

A course on Agentic AI : Designed by Anupam Purwar

Pre-requisites:

Basic Python Programming, Understanding of Machine Learning, Natural Language Processing (NLP) Basics, Mathematics and Statistics and Familiarity with AI Tools.

Start Date: June 21, 2025

*Times: **830PM to 930 PM** every Saturday for 8 weeks*

Enroll by filling this form: <https://forms.gle/t3F2wv7rQoDEoR4RA>

Course Outline:

Module-01: Foundations of Conversational AI

- Introduction to Conversational AI and its applications
- Types of Agents: Chatbots, Voice Assistants, etc.
- History of AI and its use in Conversational systems

Module-02: Advanced Natural Language Understanding (NLU)

- Different NLU approaches (rule-based, machine learning-based)
- Text Pre-processing using NLTK
- Syntactic and Semantic Analysis

Module-03: Introduction to Large Language Models (LLMs)

- Artificial Neural Networks
- Transformer architecture
- What is LLM
- Pre-training objectives (e.g., masked language modeling)
- Fine-tuning LLMs for specific tasks
- Supervised Fine-tuning (SFT)
- Reinforcement Learning from Human Feedback (RLHF)

Module-04: Architecture of Conversational Agents

- Rule-based Chatbots, Retrieval-based Chatbots
- Generative Chatbots
- Transformer-based Models

Module-05: Prompt Engineering and Retrieval Augmented Generation (RAG)

- What is prompt
- Principles of prompt engineering
- Prompt design for different tasks
- Retrieval Augmented Generation (RAG)

<https://anupam-purwar.github.io/page/>

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- Evaluating LLM outputs and mitigating risks

Module-06: AI Agents

- Agent Architectures
- Environments for AI Agents
- How to build an Agent

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