

EAS109 Thermo-Fluid Mechanics

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY SEMESTER

Synopsis:

This course provides the student with introductory knowledge and understanding of fluid mechanics and engineering thermodynamics.

Examples of engineering applications relating to fluid flow and thermodynamic principles will be used during the lectures and tutorial exercises.

This is an integral part of the undergraduate curriculum for students specializing in aerospace engineering. The subject concepts and practical applications will be delivered through seminars and laboratory classes.

Topics:

- Fluid Mechanics Principles - This unit defines a fluid, identifies key its properties and introduces basic fluid calculations
- Kinematics and Dimensional Analysis - This unit delves into details of descriptors and significant groupings of properties for a systematic understanding of fluid flow
- Thermodynamic Principles and Systems - This unit details the 1st Law of Thermodynamics , identifies all relevant properties and introduces thermodynamic calculations
- Thermodynamic Cycles - This unit details of 2nd Law of Thermodynamics and Entropy, introduces thermodynamic cycle calculations
- Fluid Mechanics applications - This unit introduces the Bernoulli and Momentum Equations and their applications in fluid flow
- Viscous Internal and External Flow - This unit views flows where viscous effects have to be accounted for in calculations

Textbooks:

: Cust Ebook Thermo-Fluid Mechanics (eTextbook) McGraw-Hill
ISBN-13: 9781307153378

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ISBN-13: 9781307153378-AA

Learning Outcome:

- Explain the fundamental of Thermodynamics and Fluid Mechanics.
- Recognise interrelationships underpinning the laws governing these two disciplines.
- Apply learnt content to explain and calculate thermodynamic and fluid flows and processes.
- Identify basic thermodynamic and fluid equations equipment for fundamental flow study.
- Describe and conduct thermodynamic and fluid experiments.
- Interpret computer simulations results and extract data to perform analyses.

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
QUIZ	10
LAB REPORT	12
TUTOR-MARKED ASSIGNMENT	8
Sub-Total	30

Examinable Component	Weightage (%)
Written Exam	70
Sub-Total	70

Weightage Total **100**