AI for Product Leaders: From Ideation to Deployment

60-Hour Course Syllabus

Course Overview

This practical course is designed for product managers, team leaders, and business professionals who want to lead AI initiatives within their organizations. The program focuses on using AI as both a development tool and a product feature, emphasizing no-code/low-code approaches, AI-driven UX design, and project management. Participants will learn to conceptualize, plan, and oversee the development of AI-powered products without extensive coding, while gaining sufficient technical understanding to collaborate effectively with engineering teams.

Target Audience

- Product managers and product owners
- Project managers overseeing technical teams
- Business analysts and solution architects
- UX/UI designers transitioning to AI-driven interfaces
- IT professionals looking to implement AI solutions
- Business leaders driving AI transformation

Prerequisites

- Basic understanding of product development lifecycles
- Familiarity with digital products and services
- No coding experience required, but basic technical literacy is expected

Learning Objectives

1. Master AI-assisted product development from ideation to deployment
2. Create comprehensive PRDs and specifications using AI tools
3. Understand modern development paradigms: code/no-code/vibe coding/human-AI copilot collaboration
4. Understand AI system architecture and data pipeline fundamentals
5. Design modern AI interfaces and user experiences
6. Evaluate and select appropriate AI technologies for specific business needs
7. Implement effective testing, evaluation, and metrics for AI products
8. Develop AI business models and understand AI economics
9. Navigate regulatory considerations and practice responsible AI
10. Lead cross-functional teams in AI product development

Course Structure (60 Hours)

Module 1: The AI Product Landscape & Prompt Engineering (8 hours)

Learning Outcomes: Understand the current AI ecosystem, capabilities, and master prompt engineering fundamentals

Session 1: The Modern AI Ecosystem (3 hours)

- The AI revolution and its impact on product development
- Survey of current AI capabilities and limitations
- Key AI technologies and their business applications:
  - Large Language Models (ChatGPT, Claude, Llama)
  - Computer vision and image generation
  - Speech recognition and generation
  - Multimodal models
- AI economic models: costs, pricing, and ROI considerations
- Case studies: Successful AI product implementations across industries

Session 2: Prompt Engineering Fundamentals (3 hours)

- The science and art of effective prompting
- Prompt patterns and templates for different tasks
- Using AI to create and refine prompts
- Tools for prompt management and optimization
- Lab: Creating and testing different prompt patterns with Claude/ChatGPT
- Interactive exercise: Solving business problems through effective prompting

Session 3: New AI Development Paradigms (2 hours)

- AI-driven development workflows
- The shift from programming to prompting
- Introduction to no-code and low-code AI platforms:
  - MindStudio
  - Fastbots
  - Zapier with AI capabilities
  - ChatGPT Python canvas for testing code and algorithms
- Vibe Coding approach: Intuitive, rapid development with AI assistance
- Responsible AI: Introduction to ethical considerations
- Lab: Exploring AI capabilities through user interfaces

Module 2: AI-Driven Product Conceptualization (8 hours)

Learning Outcomes: Apply AI tools to generate, refine, and evaluate product ideas and requirements

Session 4: Ideation and Requirements with AI (4 hours)

- Using AI for market research and competitive analysis
- AI-powered brainstorming and idea generation
- Creating user personas and journey maps with AI
- Requirements gathering and prioritization
- When to use Vibe Coding vs. traditional approaches
- Lab: Generate product concepts using Claude or ChatGPT
- Exercise: Analyze an existing product and identify AI enhancement opportunities

Session 5: Building Comprehensive PRDs with AI (4 hours)

- Structure of an AI product PRD
- Defining product scope and success metrics
- Using AI to draft and refine PRDs
- Techniques for validating AI-generated requirements
- Lab: Create a comprehensive PRD for an AI product using Claude
- Group exercise: PRD review and refinement

Module 3: Responsible AI & Business Metrics (6 hours)

Learning Outcomes: Understand the ethical, legal, and business considerations of AI product development

Session 6: Responsible AI Implementation and Security (3 hours)

- Ethical AI frameworks and principles
- Key regulations and standards:
  - EU AI Act overview and implications
  - US AI Bill of Rights
  - Israeli AI law and other international approaches
- Privacy considerations in AI products
- Bias detection and mitigation strategies
- Introduction to AI security threats:
  - Prompt injection attacks and jailbreaking of LLMs
  - Data poisoning attacks on training data
  - Adversarial examples against vision models
  - Model inversion and extraction attacks
  - Practical defense strategies for product managers
- Transparency and explainability requirements
- Lab: Conduct an ethical and security assessment of an AI product concept
- Exercise: Identifying security vulnerabilities in common AI applications

Session 7: AI Business Models and ROI (3 hours)

- AI product monetization strategies
- Cost structures for AI solutions
- Defining and measuring AI-specific KPIs
- ROI calculation for AI initiatives
- Stakeholder management in AI projects
- Lab: Develop a business case and ROI model for an AI product
- Exercise: Creating dashboards for AI product metrics

Module 4: AI Product Architecture and Data Strategy (10 hours)

Learning Outcomes: Understand technical foundations needed to make informed decisions about AI implementation

Session 8: AI System Architecture Fundamentals (4 hours)

- Common AI product architectures (without deep technical detail)
- SaaS solution architectures for different use cases (CRM, ERP, content management, etc.)
- Frontend, backend, and AI service integration patterns
- API economy and service-based architecture
- Scalability and performance considerations
- Infrastructure options: cloud vs. on-premises
- Exercise: Create and present an architecture diagram for your own AI product
- Group project assignment: Prepare architecture presentation for mid-course project

Session 9: Data Strategy for AI Products (6 hours)

- The data value chain: from raw data to actionable insights
- Data processing layers (Bronze, Silver, Gold, Platinum)
- Types of databases and their roles in AI systems:
  - Traditional databases (SQL/NoSQL)
  - Vector databases
  - Graph databases
  - Time-series databases
- Data governance, privacy, and security
- Lab: Create and test a data workflow using MindStudio
- Exercise: Map a real-world data pipeline from unstructured to structured data
- Case study: Data pipeline design for a real-world AI application

---

Module 5: AI-Native User Experience Design (6 hours)

Learning Outcomes: Design intuitive, effective interfaces that leverage AI capabilities

Session 10: Fundamentals of AI User Experience (3 hours)

- Principles of human-AI interaction
- Conversational UI design patterns
- Multimodal interfaces (text, voice, visual)
- Personalization and adaptation in AI interfaces
- Managing user expectations and trust
- Case studies of successful AI interfaces

Session 11: Prototyping AI Interfaces (3 hours)

- No-code tools for AI interface prototyping
- Designing for conversation and guidance
- Error handling and recovery in AI interfaces
- User feedback collection and integration
- Lab: Create an AI interface prototype using MindStudio, Fastbots, or Figma AI
- Group exercise: Prototype review and usability testing

Module 6: AI Product Implementation (12 hours)

Learning Outcomes: Implement AI solutions using low-code/no-code/Vibe approaches and facilitate technical development

Session 12: Advanced No-Code AI Implementation (4 hours)

- Deep dive into selected no-code AI platforms:
  - MindStudio for end-to-end AI applications
  - Fastbots for conversational experiences
  - Zapier for AI-powered automation
- Building complex workflows with visual tools
- Integration between multiple no-code services
- Custom data connections and API integration
- Lab: Build a functional end-to-end AI application on a no-code platform
- Progress check on mid-course architecture project

Session 13: Working with AI-Assisted Development (4 hours)

- Understanding the developer perspective
- Vibe Coding in action:
  - Live demo of intuitive, flow-based development
  - Ideation → AI spec → AI-assisted coding → AI-assisted debugging
  - Balancing creativity with quality control
- Using Claude to generate and explain code
- AI coding assistants overview:
  - GitHub Copilot
  - Cursor

  - Codeium/Windsurf
- Lab: Use ChatGPT Python canvas to test algorithms without full coding environment
- Exercise: Use Claude to generate technical specifications from a PRD

Session 14: Retrieval-Augmented Generation (RAG) Systems (4 hours)

- Understanding RAG architecture and benefits
- Document preparation and knowledge extraction
- Implementation options (no-code, low-code, code-based)
- Building evaluation datasets
- Lab: Create a simple question-answering system using MindStudio
- Demo: Implementing RAG with minimal coding in a notebook environment

---

Module 7: Communication, Testing & Stakeholder Management (4 hours)

Learning Outcomes: Effectively manage the development process, stakeholders, and evaluation of AI products

Session 15: Influencing, Communication, and Alignment in AI Projects (2 hours)

- Strategies for securing executive buy-in
- Cross-functional team collaboration
- Managing expectations around AI capabilities
- Communicating AI concepts to non-technical stakeholders
- Handling resistance to AI adoption
- Role-playing exercise: Pitching an AI initiative to executives
- Case studies: Successful AI change management

Session 16: Testing and Evaluation of AI Products (2 hours)

- AI-specific testing strategies
- Using AI to develop comprehensive test plans and cases
- Understanding AI metrics:
  - Precision, recall, F1 score
  - Model confidence and calibration
  - User satisfaction metrics
- Automated testing approaches
- A/B testing for AI products
- Lab: Use AI to create a testing plan with appropriate metrics
- Exercise: Conduct peer reviews of testing approaches

Module 8: Course Wrap-up and Capstone Project (6 hours)

Learning Outcomes: Apply all learned concepts to develop a complete AI product concept with functional proof-of-concept

Session 16: Course Wrap-up and Capstone Project Instructions (2 hours)

- Review of key concepts and technologies covered
- Integration of course themes:
  - AI-assisted product development
  - No-code/low-code implementation
  - Responsible AI considerations
  - Testing and evaluation strategies
- Capstone project requirements and expectations:
  - Product definition and PRD
  - System architecture
  - Implementation approach (no-code or assisted-code)
  - Testing plan with appropriate metrics
  - Business case and ROI model
- Q&A and project guidance
- Team formation and initial planning

Session 17: Capstone Project Presentations (4 hours)

- End-to-end product presentations including:
  - Final PRD and system architecture
  - Working proof-of-concept demonstration
  - Testing strategy and results
  - Business model and implementation roadmap
- Continuation from mid-course architecture project
- Peer review and feedback
- Industry expert panel feedback (optional)
- Discussion of implementation challenges and strategies
- Course wrap-up and future learning paths

Assessment Methods

- Mid-course architecture project (25%)
- Ongoing lab work and assignments (25%)
- Class participation and peer reviews (20%)
- Final capstone project and presentation (30%)

Required Tools and Resources

- Access to OpenAI's ChatGPT or Anthropic's Claude
- ChatGPT Python canvas for code testing
- Accounts on key no-code AI platforms:
  - MindStudio
  - Fastbots
  - Zapier
- Access to Codeium/Windsurf or similar AI coding assistant (for demos)
- Collaborative design tools (e.g., Miro, Figma)
- Project management tools (e.g., Trello, Asana)

Additional Notes

- Guest speakers from industry will be invited when possible
- Case studies will be tailored to the industries represented in the class
- Participants are encouraged to bring real data (properly anonymized) and business problems from their organizations
- All materials and tools will be provided in advance
- Optional technical deep-dive sessions will be available for interested participants