

Table of Content:

S.No	Topic	Subtopic	Learning Outcomes	Assignment Name	Number of Hours
1	Introduction to LLMs	What are Large Language Models?	Understand the basics of LLMs and their applications.	Research Paper Review	2
		Types of LLMs and their Use Cases	Differentiate between types of LLMs and identify suitable use cases.	Use Case Analysis	2
2	Setting Up the Development Environment	Python, PyTorch, TensorFlow, Hugging Face	Set up an environment to build LLM applications.	Environment Setup Exercise	4
3	LLM Fundamentals	Tokenization, Embeddings, Attention Mechanism	Learn how LLMs process and generate text.	Build a Tokenizer	3
		Transfer Learning and Fine-tuning	Understand the importance of transfer learning and fine-tuning.	Fine-Tune a Pre-trained Model	4
4	Introduction to Intelligent Agents	Types of Agents: Rule-based vs. LLM-based	Differentiate between rule-based and LLM-based agents.	Comparative Study	2
5	Building Basic LLM Agents	Creating Simple Chatbots	Build a basic chatbot using LLMs.	Create a Simple LLM Chatbot	5
		Improving Dialogue Management	Implement dialogue management techniques for	Enhance Chatbot with	4

			better responses.	Dialogue Control	
6	Advanced Agent Features	Context Management and Memory	Implement context awareness in agents.	Add Context Memory to Chatbot	6
		Multimodal Inputs (Text, Voice)	Integrate text and voice inputs for a more versatile agent.	Create a Voice-Enabled Agent	6
7	Integrating Agents with APIs	RESTful APIs, WebSockets	Learn to integrate agents with external systems through APIs.	Build API Integrations for the Agent	4
8	Reinforcement Learning for Agents	Introduction to RL and Q-Learning	Apply reinforcement learning for agent training and improvement.	Implement Basic RL for Agent Behavior	6
9	AI Agents Market	Market Trends, Use Cases, and Applications	Understand the market landscape, emerging trends, and business potential.	Market Analysis Report	4
		Startups, Career Opportunities, and Future Trends	Explore job roles, startups, and future developments in AI agents.	Presentation on Career Opportunities	3
10	Project: Custom Agent Development	Define Project Scope, Agent Goals	Learn to plan and design a custom AI	Project Proposal Document	3

			agent project from scratch.		
		Development and Iteration	Build, test, and iterate a custom AI agent.	Custom Agent Development Project	10
11	Deployment and Scalability	Docker, Kubernetes, Cloud Platforms	Deploy agents on scalable platforms and manage resources efficiently.	Deploy Agent on Cloud	6
12	Ethics and Bias in AI Agents	Understanding Bias, Fairness, and Ethics	Identify and mitigate ethical issues in AI agent development.	Ethics Analysis Report	3
13	Final Project Presentation	Project Presentation and Peer Review	Present the final project and receive feedback.	Final Project Presentation	3