Knowledge Seekers UK

Artificial Intelligence in Industrial Zones

13th - 17th October 2024

Istanbul – Turkiye

The program can be specially customised to meet the personal identified training needs of participants and help them contribute to their organizational goals

Course Overview

The course Embarks on a transformative learning journey exploring the power of Artificial Intelligence across all aspects of Industrial zones including diverse fields such as electrical, mechanical, civil, and general applications. This course elevates the learner's insight on AI towards the real-world practices by bridging the gap between theory and practical applications. It also provides hands-on experience of applying AI algorithms into potential applications. The examples of AI in running industrial zones provided in the course will enlighten the learners with an end-to-end perspective of real-world solutions.

This course is crafted to introduce key AI principles required for challenging real-time applications of electrical engineering like load predictions and fault diagnosis in substations. The course also covers the application of AI in mechanical engineering, encompassing seismic data processing, geo-modelling, and reservoir engineering. The industrial & process engineering learners will learn about AI's role in cloud data collection at construction sites and its applications in transport engineering and road traffic prediction. Immerse yourself in the future of AI with a focus on Machine and Deep learning operations, gaining insights that enable you to distinguish and apply AI based solutions to real-world challenges.

Explore hands-on exercises with software support, gaining a comprehensive understanding of AI metrics. Enhance your skills and broaden your horizons with the power of AI in industrial areas.

Training Methodology

This dynamic training is highly-interactive and encourages delegate participation through a combination of lectures, group discussion, practical exercise, case studies, and breakout session designed to reinforce new skills. The comprehensive course manual has been designed to be practical, easy to use and facilitate learning. Delegates will gain the skills and motivation they need to create long-lasting change.

Who is right for the Program?

1- This course is intended for engineers, designers, inspectors, educators
2- Scientists in industries that are involved in translating concepts to physical objects products
3- Industrial product managers, Production managers
4- Professional assigned to implement an EMS practically e.g., Environmental Managers, Quality Managers, Health & Safety Managers, Consultants
5- The course also designed for professionals & personnel working in Industrial Research & Development
6- Senior management executives for industrial authorities, industrial zones management
7- strategic and business development planners for urban and industrial authorities including All Administrative individuals working in industrial ministries
8- Relevant areas include consumer products, medical devices, textile, packaging, electronics, automotive, chemical, architecture, aerospace, and defense.

Course Aims & Objectives

- ✓ Learn how to develop an intelligent design and manufacturing workflow using the latest AI/machine learning methods
- ✓ Recognize the capabilities and limitations of current advanced manufacturing hardware.
- ✓ Enhance your ability to use AI tools for optimizing manufacturing processes and workflow designs.
- ✓ Increase your understanding of traditional and AI-based geometric representations for digital manufacturing at industrial zones
- ✓ Explore how to automatically mass-customize designs as industrial authority
- ✓ Learn how to predict design performance using virtual testing, numerical simulation, and AI methods.
- ✓ Delve into performance-driven design workflow, as well as principles of generative and inverse design
- ✓ Design objects using generative design methods for industrial authorities

- ✓ Acquire experience designing & optimizing objects for multiple objectives & across multiple domains
- ✓ Master principles of numerical optimization techniques for machine learning
- ✓ Design and build data-driven (machine learning) models that drive design customization.

Course Contents

Introduction to AI and Machine Learning for Industrial Zones:

- ✓ AI Computational design and manufacturing workflow
- ✓ Introduction to AI optimization
- ✓ Introduction to AI and machine learning
- ✓ Machine learning methods (including neural networks)
- ✓ Designing and building a machine learning model

Data Preprocessing & Data Analysis

- ✓ Overview of advanced manufacturing processes & Data collection
- ✓ From geometry to hardware abstraction languages
- ✓ Designing and fabricating models using a virtualized manufacturing system
- ✓ Intelligent manufacturing systems for public industrial authorities (GRC)
- ✓ Advanced AI tools for manufacturing process optimization (Bayesian optimization)
- ✓ Process optimization using Bayesian optimization

Deep Learning Fundamentals & Unsupervised Learning

- ✓ Digital design representations
- ✓ Customizable designs using parametric modeling
- ✓ Advanced design customization: procedural modeling and geometric deformation methods
- ✓ Designing customizable models for manufacturing
- ✓ Advanced AI tools for design customization (deep neural networks, convolutional neural networks)
- ✓ AI methods for representing design spaces (generative models, autoencoders, GANs)

Natural Language Processing (NLP) & Reinforcement Learning

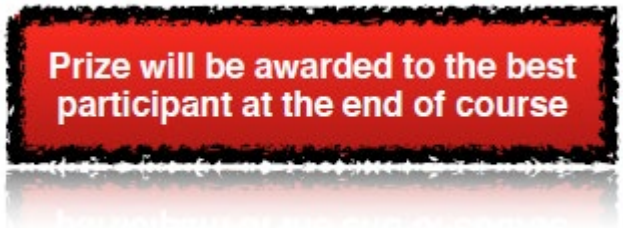
- ✓ Advanced AI methods for design customization
- ✓ AI for Environmental Control And Environmental Management Systems
- ✓ Predicting design performance using simulation methods
- ✓ Predicting design performance for manufacturing
- ✓ Predicting performance using ML methods
- ✓ Inverse methods performance-driven design
- ✓ AI methods for inverse methods

Deployment & Ethical Considerations with Real-world Applications & Case Studies

- ✓ Privacy and security concerns
- ✓ Fraud detection & anomaly detection
- ✓ AI Clinic: using learned material to solve real-life challenges brought by course participants
- ✓ Topology optimization & Generative design
- ✓ Symbolic and neurosymbolic AI methods for computational design
- ✓ Optimizing design for multiple objectives and multiple domains
- ✓ Developing an intelligent computational design and manufacturing workflow for industrial authorities.

Course Details

Course Title	***"Artificial Intelligence in Industrial Zones"***
Pre- Schedule:	13 - 17 October 2024
Timings:	09:00 AM – 01:30 PM
Fees per delegate	KWD 950 Kuwaiti Dinars
Course Venue:	Istanbul – Türkiye Radisson Blu Sisli
Course fees Include:	• Completion Certificate upon successful attendance & participation • Documentation & handout copies • USB memory and full training bag • 2 pick up arrangements from and to Istanbul airports • Refreshments and coffee breaks • Tour or corporate visit if possible • Discounted accommodation with our special corporate rate for hotel • Assessment and follow up after course • Action plan to help participants on personal career level



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