COURSE SYLLABUS

AI Software Engineering Certificate Program (Self-Paced)

Gain the skills to design, build, and deploy AI-powered applications through a structured, hands-on software engineering program. Learn to build the way modern engineering teams do — with AI-assisted tools woven into the workflow from day one.

> Group classes (Live Online) and onsite training are available for this course. For more information, email corporate@nobledesktop.com or visit: https://www.nobledesktop.com/certificates/ai-software-engineering-certificate



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Course Outline

This package includes these courses

- AI Coding Fundamentals Course (Self-Paced) (60 Hours)
- AI Coding for Product & UX Course (Self-Paced) (60 Hours)
- AI Coding for Security Course (Self-Paced) (60 Hours)
- AI Coding for Systems & Architecture Course (Self-Paced) (60 Hours)
- AI Coding Capstone Course (Self-Paced) (60 Hours)

AI Coding Fundamentals Course (Self-Paced)

Build and deploy real web apps with Claude Code, GitHub, Next.js, and Supabase. Learn prompting, version control, full-stack development, debugging, and deployment through hands-on, project-driven training.

- Use Claude Code with confidence for real development tasks and multi-step coding workflows
- Prompt and guide AI effectively through context setting, Plan Mode, review, and recovery
- Handle version control with Git and GitHub, including branching, pull requests, and code review
- Grasp the fundamentals of modern web development, from HTML, CSS, and JavaScript to APIs
- Create full-stack applications powered by Next.js, databases, authentication, and external APIs
- Test, debug, secure, and launch production-ready applications to the live web

AI Coding for Product & UX Course (Self-Paced)

Design and build a complete website with AI, then test it the way a professional would.

- Direct AI with specific references and constraints instead of accepting generic results
- Use visual hierarchy, typography, color, spacing, and layout to judge what AI gives you

- Plan a site with a sitemap, user flows, and a heading outline before you prompt
- Keep AI consistent across pages with a design system, then hand the design to an AI coding tool
- Design for phones, forms, interface states, interface copy, and motion
- Test for accessibility by keyboard, contrast, zoom, and screen reader, and run a usability test with a real person

AI Coding for Security Course (Self-Paced)

Build secure, production-ready applications. Learn team development workflows, CI/CD, observability, threat modeling, authentication, and the security risks specific to AI-powered apps.

- Operate within team-based development workflows using version control and code review
- Set up continuous integration and deployment pipelines
- Monitor applications with observability and debugging tools
- Apply cybersecurity fundamentals and threat modeling techniques
- Handle authentication, authorization, and sensitive data securely
- Spot and reduce risks specific to AI-powered applications

AI Coding for Systems & Architecture Course (Self-Paced)

Design scalable, reliable software systems. Apply computer science fundamentals, networking, and concurrency, and work with cloud infrastructure, caching, queues, and performance optimization.

- Apply core computer science concepts to real-world development challenges
- Design scalable systems with modern architecture patterns
- Work across networks, concurrency, and multi-language environments
- Set up caching, queues, and background processing workflows
- Deploy applications using cloud infrastructure tools
- Optimize performance and maintain system reliability

AI Coding Capstone Course (Self-Paced)

Complete a hands-on capstone project that demonstrates your ability to build and deploy AI-powered applications.

- Plan and execute a full application build from concept to deployment
- Apply advanced AI-assisted development workflows and tools
- Integrate AI-powered features into real-world applications
- Conduct production readiness reviews and testing
- Present technical work clearly through demos and documentation
- Prepare a portfolio-ready project for job applications