

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Aerospace Engineering - NOC:Introduction to Aircraft Design

Subject Co-ordinator - Prof. Rajkumar Pant

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - What is Aircraft Design  
Lecture 2 - Aircraft Design Process  
Lecture 3 - Design Stages  
Lecture 4 - Phases in Aircraft Design  
Lecture 5 - The Design Spiral  
Lecture 6 - Importance of Cost in Aircraft Design  
Lecture 7 - Basic Laws of Aircraft Design  
Lecture 8 - Requirements Capture  
Lecture 9 - Quality Function Deployment  
Lecture 10 - House of Quality Chart  
Lecture 11 - Example of HoQ for HALE UAV  
Lecture 12 - Illustration of HOQ-GA aircraft  
Lecture 13 - Airlines  
Lecture 14 - Key Issues in Design of Airlines  
Lecture 15 - Design Considerations - Future Airlines  
Lecture 16 - Supersonic Transport Aircraft  
Lecture 17 - Airliner and Supersonic Aircraft, some additional concepts  
Lecture 18 - Design Considerations - Cargo Aircraft  
Lecture 19 - Design Considerations - GA Aircraft  
Lecture 20 - Types of Military Aircraft  
Lecture 21 - Cargo, GA and Military Aircraft, Some additional concepts  
Lecture 22 - Aircraft Configuration Design  
Lecture 23 - Podded Engines on Wings  
Lecture 24 - Wing Sweep  
Lecture 25 - Canards and Flying Wing  
Lecture 26 - Three Surface Aircraft  
Lecture 27 - Winglets  
Lecture 28 - Thrust Vectoring  
Lecture 29 - Few Novel Concepts\_01

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- Lecture 30 - Aircraft Configuration Design - Closing Remarks
- Lecture 31 - Choices in Aircraft Layout
- Lecture 32 - Wing Geometry Definitions
- Lecture 33 - Options for Wing layout
- Lecture 34 - Propulsion System Layout
- Lecture 35 - Tail Plane Layout
- Lecture 36 - Landing Gear Layout - Part 1
- Lecture 37 - Landing Gear Layout - Part 2
- Lecture 38 - Landing Gear of some Famous Aircraft
- Lecture 39 - Tutorial on OpenVSP
- Lecture 40 - Initial Sizing in Aircraft Design
- Lecture 41 - Estimation of Empty Weight Fraction
- Lecture 42 - Estimation of Mission Segment Weights
- Lecture 43 - Estimation of Fuel Weight Fractions
- Lecture 44 - Estimation of maximum L/D
- Lecture 45 - Estimation of engine parameters
- Lecture 46 - Estimation of Design gross weight
- Lecture 47 - Take-off weight build up
- Lecture 48 - Tutorial on Initial Sizing of Transport Aircraft
- Lecture 49 - Tutorial on Initial Sizing of Military Aircraft
- Lecture 50 - Subsonic Parasite Drag Estimation
- Lecture 51 - Component Buildup Method
- Lecture 52 - Drag Estimation of Military Aircraft
- Lecture 53 - Tutorial on Drag Polar Estimation of Military Aircraft
- Lecture 54 - Estimation of Lift Coefficient
- Lecture 55 - Estimation of Maximum Lift Coefficient
- Lecture 56 - Flaps as High Lift Devices
- Lecture 57 - Tutorial on Lift Coefficient Estimation of Transport Aircraft
- Lecture 58 - Tutorial on Lift Coefficient Estimation of Military Aircraft
- Lecture 59 - Constraint Analysis- Introductory Remarks
- Lecture 60 - Constraint Analysis- Transport Aircraft - Part 1
- Lecture 61 - Constraint Analysis- Transport Aircraft - Part 2
- Lecture 62 - Tutorial on Constraint Analysis of Transport Aircraft - Part 1
- Lecture 63 - Tutorial on Constraint Analysis of Transport Aircraft - Part 2
- Lecture 64 - Constraint Analysis- Military Aircraft
- Lecture 65 - Tutorial on Constraint Analysis of Military Aircraft - Part 1
- Lecture 66 - Tutorial on Constraint Analysis of Military Aircraft - Part 2
- Lecture 67 - Refined Sizing
- Lecture 68 - Tutorial on Refined Sizing of Jet Fighter Aircraft

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- Lecture 69 - Cost Estimation in Aircraft Conceptual Design
- Lecture 70 - Aircraft Life Cycle Cost Estimation
- Lecture 71 - Tutorial on RDT&E and Production Cost Estimation of Transport Aircraft
- Lecture 72 - Tutorial on DT&E and Production Cost Estimation of HALE UAV
- Lecture 73 - Estimation of Direct Operating Cost
- Lecture 74 - Fighter Aircraft Life Cycle Cost Estimation Model
- Lecture 75 - Range Payload Diagram - Part 1
- Lecture 76 - Range Payload Diagram - Part 2
- Lecture 77 - Tutorial on Range Payload Diagram of Transport Aircraft
- Lecture 78 - Environmental issues in Aircraft Design
- Lecture 79 - Limit Manoeuvre Envelope
- Lecture 80 - Effect of Gust
- Lecture 81 - Aircraft Loads
- Lecture 82 - Tutorial on V-n Diagram of Transport Aircraft
- Lecture 83 - High Altitude Long Endurance (HALE) Aircraft
- Lecture 84 - Morphing of Aircraft Configurations
- Lecture 85 - Guest Lecture on Air Power and Multi-role Fighter Aircraft - Part 1
- Lecture 86 - Guest Lecture on Air Power and Multi-role Fighter Aircraft - Part 2