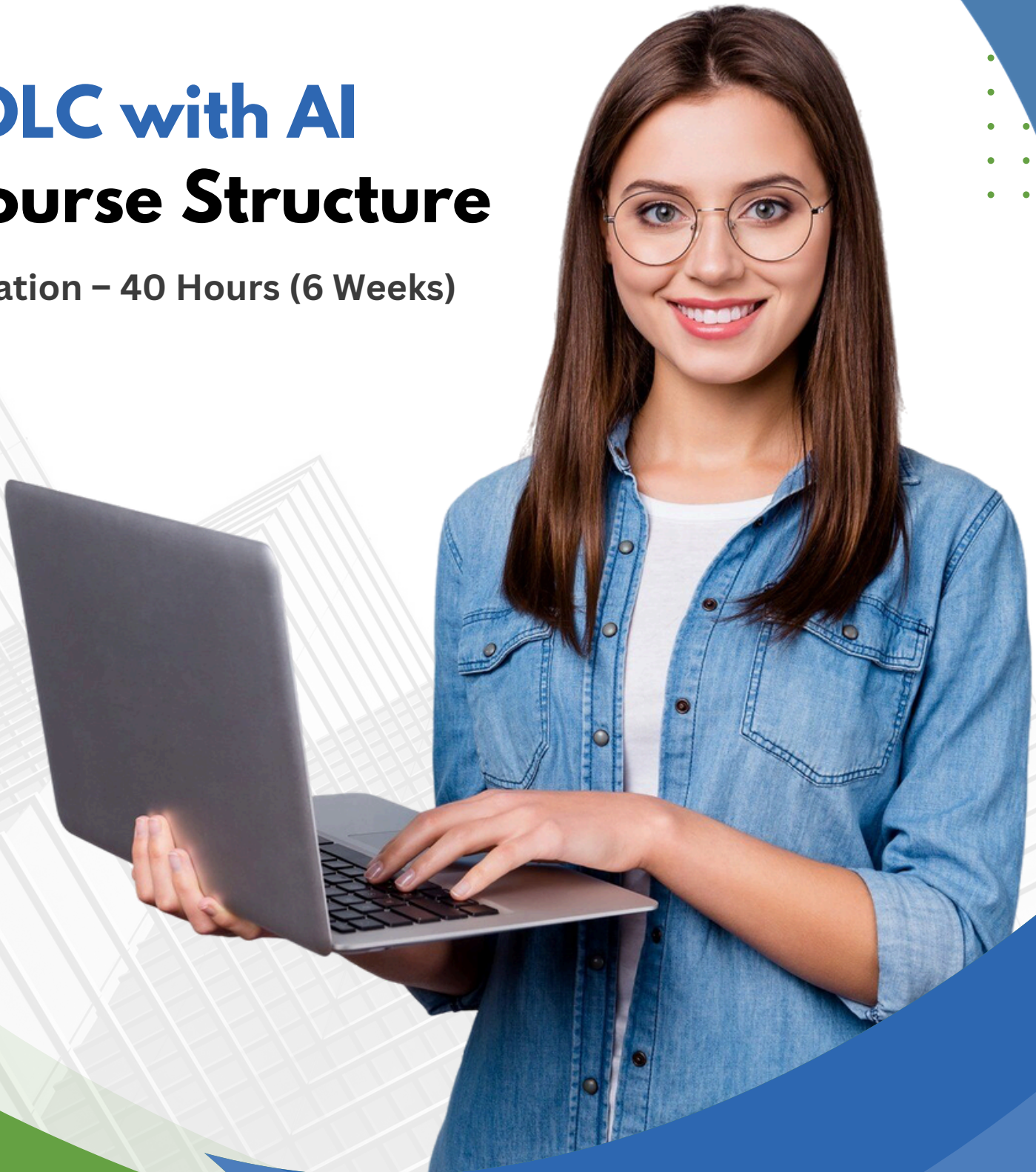


SDLC with AI

Course Structure

Duration – 40 Hours (6 Weeks)



Module 1: Foundations of AI in SDLC (4 Hours)

- Introduction to Modern SDLC: Traditional vs. AI-Driven SDLC workflows.
- AI/LLM Landscape: Overview of Generative AI, Large Language Models (LLMs), and prompt engineering fundamentals.
- Agentic AI Basics: Understanding autonomous AI agents and proactive problem-solving.
- Setting up the Environment: Configuring IDEs with AI assistants (e.g., GitHub Copilot, Cursor, CodeWhisperer).

Module 2: AI-Powered Requirement Analysis & Planning (4 Hours)

- Intelligent Requirement Analysis: Using NLP to extract requirements from stakeholder conversations.
- Automated User Story Generation: Generating structured user stories, acceptance criteria, and technical documentation using AI.
- AI for Project Estimation: Using historical data to predict project risks, timelines, and resource allocation.

Module 3: AI-Assisted Design & Architecture (4 Hours)

- Architectural Modeling with AI: Using GenAI to generate UML diagrams, database schemas, and system design documents.
- AI-Driven Prototyping: Rapidly generating front-end code (HTML/CSS/JS) from whiteboard sketches or wireframes.
- Tech Stack Optimization: AI tools to analyze best technology options based on project requirements.



Module 4: AI-Driven Development and Coding (12 Hours)

- AI Pair Programming: Leveraging Copilot/LLMs for boilerplate generation, code completion, and boilerplating.
- Refactoring and Code Optimization: Utilizing LLMs to refactor legacy code for performance and readability.
- Automated Documentation: Generating code comments, API documentation, and technical notes.
- Code Explanation and Review: Using AI to explain complex codebases and perform automated code reviews.

Module 5: Automated Testing and Quality Assurance (8 Hours)

- AI Test Case Generation: Automating unit, integration, and functional test case creation from code.
- Intelligent Debugging: Using AI to locate bugs, identify root causes, and suggest fixes.
- Automated Security Testing: Using Agentic AI to find vulnerabilities (e.g., SQL injection, XSS) in code early in the cycle.
- Visual Regression Testing: Utilizing computer vision to detect UI inconsistencies.

Module 6: AI-Enabled DevOps and Deployment (4 Hours)

- CI/CD Pipeline Optimization: Using AI to manage CI/CD workflows, predicting build failures.
- Intelligent Monitoring: Applying Machine Learning for anomaly detection in production.
- Automated Release Management: Generating release notes and deploying with AI-guided rollback capabilities.

Module 7: Capstone Project & Future of AI in SDLC (4 Hours)

- End-to-End Project: Developing a fully functional application utilizing AI at every phase (Requirements to Deployment).
- Human-in-the-Loop Governance: Understanding the importance of human supervision and ethical AI usage.



Contact Us Today!



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