

Advanced Thermodynamics & Heat Transfer

COURSE OVERVIEW

This course provides an in-depth exploration of advanced thermodynamics and heat transfer principles, emphasizing their application in engineering design and analysis. It examines key areas like energy systems, heat exchangers, conduction, convection, and radiation processes, as well as thermodynamic cycles and property relations for real-world applications. The curriculum combines theoretical concepts with practical problem-solving, enabling participants to optimize thermal systems, enhance energy efficiency, and address complex engineering challenges in mechanical, chemical, and process industries.

WHO SHOULD ATTEND?

This course is ideal for mechanical engineers, thermal and process engineers, energy specialists, HVAC and power systems professionals, and technical staff involved in the design, analysis, or optimization of thermal and energy systems. It is also suitable for engineering individuals seeking advanced skills in thermodynamics and heat transfer applications.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Apply advanced thermodynamic concepts to analyze energy systems.
- Design and optimize heat exchangers and thermal components.
- Analyze combustion processes and reaction thermodynamics.
- Solve complex heat transfer problems using analytical and numerical methods.
- Evaluate system performance using exergy and irreversibility analysis.
- Develop computational models for thermal system simulation.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- Exergy analysis and second law efficiency concepts.
- Multiphase flow and phase change heat transfer.
- Combustion thermodynamics and emission formation.
- Convective heat transfer in complex geometries.
- Radiative heat transfer and participating media.
- Heat exchanger design and performance optimization.
- Thermal system modelling and simulation techniques.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.

1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded