

# Aerospace Propulsion - Video course

## COURSE OUTLINE

Introduction to various air breathing and non-air breathing engines, conservation equations & derivation of the thrust equation for air breathing and non-air breathing engines.

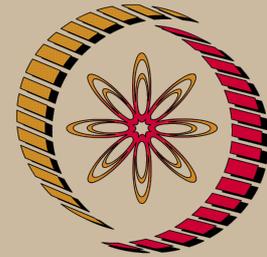
Efficiencies of air breathing and non-air breathing engines, quasi-one dimensional flow through nozzles.

Cycle analysis of air breathing systems, detailed discussion on rocket engines.

## COURSE DETAIL

A Web course shall contain 40 or more 1 hour lecture equivalents.

S.No	Topics	No.of Hours
1	Introduction to various air breathing and non-air breathing engines.	8
2	Conservation equations & derivation of the thrust equation for air breathing and non-air breathing engines.	4
3	Efficiencies of air breathing and non-air breathing engines.	4
4	Quasi-one dimensional flow through nozzles.	6
5	Cycle analysis of air breathing systems.	10



NP-TEL

# NPTEL

<http://nptel.iitm.ac.in>

## Aerospace Engineering

### Pre-requisites:

1. Basic knowledge of fluid mechanics and thermodynamics.

### Coordinators:

**Dr. P.A. Ramakrishna**  
Department of Aerospace Engineering IIT Madras

**References:**

1. Understanding aerospace chemical propulsion-H S Mukunda, Interline publishing.
2. Rocket propulsion elements-G P Sutton and Oscar Biblarz, John Wiley and sons.
3. Mechanics and Thermodynamics of Propulsion-Philip Hill and Carl Peterson, Addison Wesley.
4. Elements of Gas Turbine Propulsion-J D Mattingly, McGraw-Hill.