



**Scandinavian Academy**  
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# Course: Artificial Intelligence in Smart Maintenance

Code	City	Hotel	Start	End	Price	Language - Hours
DAI-896	Beirut (Lebanon)	Hotel Meeting Room	2027-01-11	2027-01-15	3050 €	En - 25

## Introduction:

The maintenance sector is undergoing a significant transformation through the adoption of Artificial Intelligence (AI), which enables organizations to predict failures before they occur, reduce downtime, increase equipment lifespan, and enhance operational performance. This course aims to equip participants with the knowledge and tools needed to implement AI-driven maintenance strategies for improved reliability and efficiency.

## General Objective:

To provide participants with the skills and understanding required to apply AI technologies in predictive and preventive maintenance, optimize asset performance, and support data-driven decision-making in maintenance operations.

## Objectives:

- Understand the fundamentals of AI and its relevance in maintenance.
- Distinguish between traditional, preventive, and predictive maintenance approaches.
- Use AI and machine learning techniques to forecast equipment failures.
- Apply digital platforms and tools for smart maintenance management.
- Improve spare parts management and reduce operational costs using AI.
- Develop AI-enabled maintenance plans that support efficiency and sustainability.



## Target Audience :

- Maintenance Engineers
- Maintenance Managers
- Reliability Engineers
- Plant and Operations Managers
- AI and Data Science Engineers
- Quality and Production Engineers
- Digital Transformation Leaders in Industry

## Course Outline

### Day 1: Introduction to AI and Its Applications in Maintenance

- Fundamentals of AI and machine learning
- The digital transformation of maintenance
- Traditional vs. smart maintenance approaches
- Real-world applications of AI in industrial environments
- Industry case studies and benchmarks

### Day 2: Predictive Maintenance and Data Analytics

- Core principles of Predictive Maintenance (PdM)
- Collecting data from sensors and IoT devices
- Data processing and big data analytics
- Machine learning for failure prediction
- Key performance indicators (KPIs) for smart maintenance

### Day 3: Tools and Technologies for AI in Maintenance

- Common AI platforms and tools (e.g., IBM Maximo, SAP Predictive Maintenance)
- Predictive modeling and condition monitoring techniques



- Integrating AI with Computerized Maintenance Management Systems (CMMS)
- Evaluating predictive model performance
- Technical and operational challenges in AI adoption

#### **Day 4: Advanced Applications in Smart Maintenance**

- AI in spare parts and supply chain management
- Dynamic scheduling of maintenance activities
- Using computer vision to detect equipment anomalies
- Optimizing energy use through smart maintenance
- Comparative case studies: traditional vs. AI-based maintenance

#### **Day 5: Implementing Smart Maintenance and AI Strategy**

- Building a roadmap for smart maintenance transformation
- Change management and workforce training
- Measuring ROI and maintenance effectiveness
- Supporting sustainability through AI-driven maintenance
- Group workshop: Design a smart maintenance model for a facility



The Scandinavian Academy for Training and Development adopts the latest scientific and professional methodologies in training and human resource development, aiming to enhance the efficiency of individuals and organizations. Training programs are delivered through a comprehensive approach that includes:

- Theoretical lectures supported by PowerPoint presentations and visual materials (videos and short films).
- Scientific evaluation of participants before and after the program to measure progress and knowledge acquisition.
- Brainstorming sessions and practical role-playing to simulate real-life scenarios.
- Case studies tailored to align with the training content and participants work nature.
- Assessment tests conducted at the end of the program to evaluate the achievement of training objectives.

Each participant will receive comprehensive training materials, including theoretical content, practical exercises, and supporting resources, provided in both printed and digital formats. Detailed reports, including attendance records, final results, and overall program evaluations, are also provided.

Training materials are prepared professionally by a team of experts and specialists in various fields. At the end of the program, participants are awarded a professional attendance certificate, signed and accredited by the Scandinavian Academy for Training and Development.

### **Program Timings:**

- 9:00 AM to 2:00 PM in Arab cities.
- 10:00 AM to 3:00 PM in European and Asian cities.

### **The program includes:**

- A daily Coffee Break provided during the sessions to ensure participants comfort.