

# AI – TESTING

With

**[Gen AI + Prompt Engineering + Agentic AI]**

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**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

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**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

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**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"

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**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
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**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

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**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

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**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

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**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
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## 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)

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## Capstone Project

Learners will:

- Use GenAI to generate test cases for a real application
- Apply prompt engineering for bug reporting & test data
- Use an Agentic AI tool (Testers.ai / Testron) in automation
- Submit final test execution report generated by AI

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## Outcome of this Course:

By the end of this program, participants will be able to:

- Leverage **GenAI** for faster test case & data creation
- Master **Prompt Engineering** to maximize AI testing efficiency
- Use **Agentic AI Tools** for autonomous, self-healing test automation
- Confidently test both **traditional applications** & **AI-driven systems**