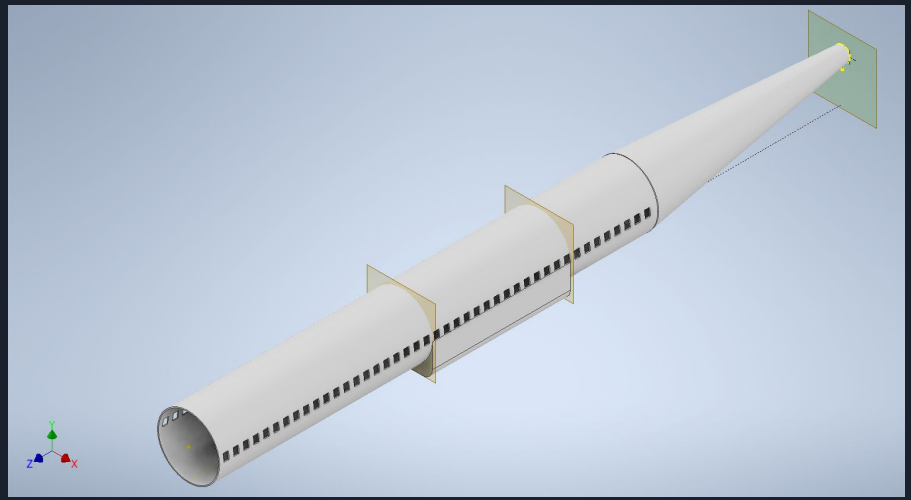
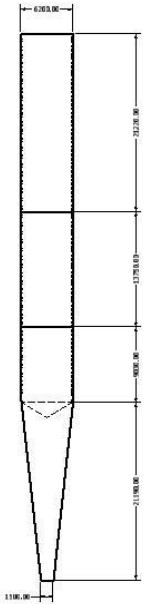
COMMERCIAL AIRCRAFT

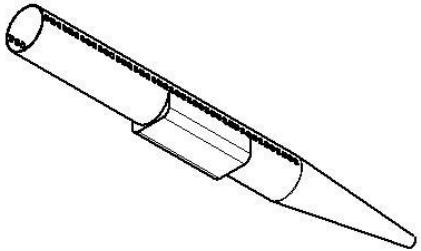
GROUP 1

FUSELAGE

- The central cylindrical body and the small cone at the end is called the fuselage.
- It is one of the most important parts of the airplane as it balances the payload of the plane.
- It is an important part with respect to the assembly point of view, as all other parts that have been modelled are fused with the fuselage.





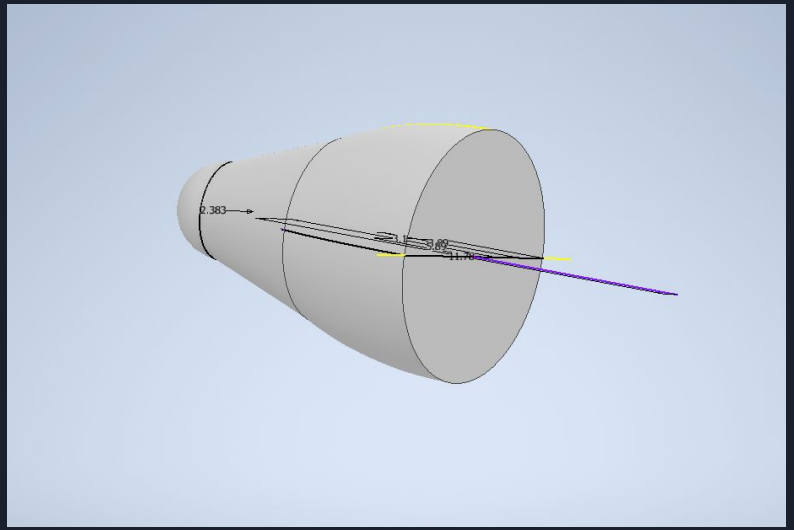


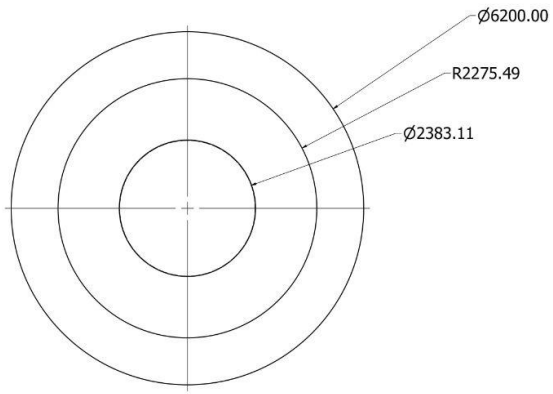
ISOMETRIC

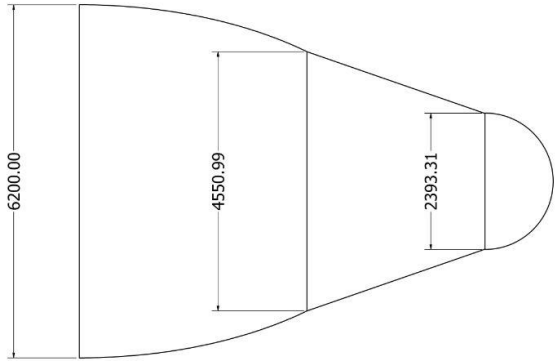
DRAWN: AJIT RAMBHIA	17-04-2022	TITLE: FUSELAGE	
CHECKED			
QA			
MFG			
APPROVED			
		SIZE: D	DWG NO: 1
		SCALE: 1 / 20	SHEET 1 OF 1

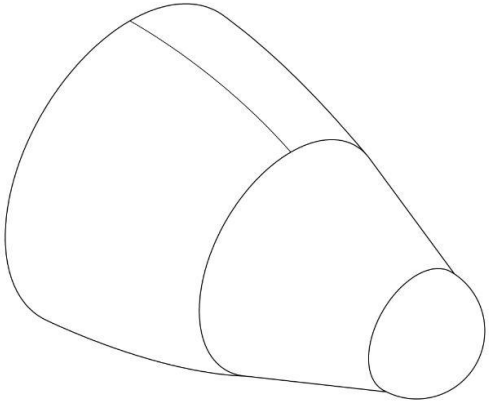
COCKPIT

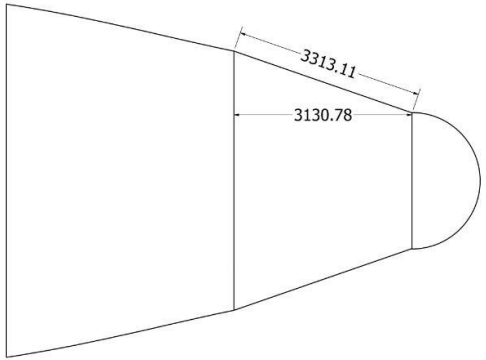
- The cockpit is a curved component aerodynamically optimised to maximise airflow and speed.
- It serves as the command and control centre of the aircraft as it houses all the control equipment required to navigate the aircraft mid-air.









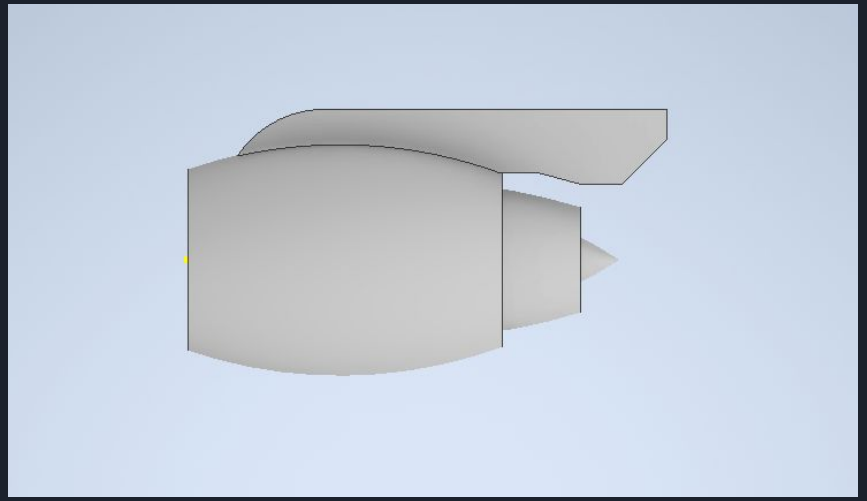


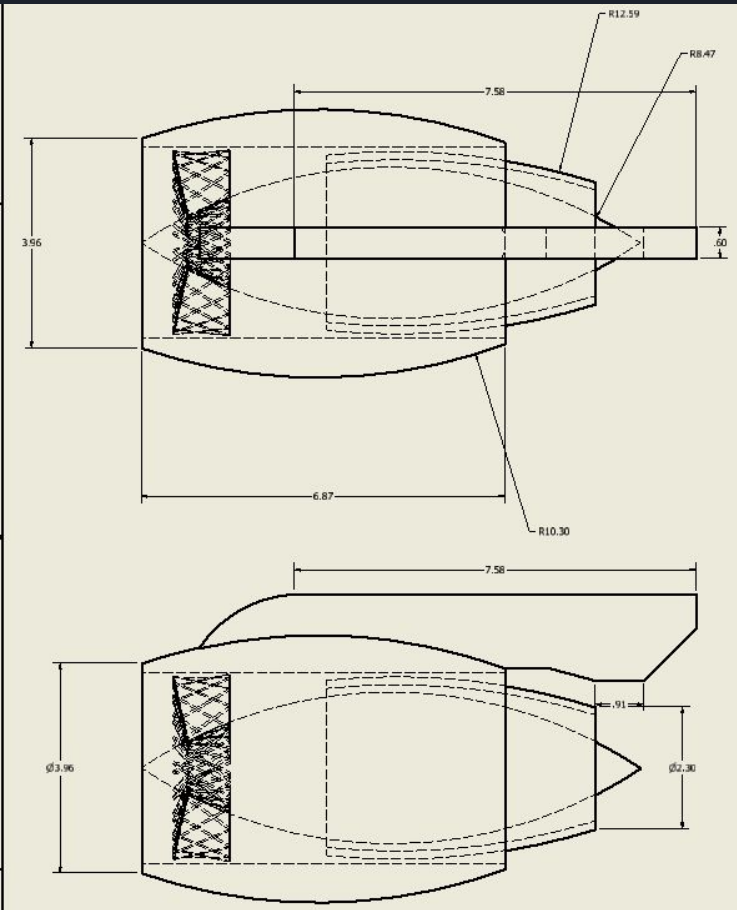
ISOMETRIC
SCALE = 1: 34

DRAWN: ABHINAB	10-04-2022	IITGN	
CHECKED		TITLE: COCKPIT	
QA			
MFG			
APPROVED			
		SIZE: D	DWG NO
		SCALE: 1 / 34	SHEET 1 OF 1

ENGINE

- Engine is the propelling part of the aircraft and drives the aircraft.
- The Engine propels and speeds the aircraft.
- The engine is made of four major parts:
  1. Fan Cowl
  2. Turbine Fan
  3. Core Engine
  4. Exhaust Nozzle and Cone

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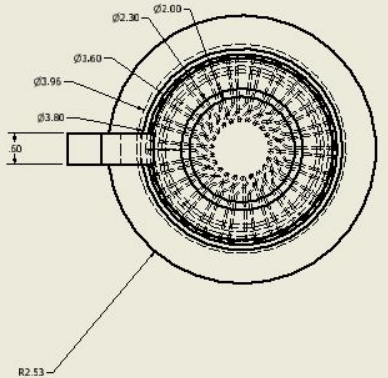
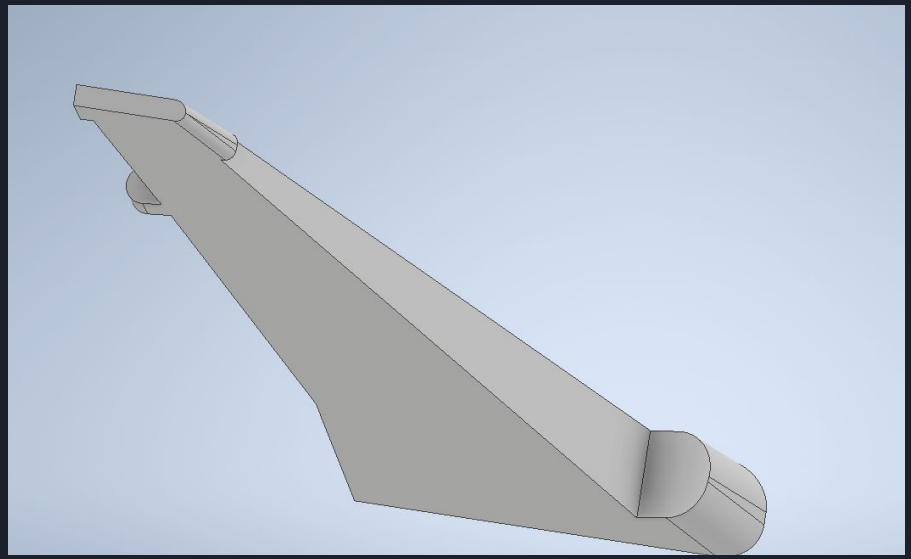
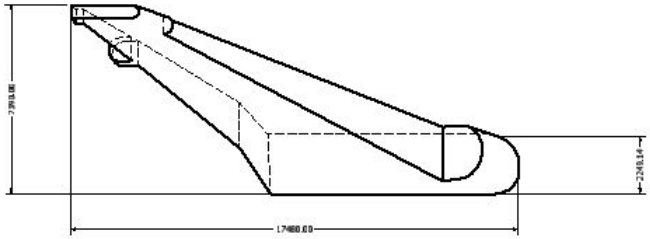
R8.47
7.58
3.96
.60
6.87
R10.30
7.58
.91
Ø3.96
Ø2.30

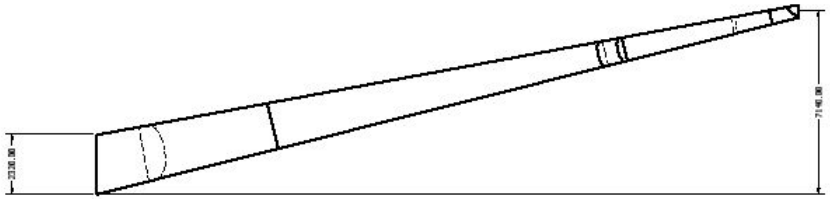

Ø2.30
Ø2.00
Ø1.60
Ø3.96
Ø3.80
.60
R2.53

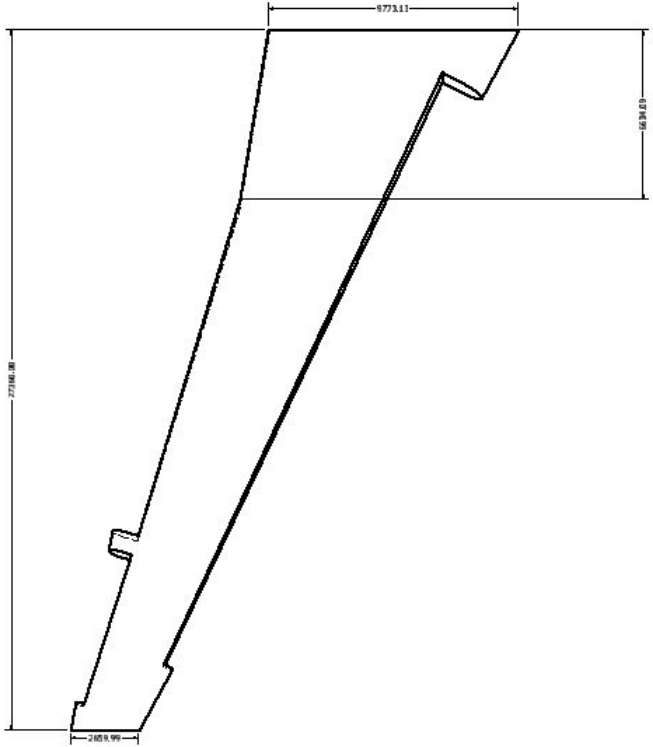
WING

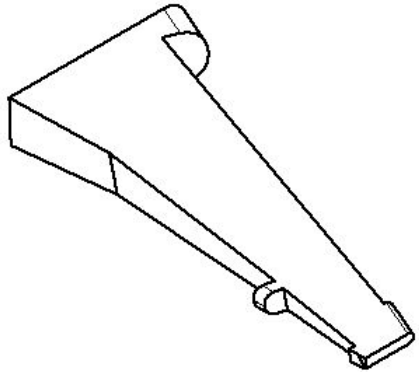
- The fin type part responsible for providing lift to the aeroplane.
- The most important part of the airplane as it makes the airplane fly in air;gives the ‘aero’ suffix to the aeroplane.
- It is essential with respect to assembly as other parts like turbine, flaps and slats are directly attached to the wing.









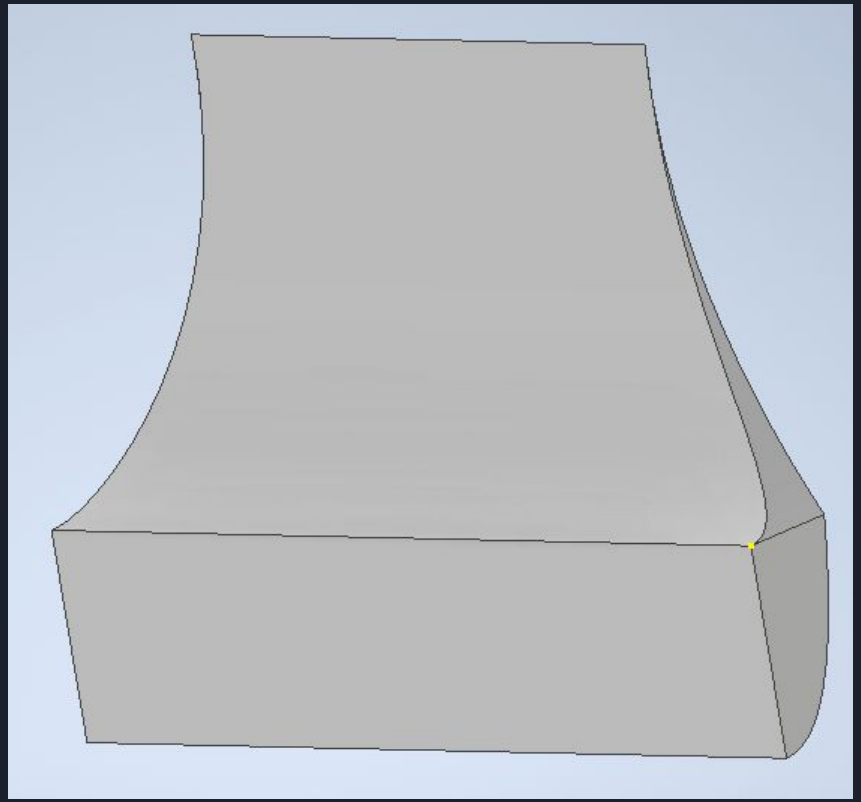


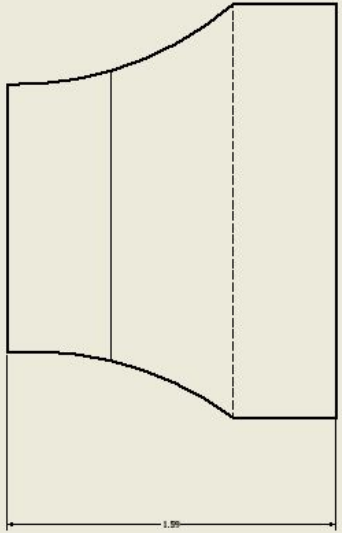
ISOMETRIC

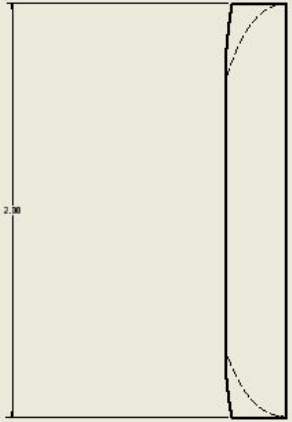
DRAWN: AARYAN DARAD	11-04-2022	IIT GN
CHECKED		
QA		TITLE: WING
MFG		
APPROVED		SIZE: D; DWG NO: 1; REV
		SCALE: .9 / 74; SHEET 1 OF 1

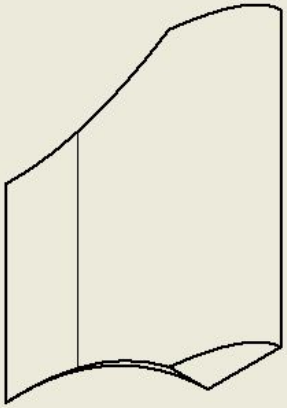
WINGLET

- Winglets are vertical extensions of wingtips.
- They are used to improve an aircraft’s fuel efficiency and cruising range.
- The fundamental principles of aerodynamics are used for the functioning of winglet.





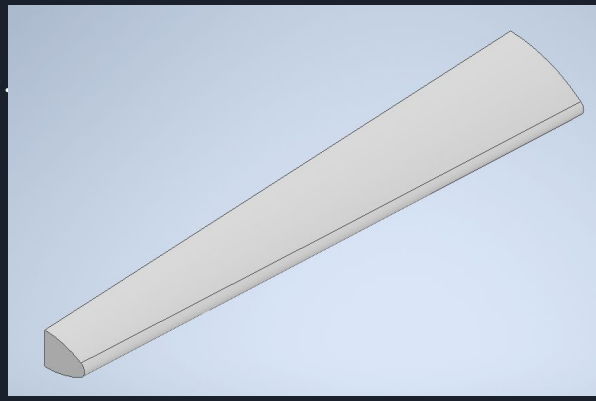


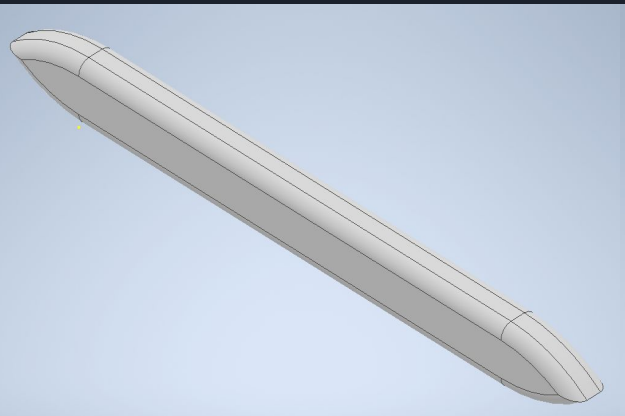


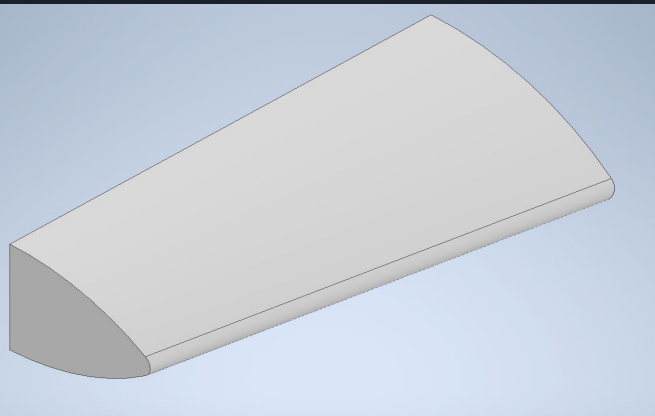
DRAWN Sathish	17-04-2022		
CHECKED		TITLE	
QA			
MFG			
APPROVED			
		SIZE D	DWG NO winglet1FINAL
		SCALE 1 / 10	SHEET 1 OF 1

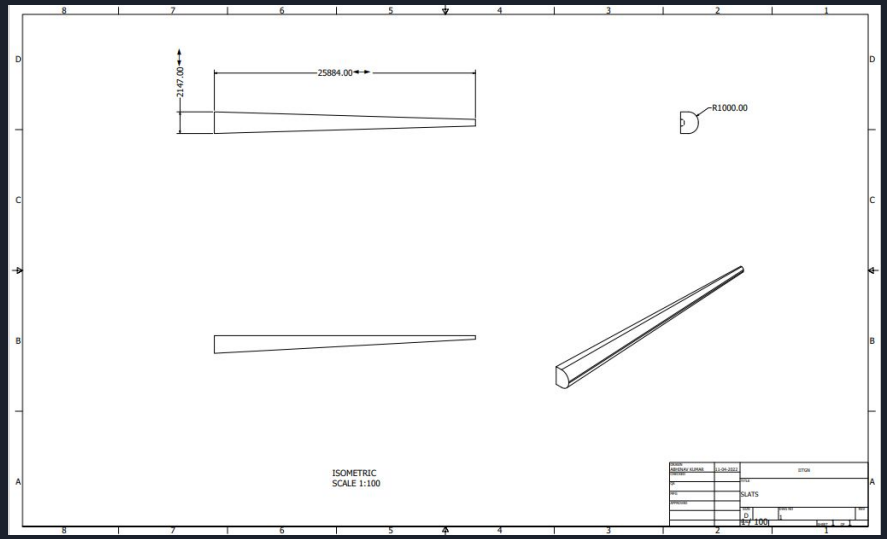
SLATS AND FLAPS

- Attached to the wings at the leading(slats) and trailing edge(flaps).
- Slats and Flaps open to provide more air drag during takeoff and landing also, opened during mid flight to slow down.
- They have a unique shape.





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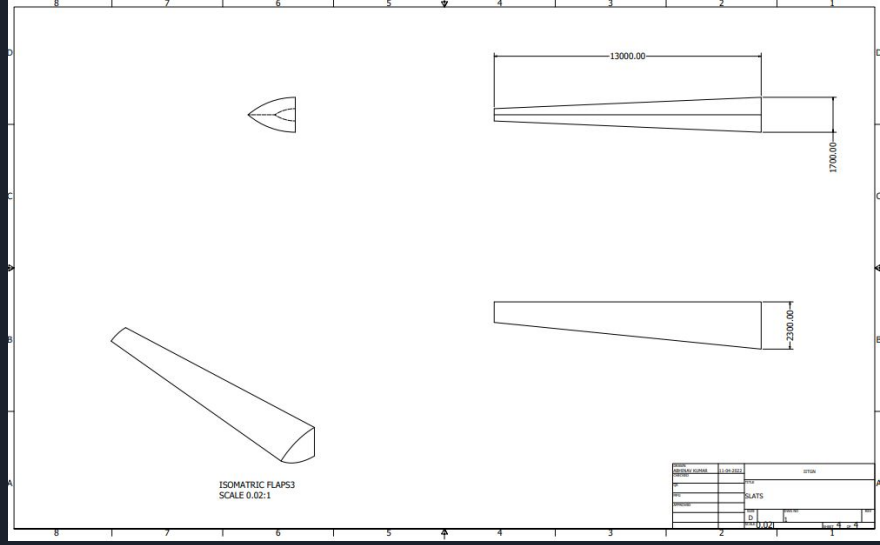
R1000.00
ISOMETRIC
SCALE 1:100
SLATS
A4 100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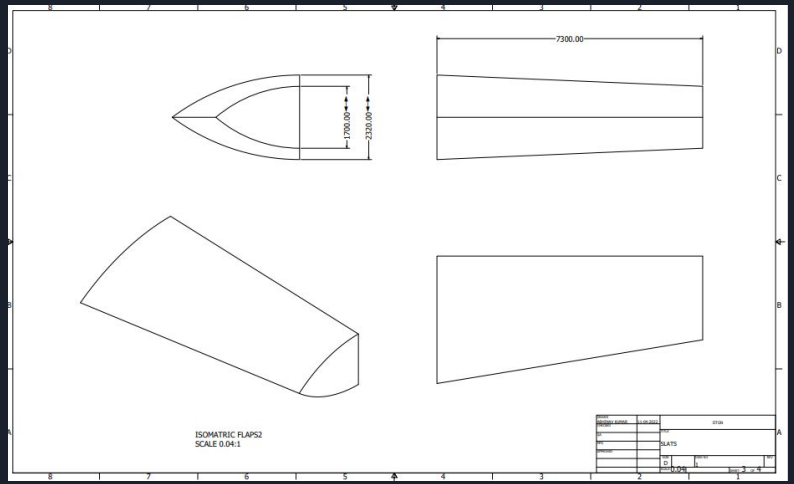
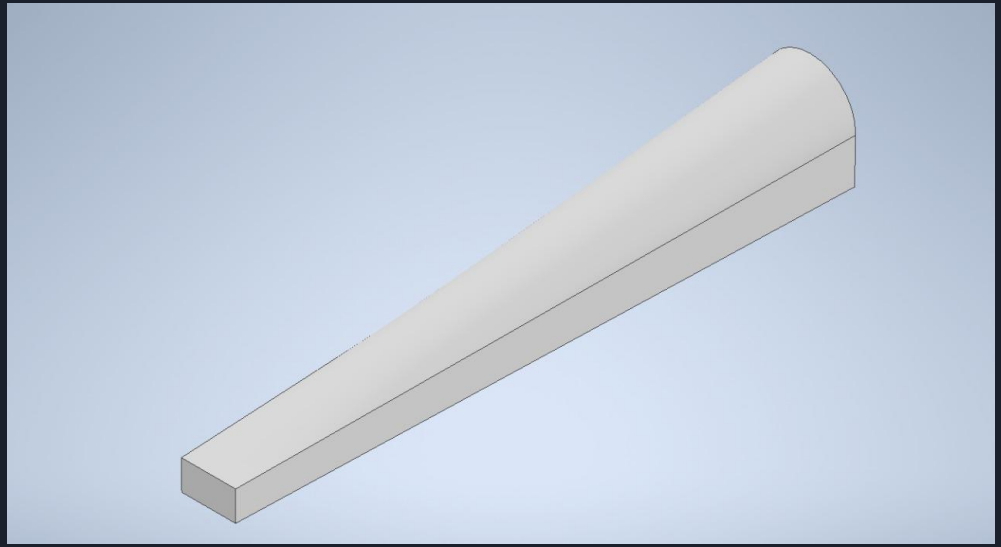
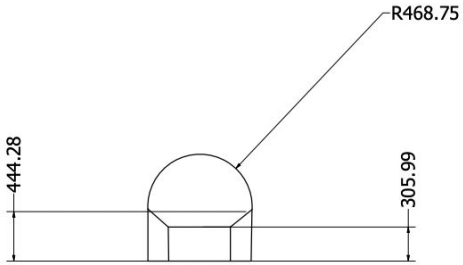
SLATS
0.02

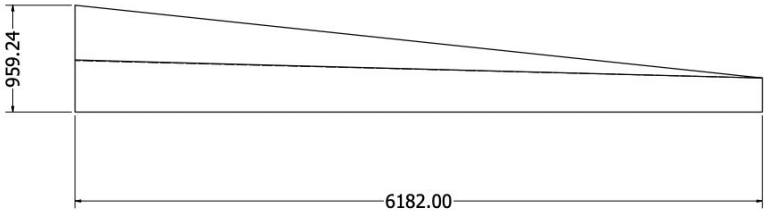

7300.00
1700.00
2320.00
ISOMATRIC FLAPS2
SCALE 0.04:1
SLATS
0.04

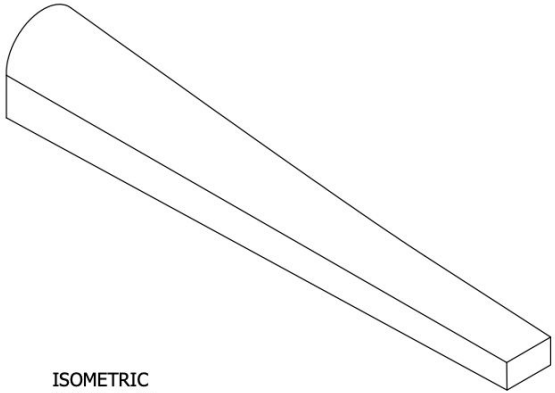
AILERON

- It is attached at the end of the front wing.
- It helps to control the roll of the aeroplane while it is turning. Without this, aeroplane cannot take turns.
- It has a unique shape.

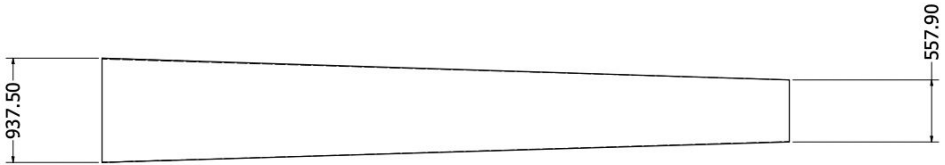








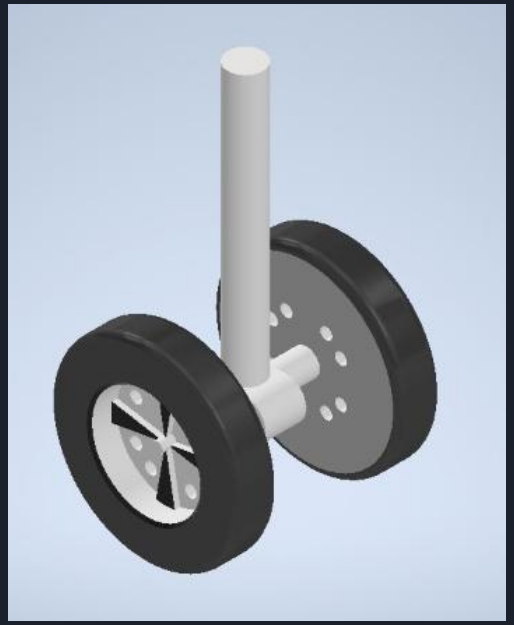
ISOMETRIC
SCALE=1:20

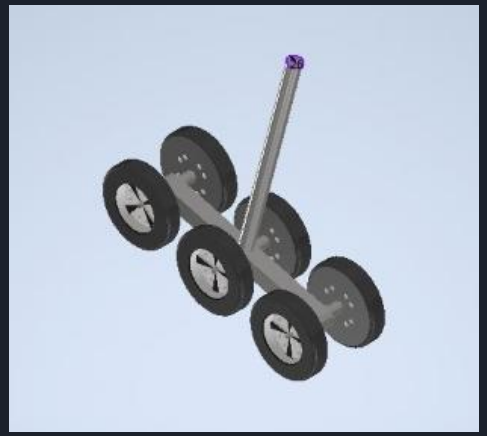


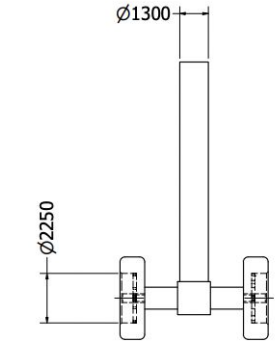
DRAWN ADIT KAUSHIK	11-04-2022	IIT GANDHINAGAR	
CHECKED		TITLE	
QA		AILERON	
MFG			
APPROVED			
		SIZE D	DWG NO final aileron
		SCALE 1 / 20	SHEET 1 OF 1

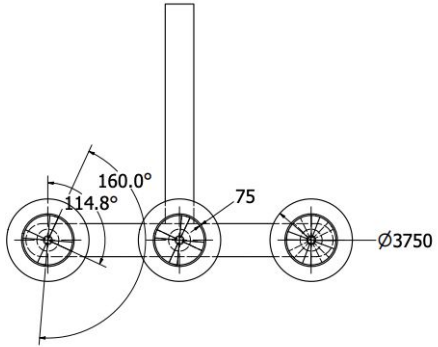
LANDING GEARS

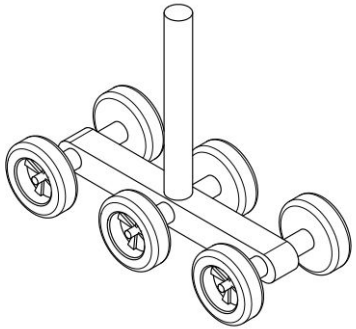
- Rear one is attached below the wider part of the wing and the front one is attached to the below the body just behind the cockpit.
- They help the plane in standing on ground and go inside the body when the plane is in the air.
- Rear one basically consists of a central body and 6 wheels attached to it while the front one consists of a body and 2 wheels attached to it.











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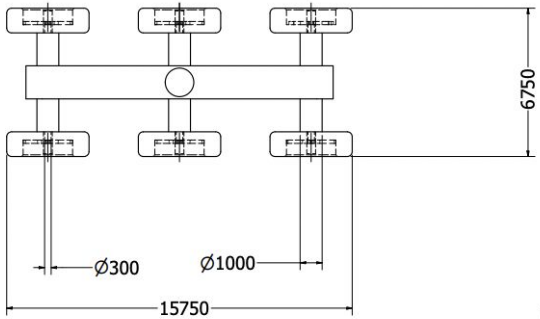
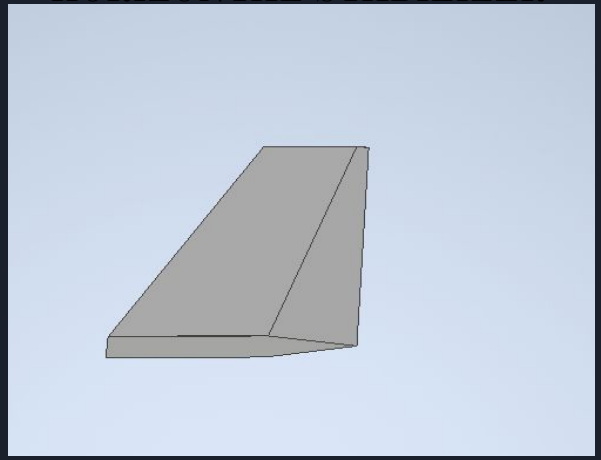


DRAWN ADIT KAUSHIK	4/10/2022	IITGN	
CHECKED			
QA		TITLE LANDING GEAR	
MFG			
APPROVED			
		SIZE D	DWG NO drawing Assembly adit
		SCALE 1:100	SHEET 1 OF 1

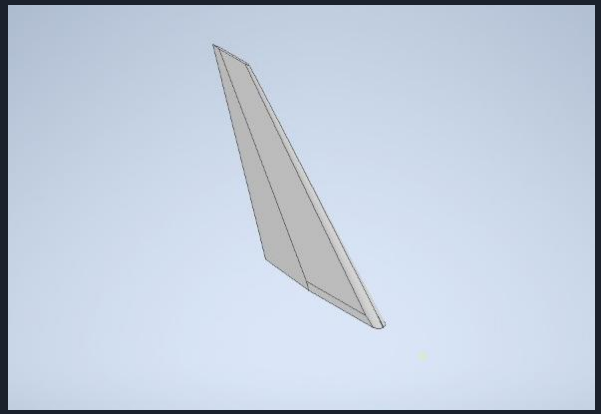
STABILIZERS

- Flap-like structures comprised of fixed fin and movable control rudder.
- Horizontal Stabilizers are used to maintain longitudinal balance.
- Vertical stabilizers are used to provide directional stability.

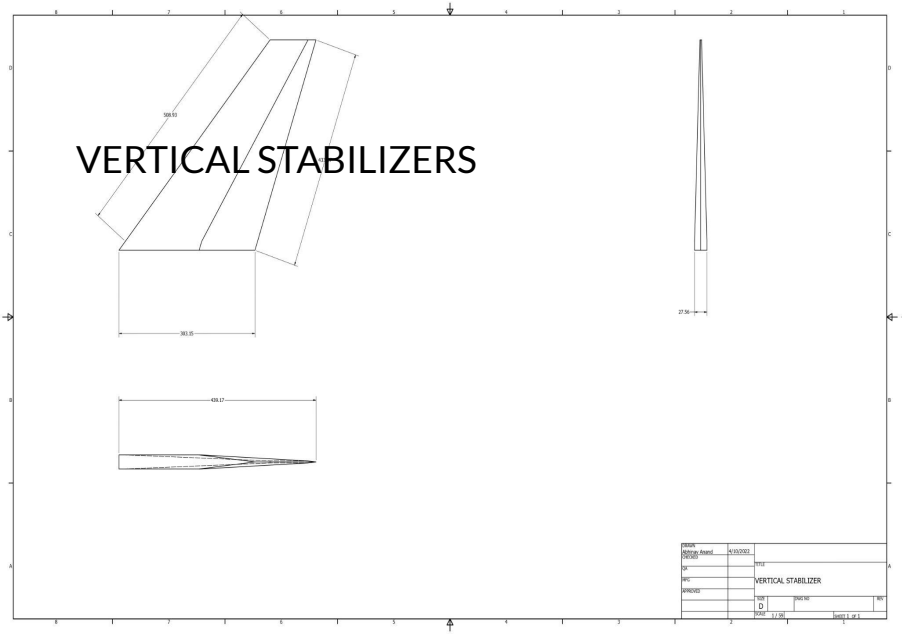
HORIZONTAL STABILIZER



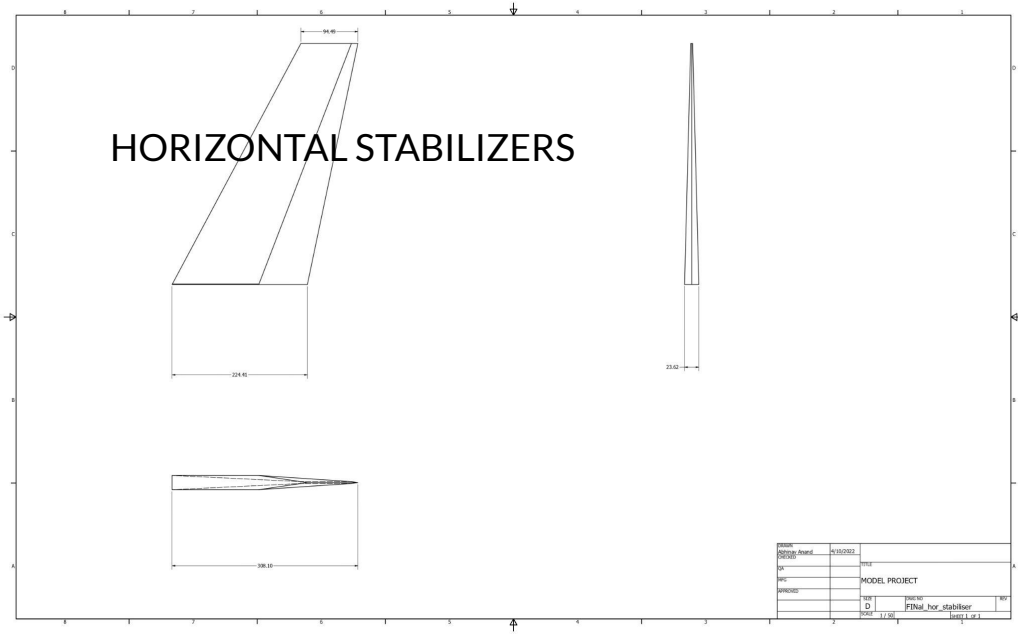
VERTICAL STABILIZER



VERTICAL STABILIZERS

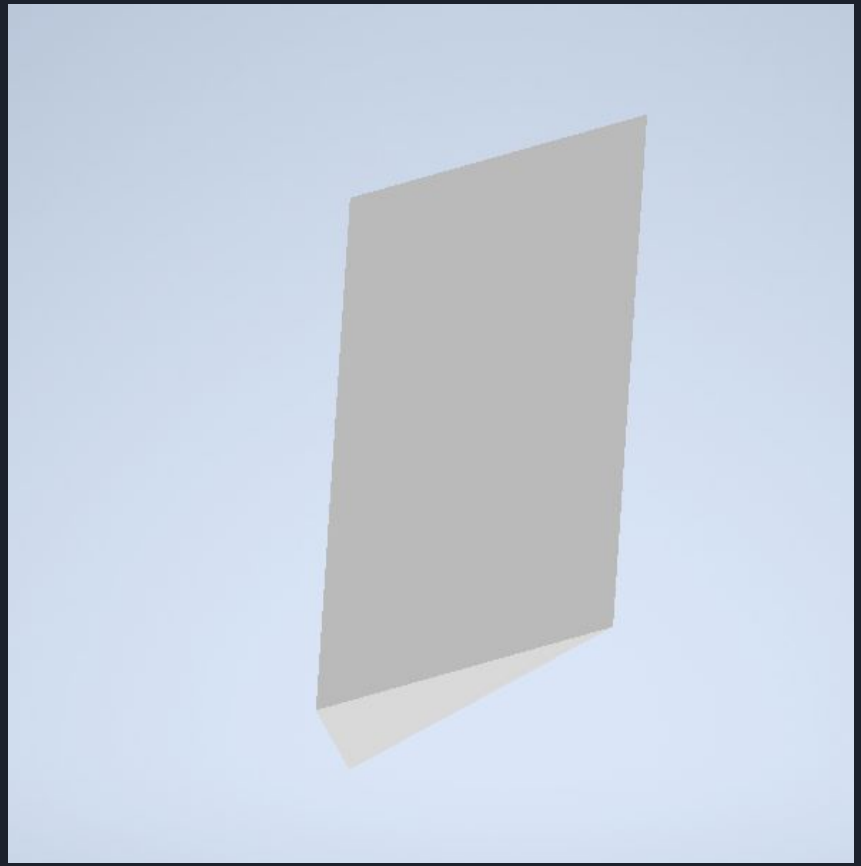


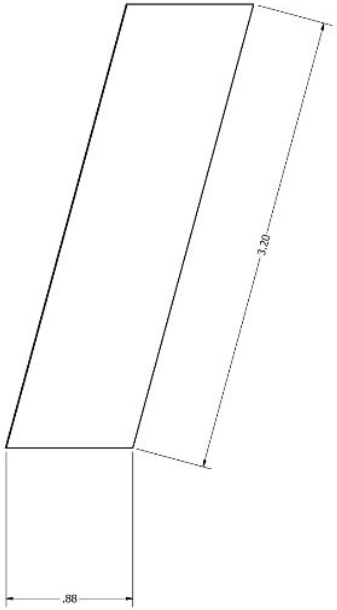
HORIZONTAL STABILIZERS

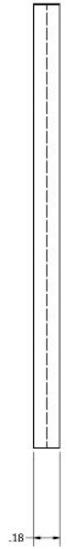


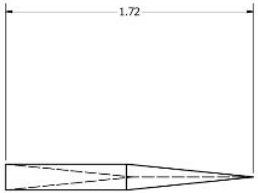
RUDDER

- It is attached to vertical Stabilizer.
- Used to control the position of the nose of the plane.
- Hydraulic Pressure is used to operate rudder.





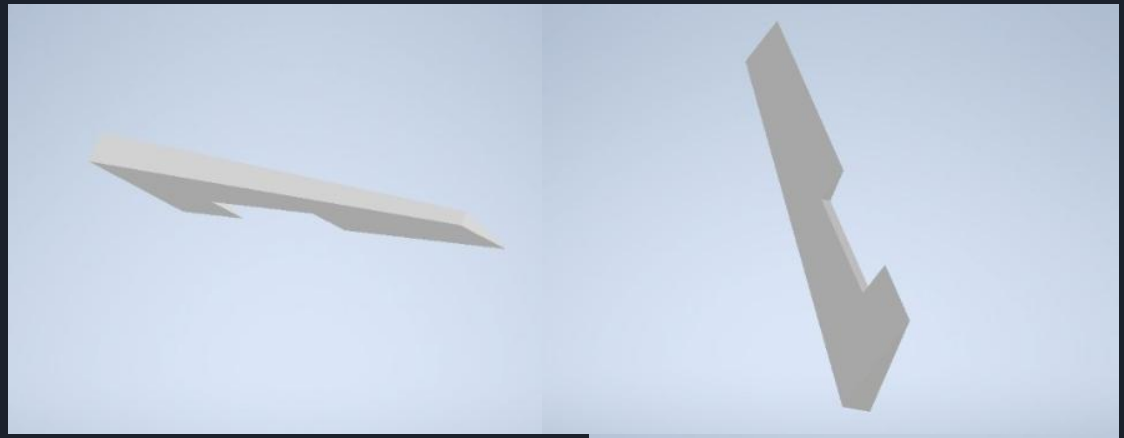


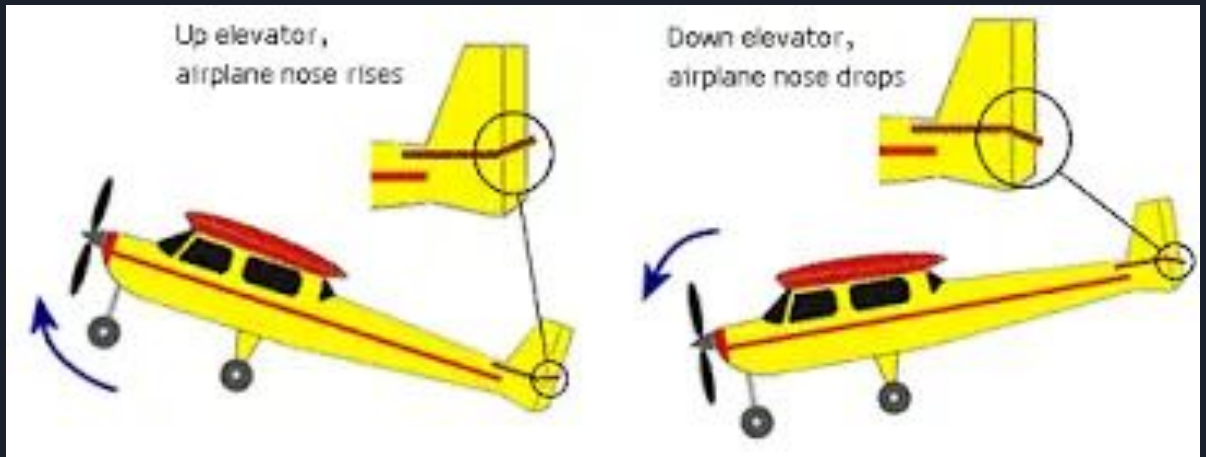


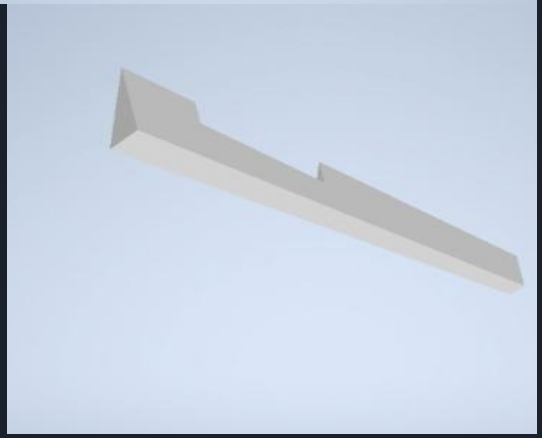
RUDDER

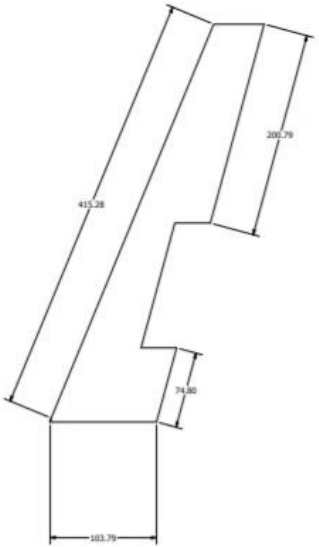
ELEVATOR

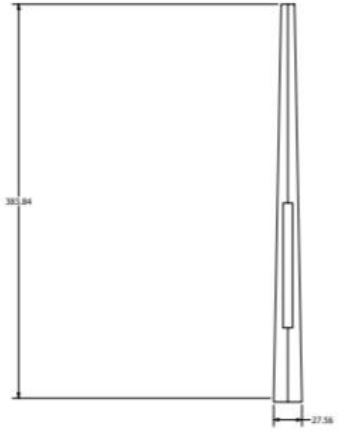
- An elevator is a primary flight control surface that controls movement about the lateral axis of an aircraft.
- It is one of the most important part of an aircraft to take a flight as without it aircraft can't be controlled.

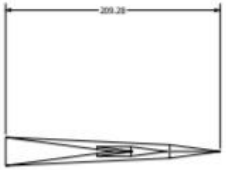












ELEVATOR

DRAWN Nishtha Anand	4/10/2022		
CHECKED			
QA			
MFG		TITLE ELEVATOR	
APPROVED			
		SIZE D	DWG NO Final_Elevator

THANK YOU!!