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Course Name

Advanced Engineering Principles and Practices

Sector Name

Mechanical Engineering

Document Type

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Advanced Engineering Principles and Practices

Course Introduction

This comprehensive course is designed for engineering and operations professionals seeking to enhance their technical knowledge across various engineering disciplines. It covers advanced concepts in mechanical, electrical, and systems engineering, with a focus on practical applications in industrial settings.

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Target Audience

This comprehensive course is designed for engineering and operations professionals seeking to enhance their technical knowledge across various engineering disciplines. It covers advanced concepts in mechanical, electrical, and systems engineering, with a focus on practical applications in industrial settings.

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Learning Objectives

- ✓ Apply advanced engineering principles to solve complex technical problems
- ✓ Identify and implement cutting-edge technologies in engineering operations
- ✓ Analyze and optimize engineering systems for improved efficiency
- ✓ Integrate various engineering disciplines in project planning and execution
- ✓ Develop strategies for continuous technical improvement in engineering operations

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Course Outline

✓ 01 Day One

Advanced Mechanical Engineering Concepts

- ✓ Advanced material science and selection
- ✓ Thermodynamics and heat transfer in industrial applications
- ✓ Fluid dynamics and computational fluid dynamics (CFD)
- ✓ Advanced manufacturing processes and automation

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Course Outline

✓ 02 Day Two

Electrical Engineering and Power Systems

- ✓ Power system analysis and stability
- ✓ Advanced control systems and instrumentation
- ✓ Electrical machines and drives
- ✓ Smart grid technologies and renewable energy integration

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Course Outline

✓ 03 Day Three

Systems Engineering and Integration

- ✓ Systems thinking and complex system design
- ✓ Requirements engineering and management
- ✓ System architecture and interface management
- ✓ Model-based systems engineering (MBSE)

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Course Outline

✓ 04 Day Four

Engineering Analysis and Optimization

- ✓ Finite element analysis (FEA) and its applications
- ✓ Optimization techniques in engineering design
- ✓ Reliability engineering and failure mode analysis
- ✓ Data analytics and machine learning in engineering

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Course Outline

✓ 05 Day Five

Emerging Technologies and Future Trends

- ✓ Internet of Things (IoT) in engineering operations
- ✓ Additive manufacturing and 3D printing advancements
- ✓ Artificial intelligence and robotics in engineering
- ✓ Sustainable engineering practices and green technologies

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 19, 2027	April 23, 2027	5 days	4250.00 $	UAE , Abu Dhabi
Aug. 10, 2026	Aug. 14, 2026	5 days	4250.00 $	UAE , Dubai
Nov. 2, 2026	Nov. 6, 2026	5 days	2150.00 $	Virtual , Online
April 4, 2027	April 8, 2027	5 days	4250.00 $	KSA , Al Khobar

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