

<b>Course Title</b>	<b>Course Code</b>	<b>Credit Hours</b>
Gas Turbines	AE-472	3 – 0

**Textbooks:**

- Philip Hill, and Carl Peterson, “Mechanics and Thermodynamics of Propulsion”, John Willy & Sons
- Claire Soares, “Gas Turbines. A Handbook of Air, Land and Sea Applications”, Elsevier Science

**Reference Books/Materials:**

- V. Ganesan, “Gas Turbines”, Tata McGraw Hill Education Private Ltd.
- Younus A. Cengel, and Micheal A. Boles, “Thermodynamics, An Engineering Approach”, McGraw Hill
- EASA Part-66 Category B1 Maintenance License Module 15, “Gas Turbine Engine”

**Course Objectives:**

This course introduces students to gas turbines, their thermodynamic cycles, analysis of components used in power plants, their types, applications and performance.

**Course Outline:**

- Intro to Gas Turbines (GT)
- GT Components and their Description
- Comparison with Other Cycles
- , Comparison of Various Power Generation Technologies
- Gas Turbine Applications
- Brayton Cycle and its Derivatives
- Combined Cycle Plants
- Gas Turbine Thrust Production
- Thrust Equation and Efficiencies
- Gas Turbine Performance Parameters:
  - Propulsive Efficiency
  - Thermal Efficiency

- Overall Efficiency
- Thrust Power and Engine Power
- Thrust Specific Fuel Consumption
- Comparison of Performance Parameters
- Simple Turbojet; Thermodynamic Analysis and Engine Performance
- Concept of By-pass Engine, Ideal and Actual Turbofan
- Axial Compressor, Axial Turbine  
Centrifugal Compressor