A collaborative LaTeX document

Class of ID2090, Third Trimester of 2021 batch

June 14, 2022

Contents

List of Figures

List of Tables

1 Introduction

This file includes tex files from the folders of each student. The students are expected to update the file named after their roll number and place any images in the same folder. Students do not have to edit this master document. Once the student has sent a pull request which is accepted and processed successfully, his/her assignment submission is deemed to be complete.

You are also welcome to add references and cite them. Examples on how to do that are on the course repository [**?**].

2 AE21B003

Student shall edit this file and include stuff for the assignment

3 AE21B028

Student shall edit this file and include stuff for the assignment

4 AE21B045

Student shall edit this file and include stuff for the assignment

5 AE21B056

Student shall edit this file and include stuff for the assignment

6 AE21B062

Student shall edit this file and include stuff for the assignment

7 AE21B107

Student shall edit this file and include stuff for the assignment

8 BE21B016

Student shall edit this file and include stuff for the assignment

9 BE21B040

Student shall edit this file and include stuff for the assignment

10 CE19B020

Student shall edit this file and include stuff for the assignment

11 CE21B021

Student shall edit this file and include stuff for the assignment

12 CE21B088

Student shall edit this file and include stuff for the assignment

13 CE21B097

Student shall edit this file and include stuff for the assignment

14 CE21B112

Student shall edit this file and include stuff for the assignment

15 CE21B115

Student shall edit this file and include stuff for the assignment

16 CH21B067

Student shall edit this file and include stuff for the assignment

17 CH21B079

Student shall edit this file and include stuff for the assignment

18 CH21B101

Student shall edit this file and include stuff for the assignment

19 ME21B050

Student shall edit this file and include stuff for the assignment

20 ME21B060

Student shall edit this file and include stuff for the assignment

21 ME21B065

Student shall edit this file and include stuff for the assignment

22 ME21B079

Student shall edit this file and include stuff for the assignment

23 ME21B088

Student shall edit this file and include stuff for the assignment

24 ME21B091

Student shall edit this file and include stuff for the assignment

25 ME21B186

Student shall edit this file and include stuff for the assignment

26 ME21B190

Student shall edit this file and include stuff for the assignment

27 ME21B196

Student shall edit this file and include stuff for the assignment

28 ME21B204

Student shall edit this file and include stuff for the assignment

29 ME21B217

Student shall edit this file and include stuff for the assignment

30 MM21B012

Bernoulli's Equation MM21B012 July, 2022

30.1 Bernoulli's equation for in-compressible flow

$$\Psi = \frac{1}{2}\rho v^2 + \rho g z + p \tag{1}$$

Symbol	Description
v	v is the flow speed at a point on the streamline
g	g is the acceleration due to gravity
z	z is the elevation of the point above a reference plane, (in the direction opposite to acceleration due to gravity)
h	h is the pressure at the chosen point
ρ	ρ is the density of the fluid at all points of the fluid (as the fluid is in-compressible, it will be constant for all points of the the fluid)
Ψ	Ψ is a constant

30.2 Explanation

In fluid dynamics, Bernoulli's principle states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure or a decrease in the fluid's potential energy. The principle is named after Daniel Bernoulli who published it in his book Hydrodynamica in 1738. Although Bernoulli deduced that pressure decreases when the flow speed increases, it was Leonhard Euler in 1752 who derived Bernoulli's equation in its usual form. The principle is only applicable for isentropic flows: when the effects of irreversible processes (like turbulence) and non-adiabatic processes (e.g. heat radiation) are small and can be neglected. Bernoulli's principle can be derived from the principle of conservation of energy. This states that, in a steady flow, the sum of all forms of energy in a fluid along a streamline is the same at all points on that streamline. This requires that the sum of kinetic energy, potential energy and internal energy remains constant. Thus an increase in the speed of the fluid – implying an increase in its kinetic energy (dynamic pressure) – occurs with a simultaneous decrease in (the sum of) its potential energy (including the static pressure) and internal energy. If the fluid is flowing out of a reservoir, the sum of all forms of energy is the same on all streamlines because in a reservoir the energy per unit volume (the sum of pressure and gravitational potential ρgh) is the same everywhere.

31 MM21B024

Student shall edit this file and include stuff for the assignment

32 MM21B032

Student shall edit this file and include stuff for the assignment

33 MM21B044

Student shall edit this file and include stuff for the assignment

34 MM21B046

Student shall edit this file and include stuff for the assignment

35 MM21B059

Student shall edit this file and include stuff for the assignment

36 MM21B063

Student shall edit this file and include stuff for the assignment

37 NA21B002

Student shall edit this file and include stuff for the assignment

38 NA21B005

Student shall edit this file and include stuff for the assignment

39 NA21B006

Student shall edit this file and include stuff for the assignment

40 NA21B007

Student shall edit this file and include stuff for the assignment

41 NA21B020

Student shall edit this file and include stuff for the assignment

42 NA21B048

Student shall edit this file and include stuff for the assignment

43 NA21B052

Student shall edit this file and include stuff for the assignment

44 Conclusions

If this master tex file could be compiled successfully, it means that the class has learnt the concepts of Git as well as LaTeX properly.

45 References

References

[1] Repository for id2090 course. `https://github.com/gphanikumar/mm2090`. Accessed: 2022-06-13.