Fluid Mechanics - Video course

COURSE OUTLINE

Properties of fluids and fundamental concepts, Fluid statics and its applications, Kinematics of fluids, Conservation equations in fluid flow and its applications, Incompressible viscous flow with applications to pipe flow in practice, Principles of similarity, Flow of ideal fluids, Flow with free surface, Few unsteady flow phenomena in practice, Introduction to laminar boundary layer, Introduction to turbulent flow,

The course coverage is balanced with analytical treatments, physical concepts and practical applications.

COURSE DETAIL

Modules	Lecture Topics
Module: 1	Lecture 1: Introduction and Fundamental Concepts Part-I Lecture 2: Introduction and Fundamental Concepts Part-II Lecture 3: Introduction and Fundamental Concepts Part-III
Module: 2	Lecture 4: Fluid Statics Part-I Lecture 5: Fluid Statics Part-II Lecture 6: Fluid Statics Part-III Lecture 7: Fluid Statics Part-IV Lecture 8: Fluid Statics Part-V Lecture 9: Fluid Statics Part-VI
Module: 3	Lecture 10: Kinematics of Fluid Part-I Lecture 11: Kinematics of Fluid Part-II Lecture 12: Kinematics of Fluid Part-III
Module: 4	Lecture 13: Conservation Equations in Fluid Flow Part-I Lecture 14: Conservation Equations in Fluid Flow Part-II
Module: 5	Lecture 15: Conservation Equations in Fluid Flow Part-III Lecture 16: Conservation Equations in Fluid Flow Part-IV Lecture 17: Conservation Equations in Fluid Flow Part-V Lecture 18: Conservation Equations in Fluid Flow Part-VI Lecture 19: Conservation Equations in Fluid Flow Part-VII Lecture 20: Conservation Equations in Fluid Flow Part-VIII Lecture 21: Conservation Equations in Fluid Flow Part-IX
Module: 6	Lecture 22: Fluid Flow Applications Part-I Lecture 23: Fluid Flow Applications Part-II Lecture 24: Fluid Flow Applications Part-III Lecture 25: Fluid Flow Applications Part-IV Lecture 26: Fluid Flow Applications Part-V

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Mechanical Engineering

Coordinators:

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	Lecture 27: Fluid Flow Applications Part-VI Lecture 28: Fluid Flow Applications Part-VII
Module: 7	Lecture 29: Incompressible Viscous Flows Part-I Lecture 30: Incompressible Viscous Flows Part-II Lecture 31: Incompressible Viscous Flows Part-III Lecture 32: Incompressible Viscous Flows Part-IV
Module: 8	Lecture 33: Application of Viscous Flow through Pipes Part-I Lecture 34: Application of Viscous Flow through Pipes Part-II Lecture 35: Application of Viscous Flow through Pipes Part-III
Module: 9	Lecture 36: Principles of Similarity Part-I Lecture 37: Principles of Similarity Part-I Lecture 38: Principles of Similarity Part-I
Module: 10	Lecture 39: Flow of Ideal Fluids Part-I Lecture 40: Flow of Ideal Fluids Part-II
Module: 11	Lecture 41: Flows with a Free Surface Part-I Lecture 42: Flows with a Free Surface Part-II Lecture 43: Flows with a Free Surface Part-III
Module: 12	Lecture 44: A Few unsteady Flow Phenomena Part-I Lecture 45: A Few unsteady Flow Phenomena Part-II
Module: 13	Lecture 46: Introduction to Laminar Boundary Layer Part-I Lecture 47: Introduction to Laminar Boundary Layer Part-II
Module: 14	Lecture 48: Introduction to Turbulent Flow Part-I Lecture 49: Introduction to Turbulent Flow Part-II

References:

1. S K Som, G Biswas, Suman Chakraborty, Introduction to Fluid Mechanics and Fluid machines, Tata McGraw Hill Eduction.
2. R. W. Fox, P. J. Pritchard, A. T Mcdonald, Introduction to Fluid Mechanics, John Wiley
3. F. M White, Fluid Mechanics, Tata McGraw Hill Eduction.