HOUR)

- Interactive Lecture
  - Overview of Hugging Face tools and pre-trained models.

- Hands-On Activity
  - Solve problems like sentiment analysis or text summarization using Hugging Face.

SESSION 3: BUILDING AI APPLICATIONS (1 HOUR)

- Activity
- Build a chatbot using Hugging Face or similar platforms.
- Compare local vs. cloud-based LLM solutions.

SESSION 4: ADVANCED CONCEPTS WITH LANGFLOW (1 HOUR)

- Topics
  - Introduction to Retrieval-Augmented Generation (RAG).
  - Explore use cases with LangFlow.

- Discussion
  - Address ethical considerations like bias and transparency in AI.

SESSION5: HACKATHON DAY 2 (1 HOUR)

- Team Project
  - Create projects leveraging Generative AI concepts.
    - Examples: AI-powered chatbots or personalized marketing AI.

SESSION 6: SUMMARY & FEEDBACK (1 HOUR)

- Recap of Key Learnings
  - Review concepts and activities from both days.
- Team Presentations
  - Teams present their projects and discuss challenges.
- Feedback
  - Collect feedback to refine future workshops.

WORKSHOP OUTCOMES

- Foundational understanding of AI, ML, and GenAI.
- Hands-on experience with tools like Teachable Machine and Hugging Face.
- Ability to build and fine-tune AI models.
- Awareness of ethical considerations in AI applications.

POST-WORKSHOP OPPORTUNITIES

- What Participants Can Create
  - Image classification models.
  - Chatbots and personalized AI tools.
  - Custom AI applications using ML and GenAI concepts.
- What They Can Do After the Workshop
  - Explore advanced AI/ML courses and certifications.
  - Apply learned concepts to solve domain-specific problems.
  - Build a portfolio showcasing AI projects to enhance career opportunities.

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