

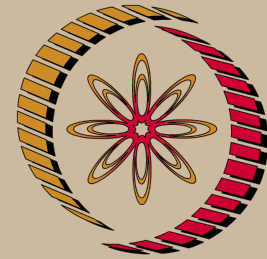
NOC: Introduction to airplane performance - Video course

COURSE OUTLINE

This course is designed to provide an integrated introductory treatment of airplane performance with flavor of aircraft design and flight testing.

COURSE DETAIL

Week. No	Topics
1.	General Introduction: Airplane Performance Characteristics George Cayley: Concept of Lift and Drag Introduction to airplane and its components Hansa 3 Aircraft and its Primary Systems Concept of Lift: Aerofoil, Wing, and Complete Aircraft Drag Polar
2	Revision Standard Atmosphere: Description and Modelling Measuring Instruments: Altimeter, Airspeed Indicator Equations of Motion: Static Performance Thrust Required, Power Required: Cruise Excess Thrust and Power: Climb Angle and Rate of Climb
3	Review Thrust Required: A Closer Look Modelling of CL: Dimensional Analysis A Closer Look: Point Mass Model, Dimensional Analysis Estimation of Drag Polar Through Flight Test Estimation of Rate of Climb
4	Revision Range and Endurance Range and Endurance Continued...



NP-TEL

NPTEL

<http://nptel.ac.in>

**Aerospace
Engineering**

Pre-requisites:

Btech/BE in any discipline of engineering

Coordinators:

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Department of Aerospace
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	<p>Gliding Flight Accelerated Flight V-n Diagram</p>
5	<p>Revision V stall: Cruise and Manoeuvre Flaps: High Lift Devices to Reduce Take off / Landing Distance Take off: Warm-up Lecture Take off Performance Take off Performance Continued...</p>
6	<p>Revision Landing Performance Landing Performance Continued... Challenges in Take-off and Landing: Single and Twin Engines Introduction to Static Stability Positioning of Centre of Pressure for Static Stability</p>
7	<p>Revision Stability and Control: Designer's Perspective Stability and Control: Designer's Perspective Continued... Longitudinal Control: Elevator Stability: Wing and Tail Contribution Stability: Wing and Tail Contribution Continued...</p>
8	<p>Control: Elevator Control: δE Required Control: δE Required continued... Design Basics: Wing Loading & Thrust Loading Design Basics: Sweep & Dihedral Revision</p>

