

# AI-Driven Manufacturing and Operations Optimization Training

**Course Duration: 32 Hours**

**Course Code: AIMOO-101**

## 1. Course Overview

AI-Driven Manufacturing and Operations Optimization Training is designed to help professionals leverage Artificial Intelligence to enhance productivity, reduce operational costs, and improve decision-making in manufacturing environments. This course covers real-world applications of AI, predictive analytics, automation, and smart factory solutions to transform traditional operations into intelligent systems.

## 2. What You'll Learn

- Fundamentals of AI in manufacturing
- Predictive maintenance using machine learning
- Process optimization with AI algorithms
- Demand forecasting and inventory optimization
- Quality control using computer vision
- Smart factory and Industry 4.0 concepts
- Data-driven decision-making techniques
- AI tools and platforms used in operations

## 3. Target Audience

- Operations Managers
- Manufacturing Engineers
- Production Supervisors

- Supply Chain Professionals
- Data Analysts in manufacturing domain
- Business leaders aiming for digital transformation

## 4. Pre-Requisites

- Basic understanding of manufacturing processes
- Familiarity with data concepts (preferred but not mandatory)
- Basic knowledge of Excel or any data tool
- Interest in AI and automation technologies

## 5. Course Content

### **Module 1: Introduction to AI in Manufacturing**

- Overview of AI, ML, and Industry 4.0
- Use cases in manufacturing

### **Module 2: Data Collection and Processing**

- IoT in manufacturing
- Data acquisition and preprocessing

### **Module 3: Predictive Maintenance**

- Machine learning models
- Failure prediction techniques

### **Module 4: Process Optimization**

- AI-based production planning
- Workflow automation

### **Module 5: Quality Control with AI**

- Computer vision applications

- Defect detection systems

### **Module 6: Supply Chain Optimization**

- Demand forecasting
- Inventory management using AI

### **Module 7: Smart Manufacturing Systems**

- Digital twins
- Autonomous systems

### **Module 8: Tools & Case Studies**

- Hands-on with AI tools
- Real-world case studies

