

AI – TESTING

With

[Gen AI + Prompt Engineering + Agentic AI]

Module 1: Foundations of AI for Testers

- What is AI? – Overview & Real-world Relevance
 - How AI Works – Data, Algorithms, and Learning Loop
 - Key Components of AI
 - Machine Learning (ML)
 - Deep Learning (DL)
 - Neural Networks
 - Cognitive Computing
 - NLP (Natural Language Processing)
 - Computer Vision
-

Module 2: Types of AI & Their Relevance in Testing

- Narrow AI vs General AI vs Super AI
 - Reactive Machines vs Limited Memory vs Theory of Mind vs Self-Aware AI
 - Practical Use Cases for QA/Testers
-

Module 3: Generative AI in QA

- What is GenAI? – Why It's a Game Changer for Testers
 - Applications in QA
 - Test Case Generation
 - Test Data Generation
 - Test Documentation (Reports, Plans, Closure)
 - Practical Hands-on Prompts
 - "Generate 20 negative test cases for a login page"
 - "Create 100 fake user profiles for testing"
-

Module 4: Prompt Engineering for Testers

- What is Prompt Engineering & Why It Matters in QA
 - Types of Prompting
 - Zero-Shot, Few-Shot, Role-Based, Format-Guided
 - Crafting Effective Prompts: Formula (Role + Task + Context + Constraints + Format)
 - Best Practices & Pitfalls
 - Hands-on Labs
 - Writing test cases with structured prompts
 - Test Data generation prompts
 - Bug report optimization with AI
-

Module 5: Agentic AI for Test Automation

- What is Agentic AI? (AI + LLM + Autonomy + Actions)
- Why It's Powerful in QA
- Applications in QA
 - Self-Healing Test Automation
 - Smart Regression Testing
 - Autonomous Test Execution & Bug Logging
- Demo: How an AI Agent Automates Login Test Flow

Module 6: Gen AI Across STLC (Software Testing Life Cycle)

- Requirement Analysis with AI
- Test Planning with AI Assistance
- Test Case Design – Manual & Automation Scripts
- Test Execution – Self-healing Automation
- Defect Reporting & RCA with AI
- Test Closure – Automated Reports & Insights
- Hands-on: Using ChatGPT/Claude to assist in STLC

Module 7: AI Tools for Testers

- **Bottest.ai** – Automated QA for Conversational AI
- **TestCraft** – No-code AI-powered Testing
- **Testron AI** – Agentic Test Generation & Maintenance
- **Testers.ai (Checkie.ai)** – AI Agents for End-to-End Testing
- Hands-on Setup & Execution
 - Installing & Running Testers.ai
 - Generating Reports & Analysis

Module 8: Testing AI Systems (LLMs & Chatbots)

- How AI Tools Work (NLP + ML Flow)
 - Testing Methodologies
 - Functional Testing
 - Usability Testing
 - Performance Testing
 - Security Testing
 - Scenario Testing: Positive, Negative, Edge Cases
 - Using RAG (Retrieval-Augmented Generation) in Testing
 - Practical Lab: Testing a Chatbot with AI
 - AI-Automation using Playwright API
 - Automating Single / Multiple prompts from chat GPT
-

Module 9: Advanced Prompt Engineering in QA

- Optimizing Test Case Design with AI
- Test Data Generation for Complex Scenarios (Banking, E-commerce, Insurance)
- Test Case Optimization & Prioritization
- API Testing with AI-generated Scripts (Postman, REST Assured)
- Automating Documentation (Strategy, Traceability Matrix, Release Notes)

Module 10: Selenium / Playwright MCP Server

- What is MCP
- How MCP Works
- How MCP helps in Test Automation
- Installation of Selenium MCP
- Generating Selenium Scripts
- Connect LLMs (Claude AI) with automation tools
- Overview of MCP (Model Context Protocol) Server
- MCP Server Setup & installation
- Automate browsers using:
 - Selenium MCP Server
 - Playwright MCP Server
- Why Playwright + MCP is Powerful
- Installing Playwright MCP Server
- Node.js setup , npm install
- MCP config in VS Code
- JSON config creation
- Execute automation directly from VS Code

Module 11: Building a Custom GPT QA Agent

- What is Custom GPT
- Usage of custom GPT
- Building End to End QA-Agent[manual & automation]
- Setting up GPT Builder
- Configuring:
 - Name, Description, Profile
 - Instructions (system prompt)
 - Capabilities (file upload, code interpreter)
- Adding knowledge base (QA templates)

Module 12: AI-Powered Testing using GitHub Copilot

- What is GitHub Copilot?
- Feature of GitHub Copilot

- How Copilot helps testers (Code suggestions, test data generation, script optimization)
 - Installing GitHub Copilot
 - Auto-generating test scripts
 - Using Open Chat option
 - Fixing Error using copilot
 - Writing Selenium code in easy and faster
-

Module 13: n8n workflow automation

- What is n8n overview
 - Key features (workflows, triggers, nodes, integrations)
 - Creating AI Agents
 - Effective prompt patterns
 - Steps to use Open AI / Gemini / Claude
 - Execution & monitoring logs
 - Building workflow execution for
 - Basic Bot
 - Work flow for manual testing
 - Work flow for automation testing
 - End to End work flow for Software Testing
-