

Introduction



ASEN 3728 Aircraft Dynamics
UNIVERSITY OF COLORADO BOULDER



Outline

What is A/C Dynamics About?

Course Logistics

Nomenclature

* All lecture topic recordings will begin with an outline slide to aid in searching for material



Aircraft Dynamics

Newton's Laws (ASEN 2703)

*Inertial
Reference Frame*

+ Aerodynamics (ASEN 2702,
ASEN 3711)

*Body
Reference Frame*

Aircraft Dynamics (ASEN 3728)



Nonlinear Equations of Motion



Course Hub: Piazza

University of Colorado at Boulder - Spring 2024

ASEN 3728: Aircraft Dynamics

+ Add Syllabus



Course Information

Staff

Resources

Description

Edit

Aircraft Dynamics

General Information

Edit

Course Materials

All course materials, e.g. syllabus, schedule, lecture notes, are available on github: <https://github.com/zsunberg/Aircraft-Dynamics-Materials>

Assignments

All assignments will be on Gradescope: <https://www.gradescope.com/courses/708563>

Recorded Lectures

All lectures will be recorded and available here: <https://cu-classcapture.colorado.edu/Mediasite/Channel/80fad55bf97240769a0e6a47ad9bac6a5f/browse/null/most-recent/null/0/null>

Announcements

+ Add

Add an Announcement

Click the Add button to add an announcement.



University of Colorado
Boulder

My Assumptions

The material is challenging, and can take multiple engagements to understand fully

A student who comes to my office or asks a question wants to learn

It may take multiple ways of explaining a concept before a student understands

We must work together to help you find the way to understand

Taking notes in class and doing the homework yourselves are critical steps to understanding

I am trying to bring you to the point of understanding, not just give you the answer

We will have fun this semester



Action Items

- Today: Make sure you can log in to Gradescope – we will use it in class on Tues
- Every Week (including Next Week)
 - › Tuesday: Reading Quiz due Midnight (Released Monday)
 - › Thursday: Homework due Midnight



UNLEASH

THE MEMES

imgflip.com





University of Colorado
Boulder






WIKIPEDIA

The Free Encyclopedia








Tosh.0

 6 languages


Article

Talk

Read

Edit

View history



Tools


From Wikipedia, the free encyclopedia

Tosh.0 (/ˈtɒʃ, ˌpɔɪnt ˈoʊ/ *TOSH pɔɪnt OH*) is an American comedy television series that aired on Comedy Central from June 4, 2009, to November 24, 2020. The series was hosted and produced by comedian Daniel Tosh, who provided satirical commentary on online viral video clips, internet memes, social media, trending topics, society, celebrities, stereotypes, and popular culture as a whole.

The tone was based on Tosh's deliberately offensive and controversial style of black humour, observational comedy, satire, and sarcasm. The show at one stage reached number 1 ratings for its timeslot among men within the ages of 18–24, reaching millions of viewers at a time.^[1]

On August 20, 2020, Comedy Central announced that season 12 would be its last, reversing a four-season renewal.^[2]

Tosh.0



Genre	Comedy
Created by	Daniel Tosh Mike Gibbons
Directed by	Scott Zabielski
Presented by	Daniel Tosh
Country of origin	United States
Original language	English

Students should submit links to memes and videos on **topics related to the course** (not about the course).

3728.0



3728.0



Break



True or False Question

Expect TRUE/FALSE questions as part of the Homework and Exams. In all cases students are expected to provide a concise, correct, logically sound justification for full credit.



True or False Question

$$\mathbf{v}_B^E = \begin{pmatrix} u^E \\ v^E \\ w^E \end{pmatrix} = \begin{pmatrix} 25 \\ 0 \\ -4 \end{pmatrix}$$

True or False: Given this velocity vector \mathbf{v}_B^E one can conclude that the aircraft is ascending? Justify your answer.



True or False Question

$$\mathbf{v}_B^E = \begin{pmatrix} u^E \\ v^E \\ w^E \end{pmatrix} = \begin{pmatrix} 25 \\ 0 \\ -4 \end{pmatrix}$$

True or False: Given this velocity vector \mathbf{v}_B^E one can conclude that the aircraft is ascending? Justify your answer.

The vector \mathbf{v}_B^E is the inertial velocity expressed in body coordinates. In order to know if the aircraft is ascending you need to know the vector in inertial coordinates. In order to calculate this vector, we need to know the orientation of the aircraft.

