Fluid Mechanics 1

Syllabus Number 1B201
Basic Major Subjects
Requisites 2 credit
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1. Course Description

The studies of hydrostatics and basics of inviscid flow.Group discussion is allowed when report is prepared at every exercise.In this lesson, we mainly acquire knowledge about DP1.

2. Course Objectives

The study of phenomena of fluid flow as a basis for mechanical engineer.

3. Grading Policy

A total of 60% or more from the result of the exercise in every lecture and the total exercise is regarded as passing.
Reports on exercises from every lecture (80%), general exercises (20%)

4. Textbook and Reference

Textbook
Nothing.

5. Requirements(Assignments)

We will apply the contents of previous lectures often, please read and review essential points in the notes (30 minutes). Preparation for each lesson : Contents and amount of preparation will be advised in writing, etc. at the end of the last lesson.

6. Note

nothing special.

7. Schedule

[1] Outline of fluid dynamics 1
[2] Fluid properties, units and dimensions
[3] Static fluid dynamics (pressure)
[4] Static fluid dynamics (principle of manometer)
[5] Laminar flow and turbulence flow
[6] Continuous equation and Bernoulli's equation
[7] Application of Bernoulli's theorem (Toricelli's theorem and Pitot tube)
[8] Application of Bernoulli's theorem (Orifice and Venturi tube)
[9] Application of Bernoulli's theorem (flow over weir and rotameter)
[10] Basic law of Conservation of momentum
[11] Application of conservation of momentum (abrupt expansion pipe)
[12] Pressure loss of pipe system
[13] Basic of energy balance in pipe system
[14] Application of energy balance in pipe system (required power of pump)
[15] Total exercises and summary