

AI+ Manufacturing Practitioner

OEM: AI CERTs • Duration: 1 Day (8 hrs) • Code: AP-5501

COURSE MODULES & TOPICS

Module 1: AI in Manufacturing - Context and Opportunities

- 1.1 AI Fundamentals in Manufacturing
- 1.2 AI Across Plant Operations
- 1.3 Human and Business Context of AI Adoption
- 1.4 Use-Cases
- 1.5 Case Studies
- 1.6 Hands-On

Module 2: Core AI Applications in Manufacturing

- 2.1 Vision AI in Manufacturing
- 2.2 Maintenance and Reliability AI
- 2.3 Operational AI in Manufacturing
- 2.4 AI in Planning and Automation
- 2.5 Use-Cases
- 2.6 Case Studies
- 2.7 Hands-On Exercise

Module 3: Manufacturing Data and Readiness

- 3.1 Types of Manufacturing Data
- 3.2 Data Readiness Requirements
- 3.3 Common Readiness Challenges
- 3.4 Use-Cases
- 3.5 Case Studies
- 3.6 Hands-On Exercise: Manufacturing KPI Dashboard Creation using Looker Studio

Module 4: AI Systems and Architecture in Manufacturing

- 4.1 Deployment Approaches for Industrial AI
- 4.2 AI System Structure
- 4.3 Integration and Solution Evaluation
- 4.4 Use-Cases

- 4.5 Case Studies
- 4.6 Hands-On Exercise: AI System Architecture Mapping Exercise using Miro or draw.io

Module 5: Implementing AI in Manufacturing

- 5.1 Identifying and Prioritizing AI Opportunities
- 5.2 Pilot and Proof-of-Concept Design
- 5.3 Measuring and Scaling AI Impact
- 5.4 Real-World Implementation Constraints
- 5.5 Use-Cases
- 5.6 Case Studies
- 5.7 Hands-On Exercise: AI Pilot and Implementation Roadmap Workshop using Miro

Module 6: Responsible AI, Safety, and Security

- 6.1 Responsible AI in Industrial Operations
- 6.2 Governance and Data Responsibility
- 6.3 Security and Safety Risks
- 6.4 Human Oversight and Escalation
- 6.5 Use-Cases
- 6.6 Case Studies
- 6.7 Hands-On Exercise: AI Risk and Governance Checklist Exercise using Google Sheets

Module 7: AI Success, Failure, and ROI

- 7.1 AI Project Failures in Manufacturing
- 7.2 Success Patterns in AI Adoption
- 7.3 ROI Frameworks for Manufacturing AI
- 7.4 Industry Comparison
- 7.5 Use-Cases
- 7.6 Case Studies
- 7.7 Hands-On Exercise: AI ROI Estimation and Benefit Tracking

Module 8: Future Trends in Manufacturing AI

- 8.1 Emerging AI Directions in Manufacturing
- 8.2 Digital Twins and Intelligent Monitoring
- 8.3 Generative AI in Manufacturing
- 8.4 Future Adoption Outlook
- 8.5 Use-Cases
- 8.6 Case Studies
- 8.7 Hands-On: AI Adoption Roadmap Creation

Module 9: Capstone Project

- 9.1 Problem Definition and Scope

- 9.2 AI Use-Case Selection and Readiness Review
- 9.3 Solution Evaluation and Roadmap Development
- 9.4 Business Value and Communication
- 9.5 Capstone Tracks