A collaborative LaTeX document

Class of ID2090, Third Trimester of 2021 batch

June 14, 2022

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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 [1].

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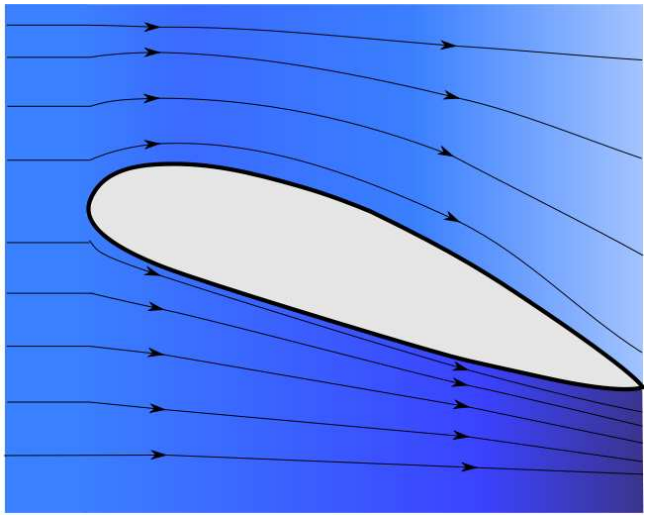
26 ME21B190

26.1 Navier-stokes equation



26.2 Continuity Equation:

$$\nabla.\vec{V} = 0$$

The countinuity equation describes the trasport of some quantities like fluid or gas.The equation explains how a fluid conserves mass in its motion.

26.2.1 Momentum Equations:

$$\frac{d\vec{V}}{dt} = \frac{\partial V}{\partial t} + (V.\nabla)V$$

Here the total derivative is the sum of change in velocity with time and the convective term

$$\rho\frac{d\vec{V}}{dt} = -\nabla p + \rho\vec{g} + \mu\nabla^2\vec{V}$$

*The first term in RHS is the "Pressure gradient term" which tells in which direction the fluid flows

*The second term is the "Body force term",which includes all type of forces
*The third term "Diffusion term"

26.3 Explanation of variables

Symbol	Explanation
$\vec{V}$	velocity vector
ρ	density of fluid
$\vec{g}$	acceleration due to gravity
p	pressure of fluid
μ	viscosity of fluid

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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.