London TDM

Engineering and Technical Skills Training Courses

Course Venue: United Arab Emirates - Dubai

Course Date: From 31 May 2026 To 04 June 2026

Course Place: Downtown Dubai

Course Fees: 5,000 USD

Introduction

Welcome to the "Advanced Thermodynamics and Heat Transfer" course, designed for professionals seeking deeper understanding and expertise in the principles of thermodynamics and the intricacies of heat transfer processes. This intensive 5-day course will enhance your knowledge through a series of lectures, practical case studies, and discussions on the latest technologies and methodologies in the field.

Objectives

- Analyze advanced thermodynamic systems and cycles.
- Understand the principles and applications of heat exchangers.
- Evaluate real-world heat transfer problems using advanced methodologies.
- Incorporate state-of-the-art technology in thermodynamic applications.
- Develop critical thinking and problem-solving skills in thermodynamics and heat transfer scenarios.

Course Outlines

Day 1: Advanced Thermodynamic Systems

- Review of fundamental thermodynamic concepts.
- Exploration of advanced thermodynamic cycles: Rankine, Brayton, and refrigeration.
- Analysis of thermodynamic properties and phase behavior of substances.
- Introduction to exergy and its applications in system efficiency.
- Discussion on energy analysis methods and tools.

Day 2: Heat Exchangers and Applications

- Introduction to different types of heat exchangers and their applications.
- Design and analysis of heat exchanger performance.
- Methods for enhancing heat transfer efficiency in exchangers.
- Plate heat exchangers: advantages and design considerations.
- Case studies on industrial heat exchanger applications.

Day 3: Conduction and Convection Heat Transfer

- In-depth analysis of conduction heat transfer in solids.
- Analytical and numerical methods for solving conduction problems.
- Understanding forced and natural convection heat transfer.
- Boundary layer theory and its significance in heat transfer.
- Applications of conduction and convection in engineering systems.

Day 4: Radiation Heat Transfer and Thermal Radiation Properties

- Fundamentals of thermal radiation heat transfer.
- Properties of thermal radiation and surface emissivity.
- Radiation view factors and their applications in complex systems.
- Radiation exchange in enclosures: methods and solutions.

- Overview of radiative heat transfer in renewable energy systems.

Day 5: Emerging Technologies and Advanced Topics

- Integration of thermodynamics and heat transfer in sustainable energy systems.
- Recent advances in nano-thermodynamics and heat transfer materials.
- Exploration of Computational Fluid Dynamics (CFD) in heat transfer analysis.
- Smart systems and IoT in heat transfer and thermodynamic applications.
- Discussion on future trends and research opportunities in the field.