**NPTEL : Introduction to Aerospace Propulsion (Aerospace Engineering)**

**Co-ordinators : Prof. Bhaskar Roy, Prof. A M Pradeep**

**NPTEL : Jet Aircraft Propulsion (Aerospace Engineering)**

**Co-ordinators : Prof. A M Pradeep, Prof. Bhaskar Roy**

**NPTEL : Turbomachinery Aerodynamics (Aerospace Engineering)**

**Co-ordinators : Prof. Bhaskar Roy, Prof. A M Pradeep**

**NPTEL : NOC:Introduction to Aerospace Engineering (Aerospace Engineering)**

**Co-ordinators : Prof. Rajkumar Pant**

**NPTEL : NOC:Introduction to Aircraft Design (Aerospace Engineering)**

**Co-ordinators : Prof. Rajkumar Pant**

**NPTEL : NOC:Introduction to Launch Vehicle Analysis and Design (Aerospace Engineering)**

**Co-ordinators : Prof. Ashok Joshi**

**NPTEL : NOC:Lighter than Air Systems (Aerospace Engineering)**

**Co-ordinators : Prof. Rajkumar Pant**

Lecture 65 - Fabric Testing Machines - Part II

Lecture 66 - Need for Ground Handling

Lecture 67 - Aerium Hanger for CL 160 Airship

Lecture 68 - Ground Handling of Airships

Lecture 69 - Types of Mooring Masts and Design Requirements

Lecture 70 - Nose Battens for Envelopes

Lecture 71 - Need for Airship Design Methodology

Lecture 72 - Overview of Airship Design Methodology ADM

Lecture 73 - Details of Airship Design Methodology ADM

Lecture 74 - Inputs to Airship Design Methodology - Part 1

Lecture 75 - Inputs to Airship Design Methodology - Part 2

Lecture 76 - Design Constants in Airship Design Methodology

Lecture 77 - Outputs from Airship Design Methodology

Lecture 78 - Statistical Data Used in Airship Design Methodology

Lecture 79 - Validation of Airship Design Methodology

Lecture 80 - Envelope Shapes for LTA Systems

Lecture 81 - Example of Application of Airship Design Methodology

Lecture 82 - Conclusions and Limitations of Airship Design Methodology

Lecture 83 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 1

Lecture 84 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 2

Lecture 85 - Sizing Procedure for Indoor Remotely Controlled Airships - Part 3

Lecture 86 - Tutorial on Sizing of an Indoor Non Rigid Remotely Controlled Airship

Lecture 87 - Transportation Problems Faced by Remote Regions

Lecture 88 - Airships vs Helicopters - Part I

Lecture 89 - Airships vs Helicopters - Part II

Lecture 90 - Chaar Dham Yatra - Part I

Lecture 91 - Chaar Dham Yatra - Part II

Lecture 92 - Chaar Dham Yatra - Part III

Lecture 93 - Steam and IC engines for Airships

Lecture 94 - Electric motors for Airships

Lecture 95 - Turboprops for Airships

Lecture 96 - Solar Propulsion and Thrust Vectoring on Airships

Lecture 97 - Lectuer on Dynamics

**NPTEL : NOC:Elements of Mechanical Vibration (Aerospace Engineering)**

**Co-ordinators : Prof. Ashish K Darpe**

**NPTEL : Aero elasticity (Aerospace Engineering)**

**Co-ordinators : Prof. C. Venkatesan**

**NPTEL : Foundation of Scientific Computing (Aerospace Engineering)**

**Co-ordinators : Prof. Tapan K. Sengupta**

**NPTEL : Instability and Transition of Fluid Flows (Aerospace Engineering)**

**Co-ordinators : Prof. Tapan K. Sengupta**

**NPTEL : Introduction to Helicopter Aerodynamics and Dynamics (Aerospace Engineering)**

**Co-ordinators : Prof. A.R. Manjunath, Prof. C. Venkatesan**

**NPTEL : Introduction to Propulsion (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : Jet and Rocket Propulsion (Aerospace Engineering)**

**Co-ordinators : Dr. A. Kushari**

**NPTEL : NOC:Introduction to Airplane Performance (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh, Dr. Deepu Philip**

**NPTEL : NOC:Stability and control of aircraft (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh**

**NPTEL : NOC:Engineering Thermodynamics (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : NOC:Aircraft Dynamic Stability and Design Stability (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh**

**NPTEL : NOC:Introduction to Ancient Indian Technology (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : NOC:Introduction to Experiments in Flight (Aerospace Engineering)**

**Co-ordinators : Prof. Mahendra Verma, Dr. A.K. Ghosh**

**NPTEL : NOC:Engineering Thermodynamics (2017) (Aerospace Engineering)**

**Co-ordinators : Dr. Jayant K. Singh**

**NPTEL : NOC:Aircraft Design (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh**

**NPTEL : NOC:Fundamentals Of Combustion-I (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : NOC:Aircraft Maintenance (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh**

**NPTEL : NOC:Fundamentals of Combustion - Part 2 (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : NOC:Design of Fixed Wing Unmanned Aerial Vehicles (Aerospace Engineering)**

**Co-ordinators : Prof. Saderla Subrahmanyam**

**NPTEL : NOC:Introduction to Finite Volume Methods-I (Aerospace Engineering)**

**Co-ordinators : Prof. Ashoke De**

**NPTEL : NOC:Advance Aircraft Maintenance (Aerospace Engineering)**

**Co-ordinators : Dr. A.K. Ghosh, Mr. V. Mathur**

**NPTEL : NOC:Introduction to Finite Volume Methods-II (Aerospace Engineering)**

**Co-ordinators : Prof. Ashoke De**

**NPTEL : NOC:Introduction to Rocket Propulsion (Aerospace Engineering)**

**Co-ordinators : Dr. D.P. Mishra**

**NPTEL : NOC:UAV Design - Part II (Aerospace Engineering)**

**Co-ordinators : Prof. Saderla Subrahmanyam**

**NPTEL : NOC:Introduction to Airbreathing Propulsion (Aerospace Engineering)**

**Co-ordinators : Prof. Ashoke De**

**NPTEL : NOC:Computational Science in Engineering (Aerospace Engineering)**

**Co-ordinators : Prof. Ashoke De**

Method, Gauss-Seidel

Lecture 32 - Extrapolation Method, Eigenvalue Problem, Jacobi Method, Householder's Method for Symmetric Matrices, Power Method, Inverse Power Method

Lecture 33 - Interpolation: Taylor's Series, Lagrange and Newton Interpolation, Iterated Interpolation, Hermite Interpolation, Finite Difference Operations

Lecture 34 - Piecewise and Spline Interpolation, Bivariate Interpolation, Least Square Approximation, Uniform Polynomial Approximation

Lecture 35 - Numerical Differentiation and Intergration, Methods Based on Finite Differences, Methods based on Undetermined Coefficients, Extrapolation Methods, Partial Differentiation

Lecture 36 - Numerical Integration: Newton-Cotes Method, Gaussian Integration Methods, Lobatto Integration Method, Radau Integration Method, Composite Integration Methods

Lecture 37 - Double Integration: Trapezoidal Rule, Simpson's Rule, Solution of ODEs: Difference Equation, Single Step Methods, Explicit Methods

Lecture 38 - Runge-Kutta Methods, Euler-Cauchy Method, Multi-step Methods, Predictor-Corrector Methods

Lecture 39 - System of Differential Equations, Stability Analysis, Solution of Boundary Value Problem: Shooting Method

Lecture 40 - Numerical Approach to Solution of PDEs: Heat Conduction Equation, Convergence and Stability

**NPTEL : NOC:Introduction to Aircraft Control System (Aerospace Engineering)**

**Co-ordinators : Prof. Dipak Kumar Gir**

**NPTEL : NOC:Applied Computational Fluid Dynamics (Aerospace Engineering)**

**Co-ordinators : Prof. Rajesh Ranjan**

**NPTEL : High Speed Aero Dynamics (Aerospace Engineering)**

**Co-ordinators : Dr. K.P. Sinhamahapatra**

**NPTEL : Space Flight Mechanics (Aerospace Engineering)**

**Co-ordinators : Dr. Manoranjan Sinha**

**NPTEL : Introduction to Aerodynamics (Aerospace Engineering)**

**Co-ordinators : Dr. K.P. Sinhamahapatra**

**NPTEL : NOC:Satellite Attitude Dynamics and Control (Aerospace Engineering)**

**Co-ordinators : Dr. Manoranjan Sinha**

**NPTEL : NOC:Vibration and Structural Dynamics (Aerospace Engineering)**

**Co-ordinators : Prof. Mira Mitra**

**NPTEL : NOC:Space Flight Mechanics (Aerospace Engineering)**

**Co-ordinators : Dr. Manoranjan Sinha**

Lecture 65 - General Orbit Perturbation Theory (Continued...)

Lecture 66 - General Orbit Perturbation Theory (Continued...)

Lecture 67 - General Orbit Perturbation Theory (Continued...)

Lecture 68 - Orbit Determination

Lecture 69 - Orbit Determination (Continued...)

Lecture 70 - Orbit Determination (Continued...)

Lecture 71 - Orbit Determination (Continued...)

Lecture 72 - Transformation from Celestial to Earth Fixed Reference Frame

Lecture 73 - Time

Lecture 74 - Time (Continued...)

Lecture 75 - Orbit Determination

Lecture 76 - Orbit Determination (Continued...)

Lecture 77 - Orbit Determination (Continued...)

Lecture 78 - Orbit Determination (Continued...)

Lecture 79 - Trajectory Transfer

Lecture 80 - Trajectory Transfer (Continued...)

Lecture 81 - Trajectory Transfer (Continued...)

Lecture 82 - Trajectory Transfer (Continued...)

Lecture 83 - Trajectory Transfer (Continued...)

Lecture 84 - Trajectory Transfer (Continued...)

Lecture 85 - Trajectory Transfer (Continued...)

Lecture 86 - Trajectory Transfer (Continued...)

Lecture 87 - Interplanetary Transfer

Lecture 88 - Interplanetary Transfer (Continued...)

Lecture 89 - Interplanetary Transfer (Continued...)

Lecture 90 - Patched Conic Section Method for Interplanetary Transfer

Lecture 91 - Interplanetary Mission

Lecture 92 - Interplanetary Mission (Continued...)

Lecture 93 - Interception in Coplanar Orbit

Lecture 94 - Interception in Coplanar Orbit (Continued...)

Lecture 95 - Interception in non-coplanar Orbit

Lecture 96 - Interception in non-coplanar Orbit (Continued...)

Lecture 97 - Interception in non-coplanar Orbit (Continued...)

**NPTEL : NOC:Aircraft Structures - I (Aerospace Engineering)**

**Co-ordinators : Dr. Anup Ghosh**

**NPTEL : NOC:Introduction to CFD (Aerospace Engineering)**

**Co-ordinators : Prof. Arnab Roy**

Lecture 65 - Structured and Unstructured Grid Generation (Continued...)

**NPTEL : NOC:Fundamentals of Theoretical and Experimental Aerodynamics (Aerospace Engineering)**

**Co-ordinators : Prof. Arnab Roy**

**NPTEL : NOC:Aerodynamic Design of Axial Flow Compressors and Fans (Aerospace Engineering)**

**Co-ordinators : Prof. Chetankumar Sureshbhai Mistry**

**NPTEL : NOC:Smart Structures (Aerospace Engineering)**

**Co-ordinators : Prof. Mohammed Rabius Sunny**

**NPTEL : NOC:Aeroengine Gas Turbine Cycles (Aerospace Engineering)**

**Co-ordinators : Prof. Chetankumar Sureshbhai Mistry**

**NPTEL : NOC:Combustion of Solid Fuels and Propellants (Aerospace Engineering)**

**Co-ordinators : Prof. Srinibas Karmakar**

**NPTEL : NOC:Aerospace Structural Analysis (Aerospace Engineering)**

**Co-ordinators : Prof. Mira Mitra**

**NPTEL : NOC:Fundamentals of Supersonic and Hypersonic Flow (Aerospace Engineering)**

**Co-ordinators : Prof. Arnab Roy**

**NPTEL : Acoustic Instabilities in Aerospace Propulsion (Aerospace Engineering)**

**Co-ordinators : Prof. R.I. Sujith**

**NPTEL : Aerospace Propulsion (Aerospace Engineering)**

**Co-ordinators : Dr. P.A. Ramakrishna**

**NPTEL : Combustion (Aerospace Engineering)**

**Co-ordinators : Prof. S.R. Chakravarthy**

**NPTEL : Flight Dynamics II (Stability) (Aerospace Engineering)**

**Co-ordinators : Dr. Nandan Kumar Sinha**

**NPTEL : Gas Dynamics (Aerospace Engineering)**

**Co-ordinators : Dr. T.M. Muruganandam**

**NPTEL : Introduction to CFD (Aerospace Engineering)**

**Co-ordinators : Prof. M. Ramakrishna**

**NPTEL : NOC:Rocket Propulsion (Aerospace Engineering)**

**Co-ordinators : Prof. K. Ramamurthi, Prof. S. Varunkumar**

**NPTEL : Advanced Control System Design for Aerospace Vehicles (Aerospace Engineering)**

**Co-ordinators : Dr. Radhakant Padhi**

**NPTEL : Optimal Control, Guidance and Estimation (Aerospace Engineering)**

**Co-ordinators : Dr. Radhakant Padhi**

**NPTEL : NOC:Combustion in Air Breathing Aero Engines (Aerospace Engineering)**

**Co-ordinators : Prof. Swetaprovo Chaudhuri**

**NPTEL : NOC:Gasdynamics: Fundamentals and Applications (Aerospace Engineering)**

**Co-ordinators : Prof. Srisha Rao M V**