



हरकोर्ट बटलर प्राविधिक विश्वविद्यालय
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HARCOURT BUTLER TECHNICAL UNIVERSITY
NAWABGANJ, KANPUR - 208002, U.P., INDIA
(Formerly Harcourt Butler Technological Institute, Kanpur)

Computer Science and Engineering Department, HBTU Kanpur

Expert Lecture Report on

AGENETIC AI

Organised by

Department of CSE, HBTU Kanpur on

27th November, 2025

1. Key Speaker

Mr. Manu Kuchhal, IBM

2. Organizing Faculty

- **Prof. Anita Yadav**
- **Dr. Bharat Bhushan Sagar**
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3. Participants

The lecture was attended by **100+ students** along with all faculty members of the Department of Computer Science & Engineering, HBTU Kanpur.

4. Objectives of the Expert Lecture

- To introduce the concept of **Agentic AI** and distinguish it from traditional AI.
- To explain reasoning diagrams, adaptive learning, memory models, and communication protocols.
- To explore applications such as drug discovery, intelligent automation, and multi-agent collaboration.

- To understand enterprise AI platforms including **Google Gemini**, **GrewAI**, and **Bee AI Platform**.
- To introduce communication protocols like **MCP** and cognitive edge systems.
- To highlight the future potential of Agentic AI and how it differs from classical workflows.
- To guide students toward resources (e.g., **Cognitive Trails**) for practical learning.
- To inspire career exploration in advanced AI domains.

5. Event Highlights





Kanpur, Uttar Pradesh, India









6. Key Discussion Points

6.1 Understanding Agentic AI

- AI systems capable of autonomous reasoning, adaptive learning, and decision-making.
- Discussion of automata, reasoning diagrams, and purpose-driven system actions (*what, why, when, how*).
- Importance of communication within agent-based systems.

6.2 Applications

- AI-driven drug discovery
- Blue-Ocean multi-agent collaboration
- Intelligent automation
- Comparison between autonomous systems, LLM-based workflows, and classical workflows

7. Core Concepts Explained

7.1 Fundamentals of Agentic AI

- Adaptive learning
- Feedback loops (“Make Cave Loop”)
- Behavior modeling

7.2 Key Components

- Memory structures
- Multi-step reasoning
- Agent communication modules

7.3 Levels of Agentic AI

- Reactive agents
- Proactive agents
- Collaborative agents

8. Case Studies & Industry Workflows

8.1 Enterprise Examples

- Google's **Gemini/GrewAI**
- Bee AI Platform
- Industrial frameworks for large-scale agent operations

8.2 Agentic Orchestration

- Use of **ACP Servers, MCP**, and advanced agent communication protocols.

9. Cognitive Edge AI

- High-performance agents with contextual memory and improved reasoning capability for enterprise automation.

10. Resources & Practical Work

- Access to **cognitivetrails.ai** for hands-on project development.
- Insight into ChatGPT's architecture and functioning.
- Career guidance encouraging students to evaluate future AI-oriented career paths.