

Introduction to Aerodynamics - Video course

COURSE OUTLINE

This course covers lessons on aircraft, aerodynamic forces and moments, fluids and forces in fluids, kinematics of fluid motion, conservation of energy, equations of motion, potential flow, conformal transformation, Zhukovsky transformation, boundary-layer theory.

COURSE DETAIL

S.No	Topic
1	Aircraft and Aerodynamic Forces and Moments
2	Aircraft and Aerodynamic Forces and Moments (Contd.)
3	Fluids and Forces in Fluids
4	Fluids and Forces in Fluids (Contd.)
5	Forces in Fluids
6	Forces in Fluids (Contd.)
7	Kinematics of fluid motion
8	Kinematics of fluid motion (Contd.)
9	Kinematics of fluid motion (Contd.)
10	Kinematics of fluid motion (Contd.)
11	Kinematics of fluid motion - Velocity with specified extension and vorticity
12	Kinematics of fluid motion - Velocity with specified extension and vorticity (Contd.)
13	Kinematics of fluid motion - Vorticity Distribution
14	Kinematics of fluid motion - Velocity without expansion and vorticity
15	Irrrotational Solenoidal Flow in Multiply Connected region



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Aerospace Engineering

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16	Irrotational Solenoidal Flow in Multiply Connected region (Contd.)
17	Equations of Fluid Motion - Navier - Stokes Equation
18	Equations of Fluid Motion - Navier - Stokes Equation (Contd.)
19	Equations of Fluid Motion - Navier - Stokes Equation (Contd.)
20	Conservation of Energy and Energy Equation
21	Equations of Motions
22	Equations of Motion (Contd.)
23	Exact Solution for Simple Problems
24	Exact Solution for Simple Problems (Contd.)
25	Non-dimensional Form of the Equations and Possible Simplifications
26	High Reynolds Number Approximation
27	Conditions for Incompressibility
28	Potential Flow
29	Potential Flow - Combination of Basic Solutions
30	Potential Flow - Combination of Basic Solutions (Contd.)
31	Potential Flow - Combination of Basic Solutions (Contd.)
32	Potential Flow - Combination of Basic Solutions (Contd.) - Lifting Cylinder
33	Conformal Transformation
34	Conformal Transformation (Contd.)
35	Zhukovsky Transformation
36	Zhukovsky Transformation (Contd.)
37	Zhukovsky Transformation - Applications

38	Zhukovsky Transformation - Applications (Contd.)
39	Zhukovsky Transformation - Applications (Contd.)
40	Transformation
41	Transformation (Contd.)
42	Boundary - Layer Theory
43	Boundary - Layer Theory (Contd.)
44	Boundary - Layer Theory (Contd.)
45	Boundary - Layer Theory (Contd.)
46	Boundary - Layer Theory (Contd.)