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FLUID MECHANICS

COURSE INFORMATION

by

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FLUID MECHANICS

- SUBJECT CODE : DAA 1723
- CREDIT HOURS : 3
- CONTACT HOURS : 3
- PRE-REQUISITE : -



Synopsis

This course introduces :

The fundamental principles of fluid mechanics, the governing equations of fluid statics and fluid flow and the methods of solving engineering problems related to fluid mechanics



Course Outcome

By the end of this course, students should be able to:

- CO1: Describe Fluid Properties and the fundamentals of Fluid Mechanics concept.
- CO2: Analyze Fluid Mechanics system and devices such as manometers and piezometer.
- CO3: Apply and analyze Fluid Mechanics theories such as Bernoulli's Theorem, Continuity Equation in Fluid Mechanics system.
- CO4: Analyze the pipeline systems as related to civil engineering.

Course Contents

- CHAPTER 1 : Introduction to Fluid Mechanics
- CHAPTER 2 : Pressure and Fluid Statics
- CHAPTER 3 : Fluid Kinematics
- CHAPTER 4 : Momentum and It's Application
- CHAPTER 5 : Flow in Pipelines
- CHAPTER 6 : Pipeline System



INTRODUCTION TO FLUID MECHANICS

1.1

- What is Fluid?

1.2

- Dimensions and Units

1.3

- Other Common Units used in Fluid Mechanics

1.4

- Fluid Properties

PRESSURE AND FLUID STATICS

2.1

- Pressure

2.2

- Pressure Measurement Device

2.3

- Fluid Statics

FLUID KINEMATICS

3.1

- Flow Pattern

3.2

- The Continuity Equation

3.3

- The Bernuolli's Theorem

3.4

- Application of Bernuolli and Continuity Equations

MOMENTUM AND IT'S APPLICATION

4.1

- Derivation of Momentum Equation

4.2

- The Force of Impact

FLOW IN PIPELINES

5.1

- Category of Flow in Pipes

5.2

- Laminar Flow in Pipes

5.3

- Turbulent Flow in Pipes

5.4

- Flowrate and Velocity Measurement in Pipes

PIPELINE SYSTEM

6.1

- Minor Losses in Pipe System

6.2

- Energy and Hydraulic Grade Line

6.3

- Pipe Network

References

1. Bruce R. M., Donald F.Y and Theodore H.O. Fundamentals of Fluid Mechanics. Wiley.
2. Nakayama Y and Broucher R.F. Introduction to Fluid Mechanics. Revised. Butterworth Heinmann.
3. Douglas F.J., Gasiorek J.M., Swaffield J.A. Fluid Mechanics. Prentice Hall 4th Edition.



Lecturer Information (Authors)

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