

Prompt Engineering and LLM Application Design

Applied Technology Academy

Learn design principles and refactoring practices that improve maintainability. The course focuses on structure, trade-offs, and long-term code quality. AI is part of the course workflow throughout.

LEVEL	DURATION	COURSE CODE	DELIVERY
Intermediate	1-2 days	MA-91-2	Instructor-led

Course Overview

- Design principles and refactoring practices that improve maintainability.
- Structure, trade-offs, and long-term code quality.

Course Outline

- **Unit 1: Foundations:**
 - core concepts and terminology
- **Unit 2: Application:**
 - guided practice and labs
- **Unit 3: Handoff:**
 - troubleshooting, review, and next steps

Prerequisites

Participants should have:

- working familiarity with the target language, framework, or platform
- basic comfort using AI tools is helpful but not required unless specified
- basic troubleshooting skills
- access to the required tools or accounts before class

Who Should Attend

- Developers, senior developers, and technical leads.
- Teams that want a practical conversation about structure and maintainability.
- Learners who need to recognize design smells and refactoring opportunities.

What You'll Learn

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

- use AI tools in the normal development workflow

- design practical AI-enabled application experiences
- evaluate output quality and failure modes
- apply guardrails, documentation, and governance habits
- move from experiment to a production-minded implementation plan

What the Course Covers

In Scope:

- AI-assisted development workflows
- prompting and model use
- evaluation and quality controls
- guardrails and production concerns

Not Covered:

- deep model training and research
- math-heavy ML theory unless requested
- enterprise governance beyond the course scope

Hands-On Work

Representative Labs:

- build a simple AI-assisted workflow
- test prompts and outputs
- evaluate quality and edge cases
- adjust guardrails for a team use case

Practice and Discussion:

- Guided practice with checkpoints
- Scenario discussion using realistic examples
- Review of trade-offs and next steps

Environment and Tools

- Access to the chosen AI tool or platform
- Browser, editor, and lab environment
- Sample app or notebook workspace
- Optional enterprise policy guidance

Customization Options

- role-based track variations
- industry or domain-specific examples
- mixed-experience pacing adjustments
- accelerated or extended delivery formats

Next Steps

- production AI engineering path
- AI security follow-on
- agentic AI specialization
- team rollout and governance workshop

Ready to enroll? Call 800.674.3550 or email Info@AppliedTechAc.com — private team cohorts, GSA MAS purchasing, military credentialing funding, VA GI Bill and VR&E and student financing available.