



# Basics of Aeronautical Engineering

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# 19ASO301 Basics of Aeronautical Engg.



**19ASO301            BASICS OF AERONAUTICAL ENGINEERING            L    T    P    J    C**

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**UNIT I            HISTORY OF FLIGHT**

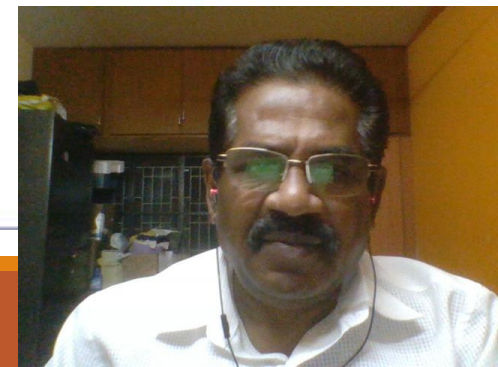
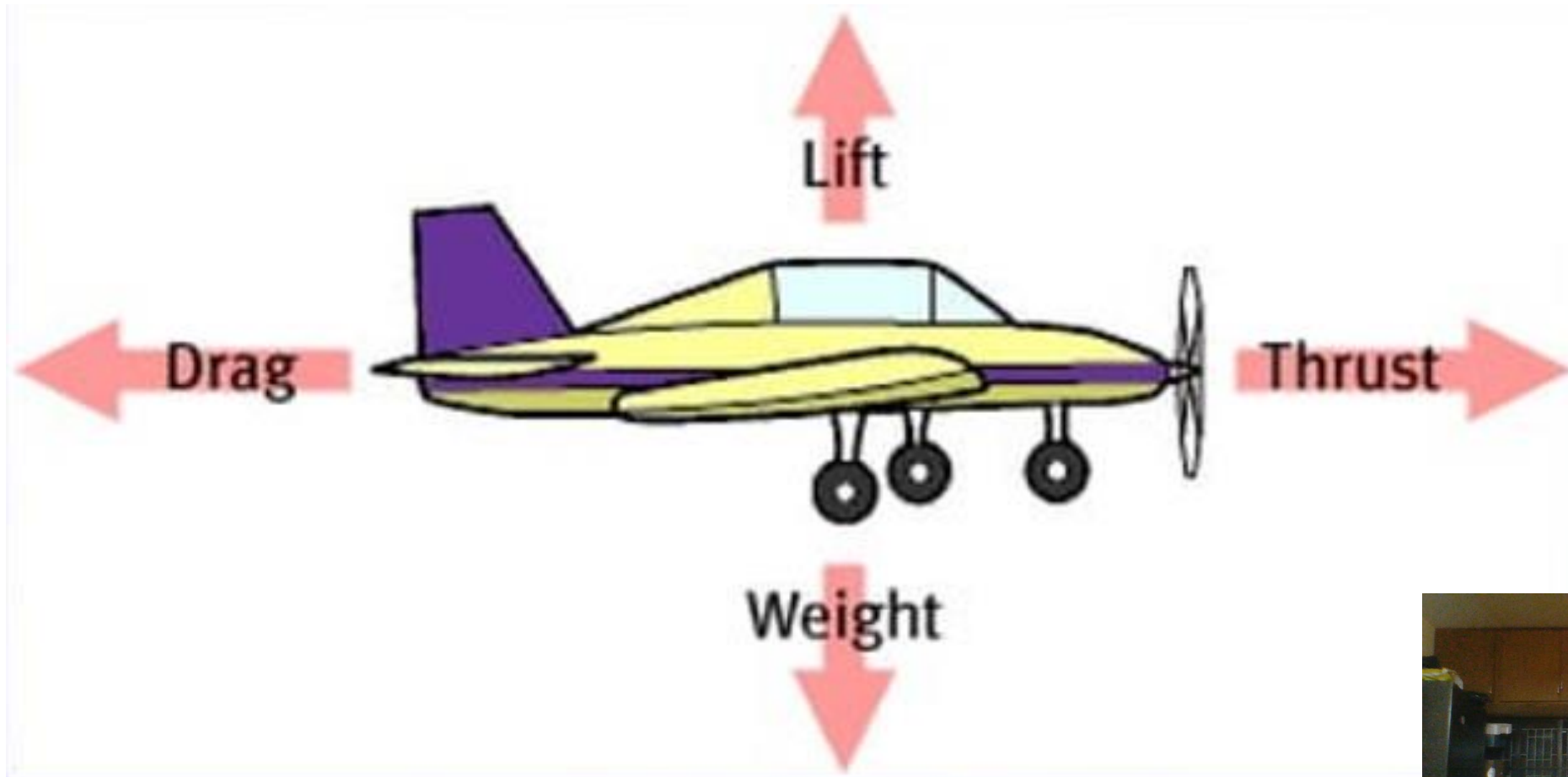
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History and Types of Aircraft, Balloon, ornithopters - early airplanes by Wright brothers, biplanes and monoplanes - Developments in aerodynamics, materials, structures and propulsion over the years.



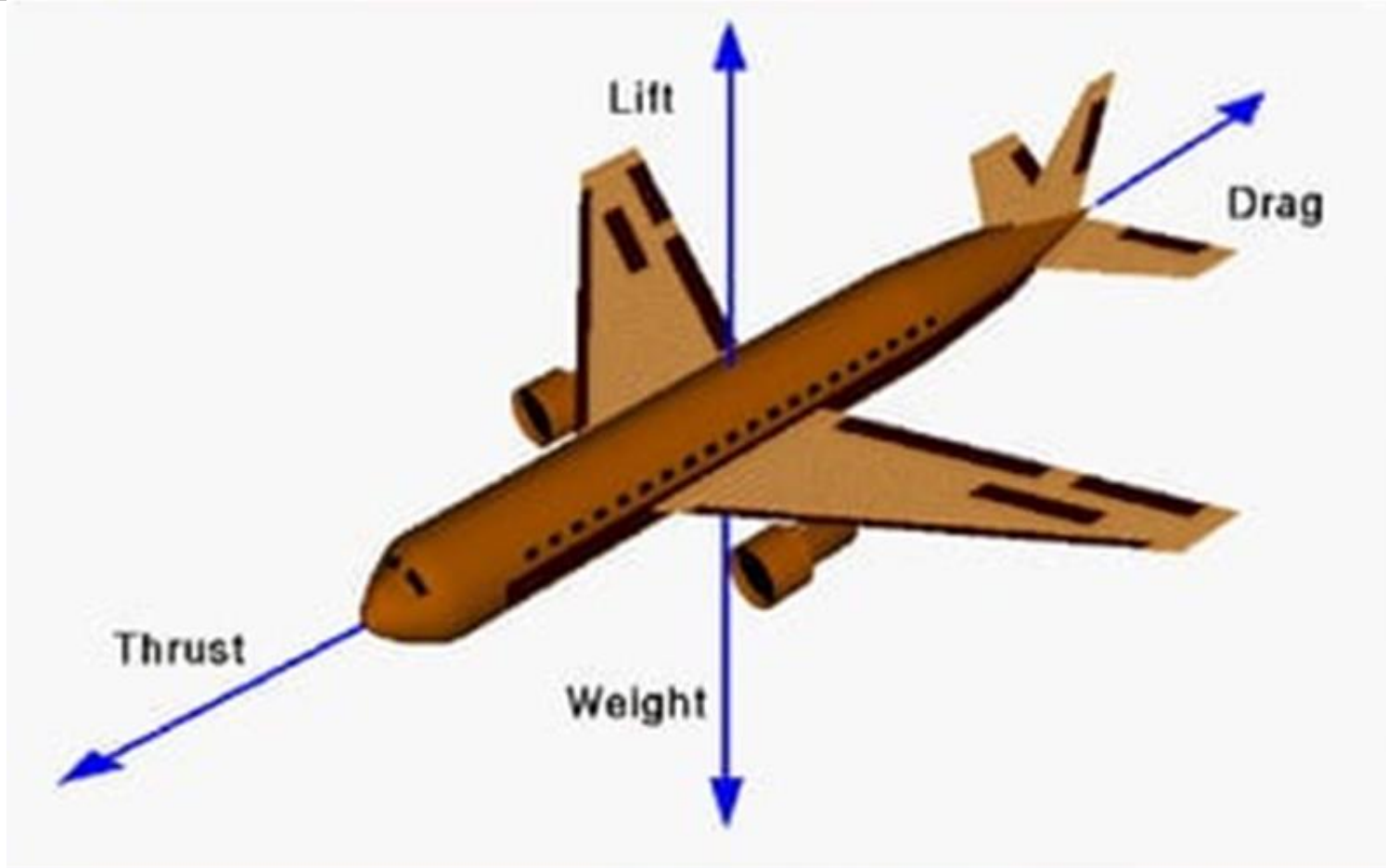


# Four Forces of Flight



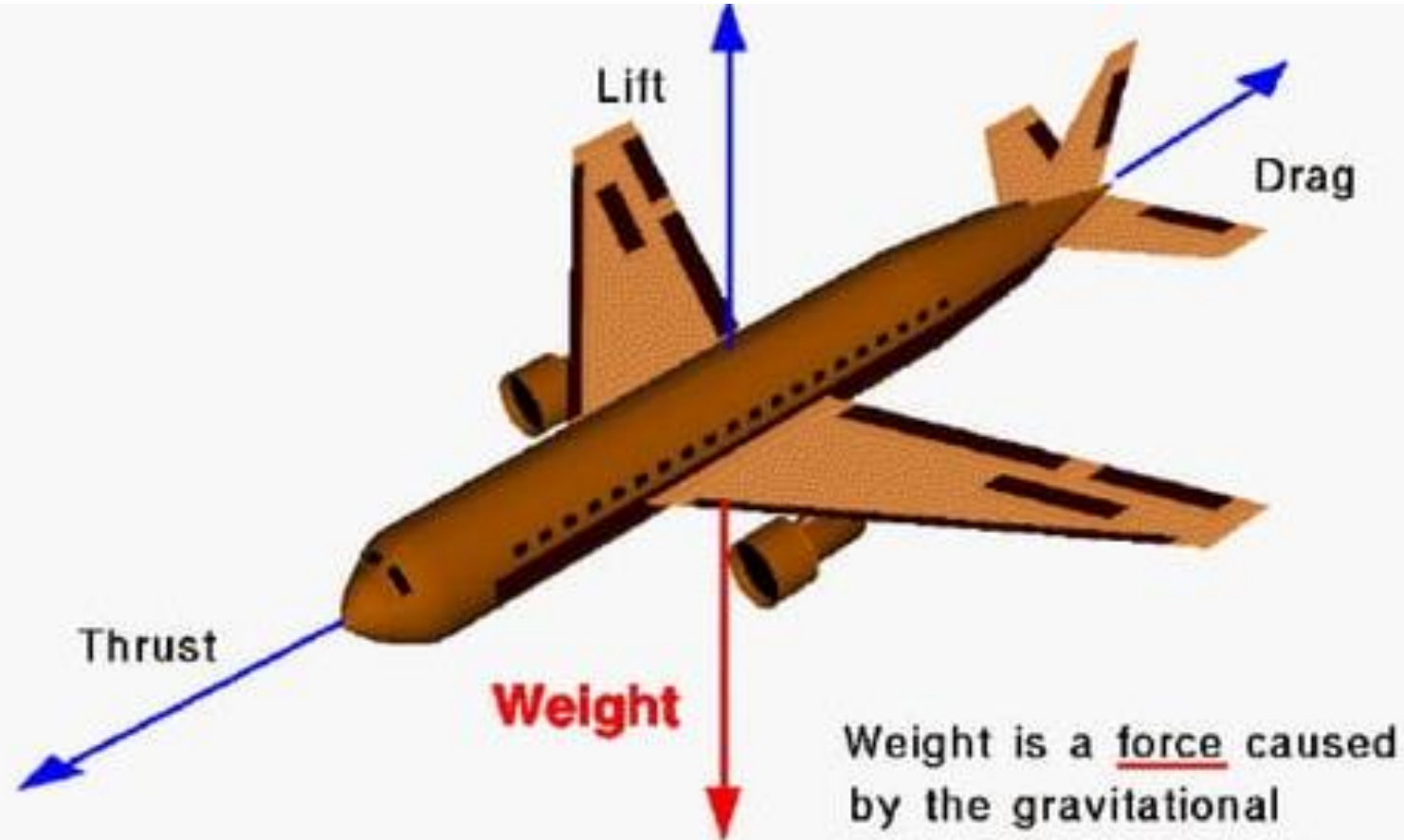


# Four Forces of Flight



The four forces act on the airplane in flight also work against each other





Weight is a force caused by the gravitational attraction of the Earth.



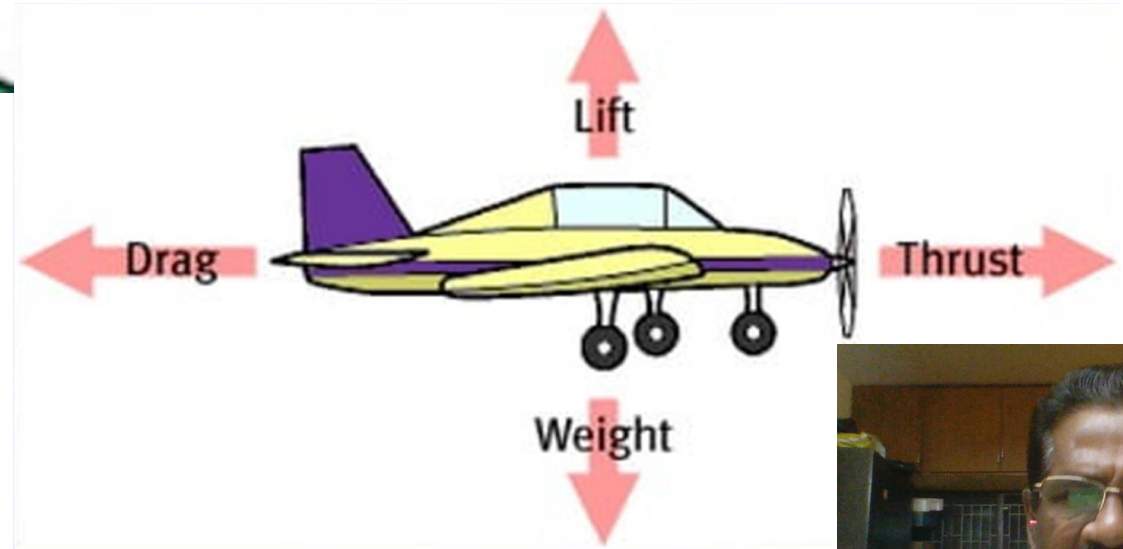


# What is weight?



Weight Counteracts it

The Earth's gravity pulls down the object and gives them weight





# What does it take to create lift?

Air & Motion

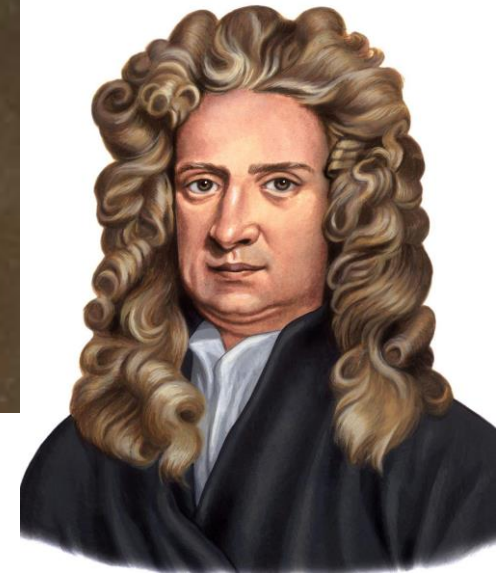
Newton's Laws of Motion

and

Daniel Bernoulli's  
Principle are used to  
explain the lift



Daniel Bernoulli

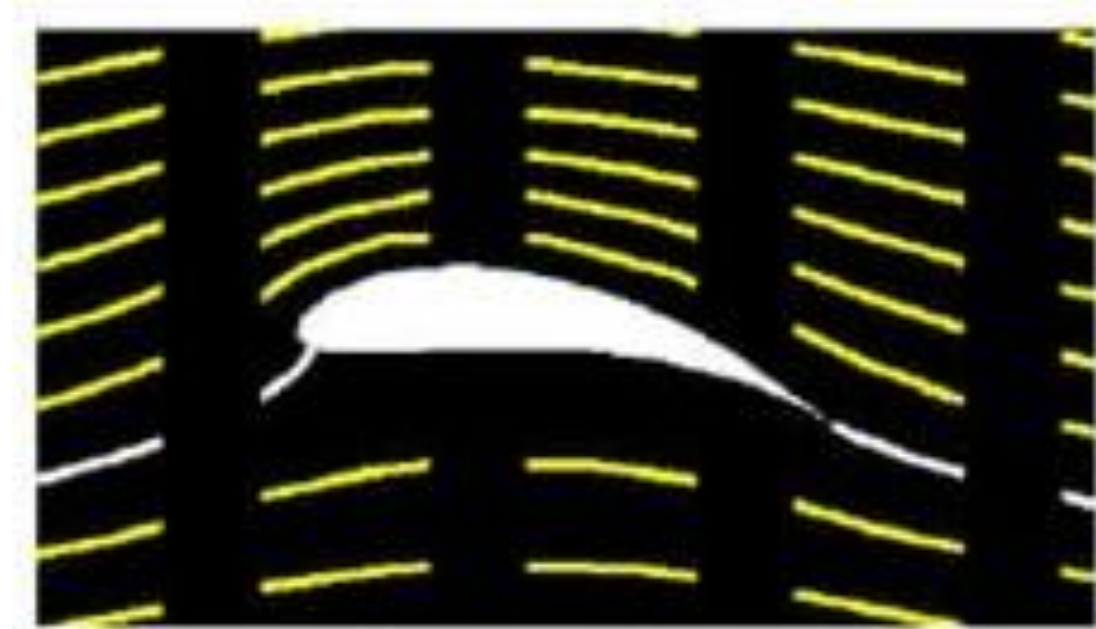




# Newton's laws

2<sup>nd</sup> Law: Force Causes a change in velocity which in turn generates another force

3<sup>rd</sup> Law: The net flow of air is turned down resulting in an equal an opposite upward force



Lift is a force







# Lift of an Aircraft

