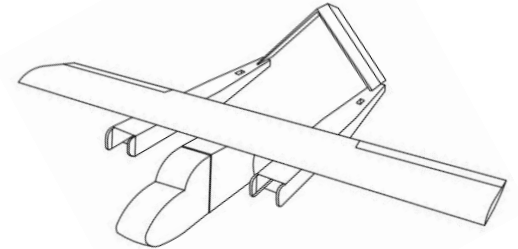




# ESPE

UNIVERSIDAD DE LAS FUERZAS ARMADAS  
INNOVACIÓN PARA LA EXCELENCIA

## **ENSAMBLAJE ESTRUCTURAL DE UN VEHÍCULO AÉREO NO TRIPULADO DE DESPEGUE VERTICAL A CONTROL REMOTO PARA LA UNIDAD DE GESTIÓN DE TECNOLOGÍAS DE LA UNIVERSIDAD DE LAS FUERZAS ARMADAS ESPE – L.**



**AUTOR: AVILÉS ERAZO, VINICIO ALEJANDRO  
DIRECTOR DE TESIS: ING. MUÑOZ GRANDES MILTON STALIN**

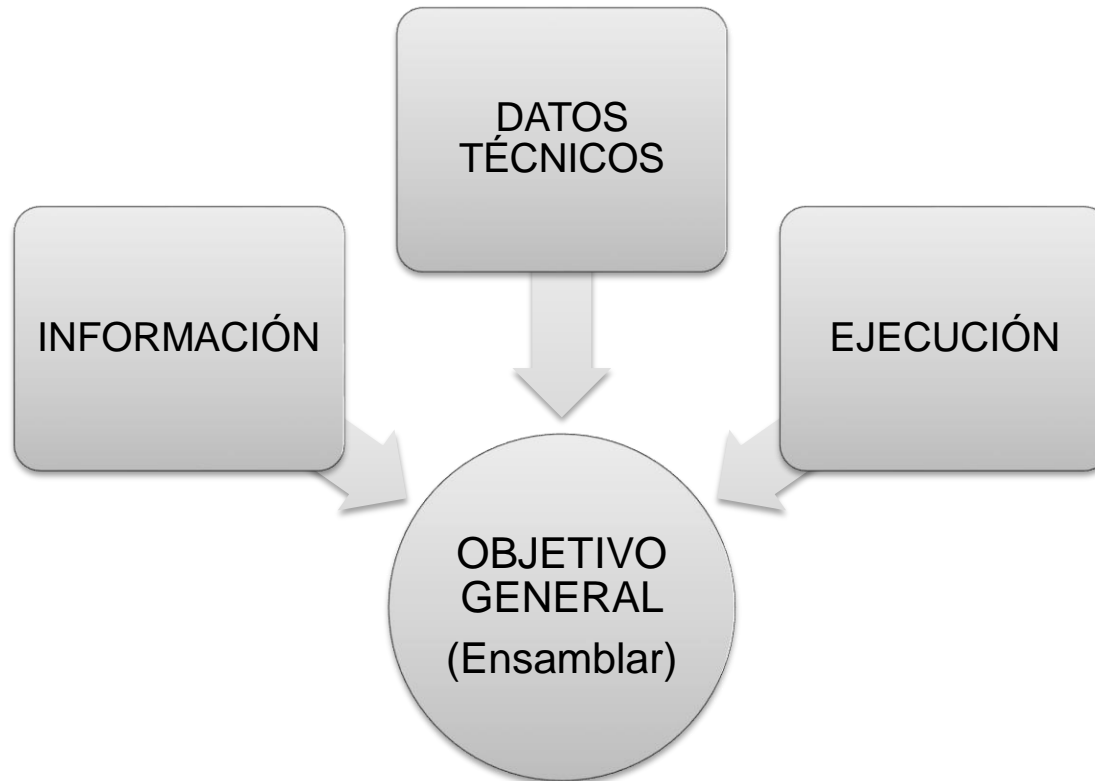
**Enero 2020**



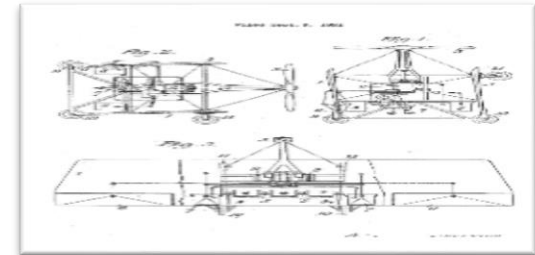
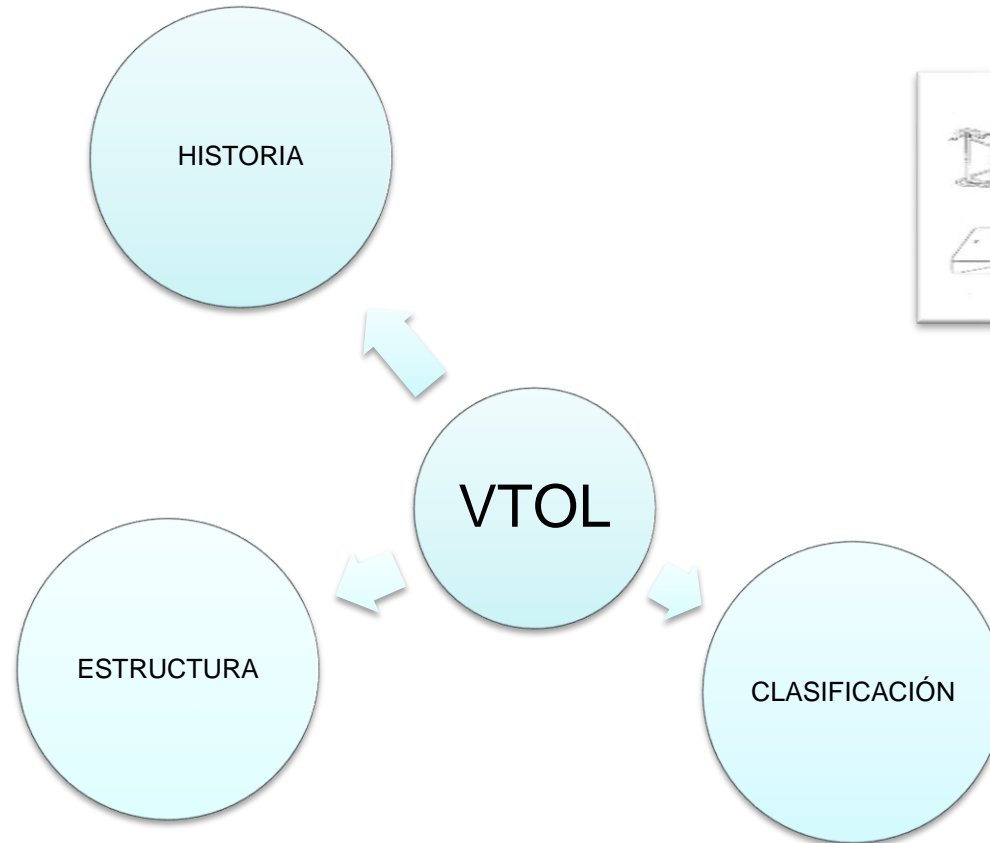
# ***CAPÍTULO I***



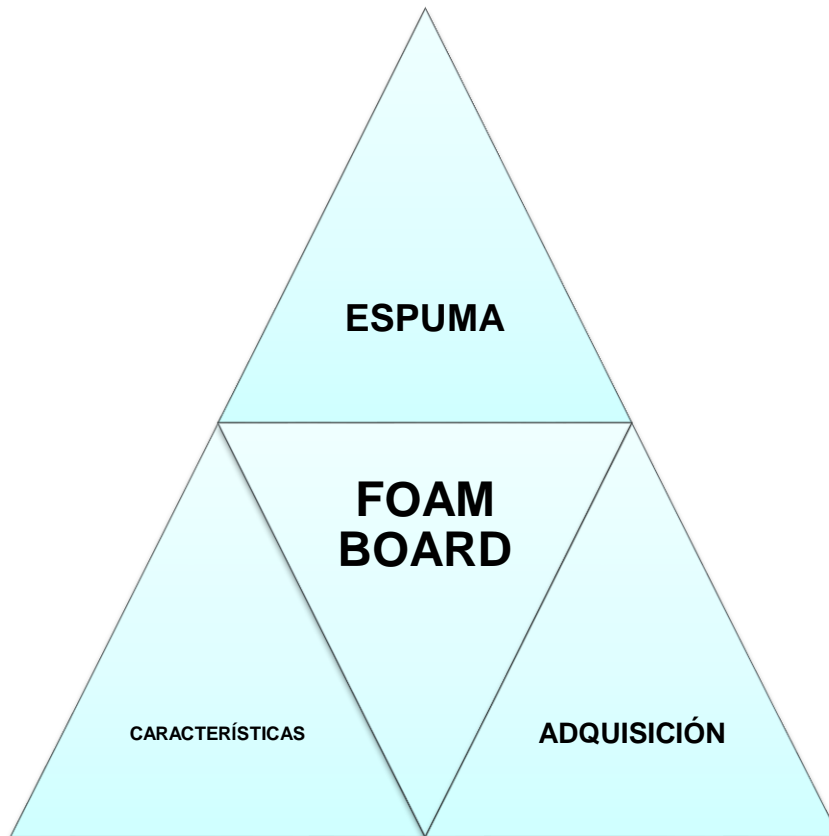
# CAPÍTULO I



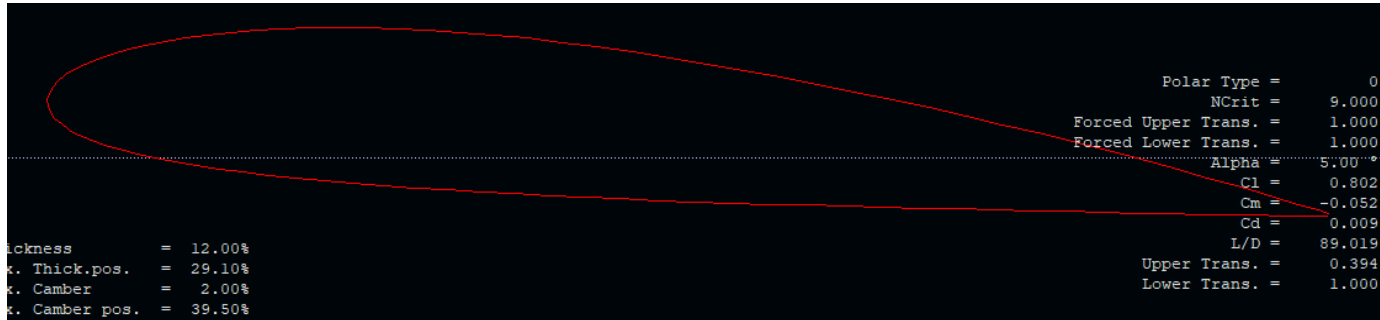
# CAPÍTULO II



# CAPÍTULO II

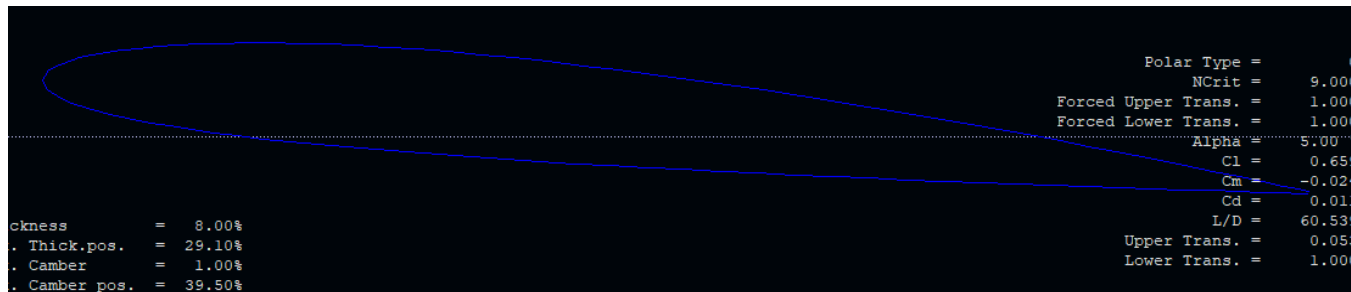
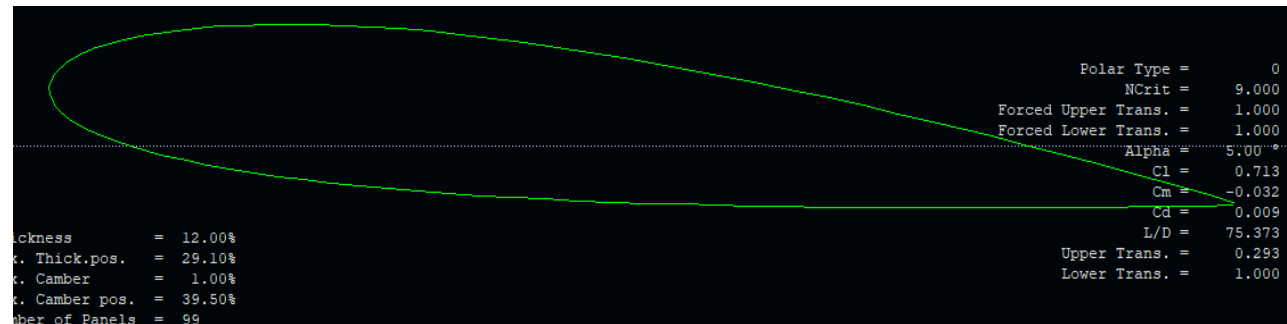


# CAPÍTULO III



2412

1412



1408



# CAPÍTULO III

Wing Edition

Wing

Symetric  Right Side  Left Side

Insert before section 3 | Insert after section 3 | Delete section 3

	y (mm)	chord (mm)	offset (mm)	dihedral	twist(°)	foil	X-panels	X-dist	Y-panels	Y-dist
1	0.000	180.000	0.000	0.0	0.00	NACA 2412	19	Cosine	7	Uniform
2	500.000	145.000	0.000	0.5	0.00	NACA 2412	19	Cosine	6	Uniform
3	543.000	110.000	0.000		0.00	NACA 2412				

Description:

Wing Span: 1086.00 mm  
 Area: 1734.65 cm<sup>2</sup>  
 Projected Span: 1086.00 mm  
 Projected Area: 1734.65 cm<sup>2</sup>  
 Mean Geom. Chord: 159.73 mm  
 Mean Aero Chord: 160.93 mm  
 Aspect ratio: 6.80  
 Taper Ratio: 1.64  
 Root to Tip Sweep: -1.85 °  
 Number of Flaps: 0  
 Total VLM Panels: 494 Max is 2500  
 Number of 3D Panels: 1026 Max is 5000

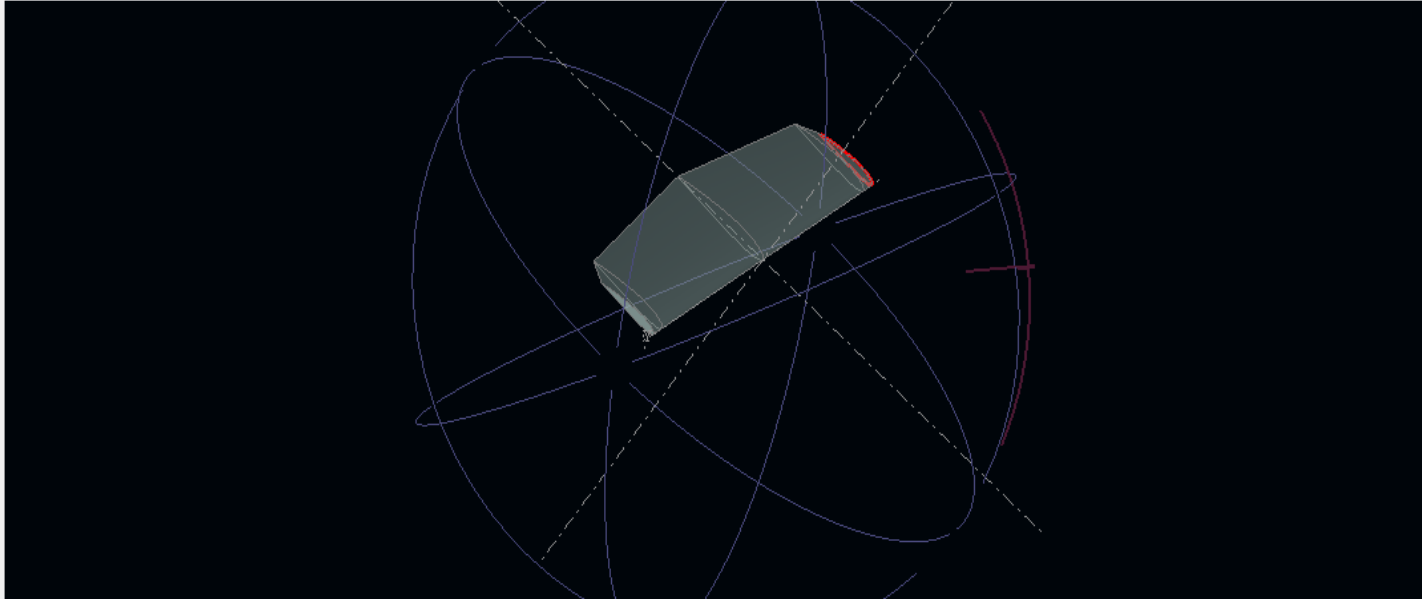
Axes  Panels  
 Surfaces  Outline  
 Foil Names  Masses

Reset | Pick Center

Clip Plane

Reset Mesh | Scale Wing | Inertia...

Save and Close | Cancel

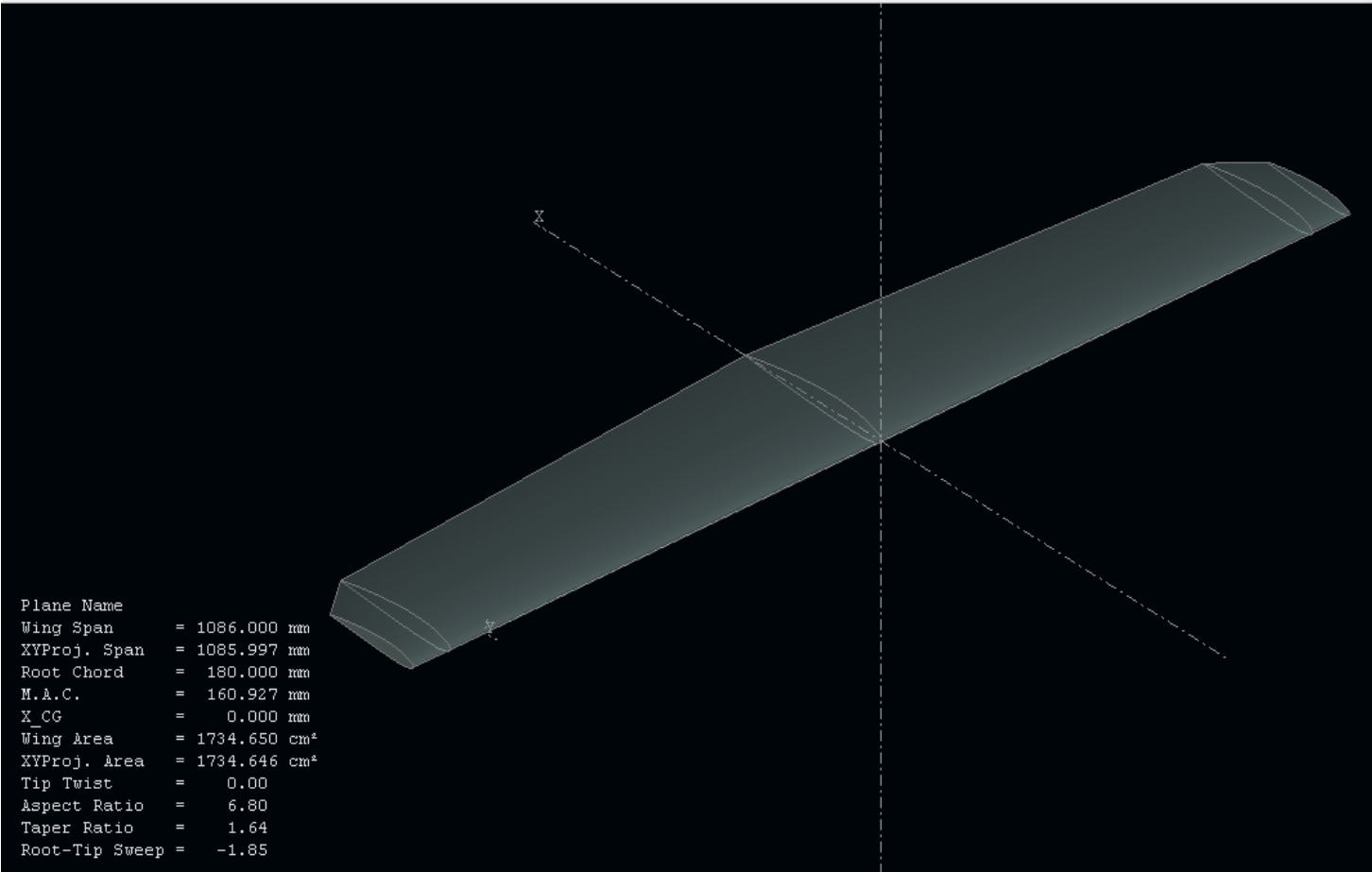



# CAPÍTULO III

XFLR5 v6.09.05 beta

File View Wing-Plane Body Polars OpPoint Analysis Options ?

Plane Name



Plane Name  
Wing Span = 1086.000 mm  
XYProj. Span = 1085.997 mm  
Root Chord = 180.000 mm  
M.A.C. = 160.927 mm  
X<sub>CG</sub> = 0.000 mm  
Wing Area = 1734.650 cm<sup>2</sup>  
XYProj. Area = 1734.646 cm<sup>2</sup>  
Tip Twist = 0.00  
Aspect Ratio = 6.80  
Taper Ratio = 1.64  
Root-Tip Sweep = -1.85

Miarex

Analysis settings

Sequence

Start=

End=

Δ=

Init LLT  Store OpPoint

Analyze

Results

Cp  Panel Forces

Lift  Moment

Ind. Dr  Visc. Drag

Trans.  Downw.

Surf. V  Stream

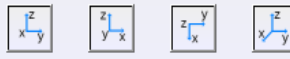
Animat

Display

Axes  Panels

Surfaces  Outline

Foil Names  Masses



Reset Pick Center



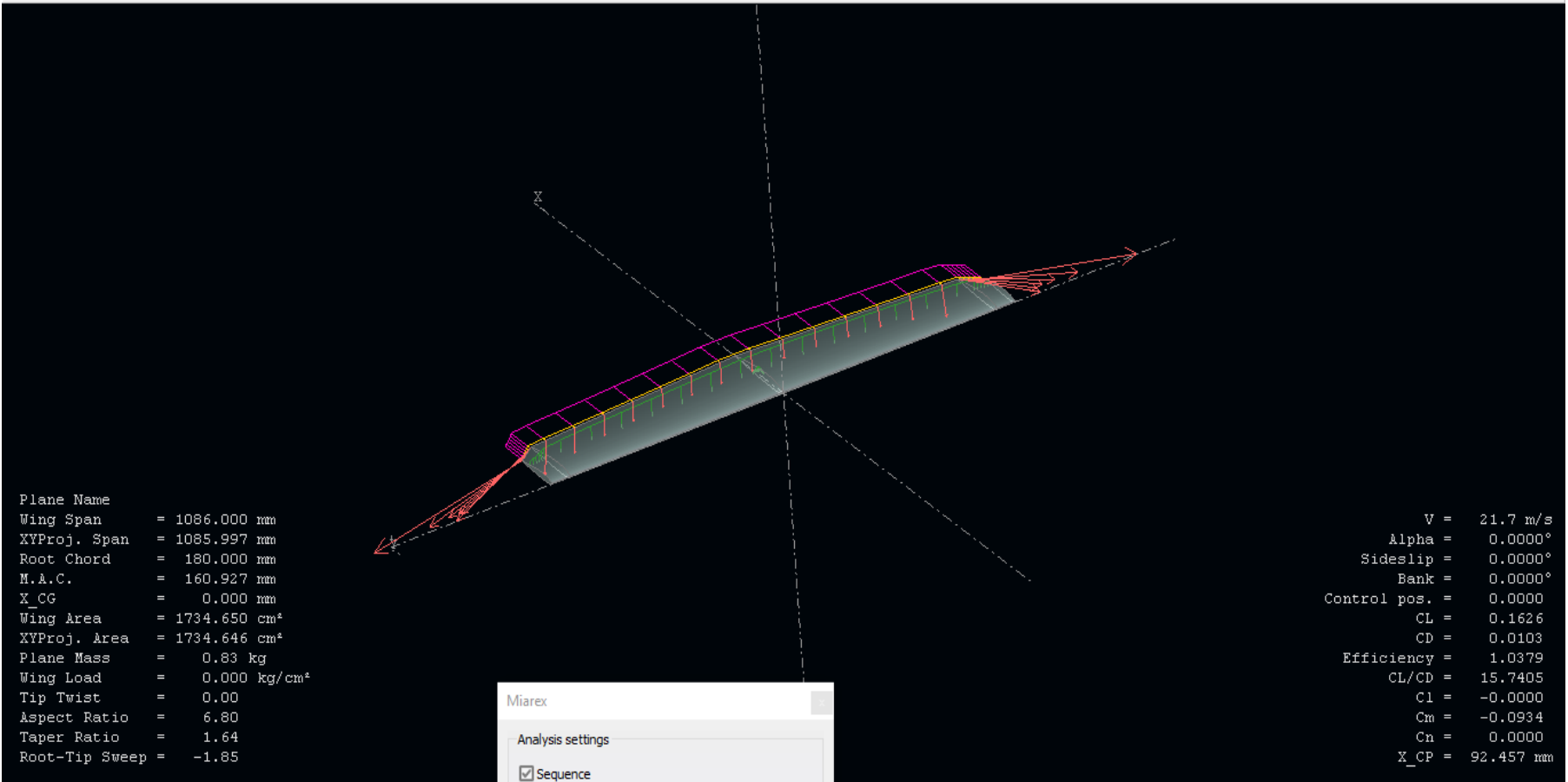


# CAPÍTULO III

XFLR5 v6.09.05 beta

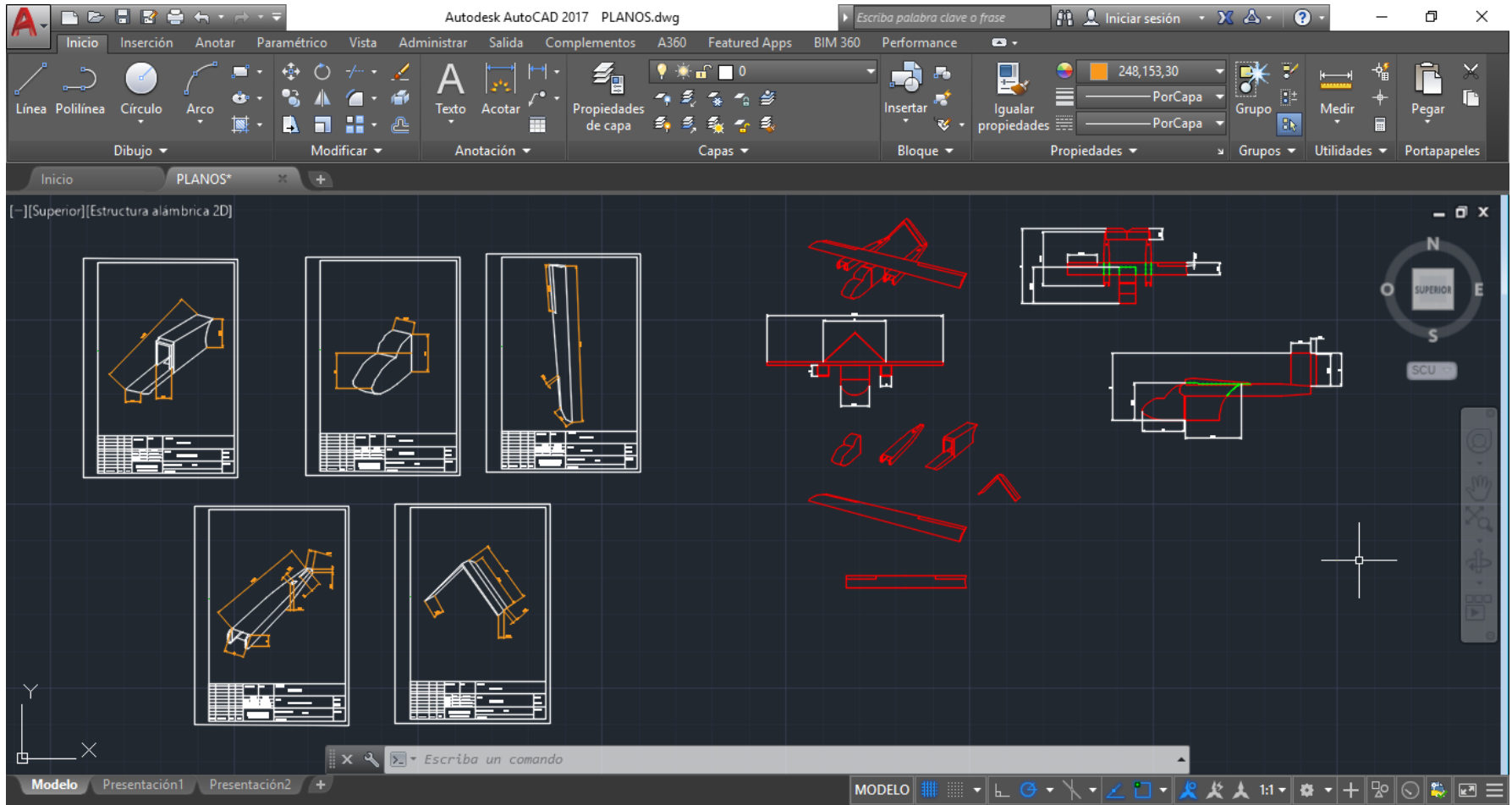
File View Wing-Plane Body Polars QpPoint Analysis Options ?

Plane Name T2-VLM1-0.830kg-x0.000mm 0.00



ANÁLISIS MACAS  
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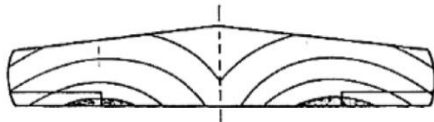
# CAPÍTULO III



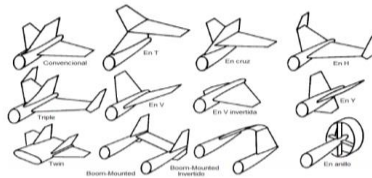
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# CAPÍTULO III

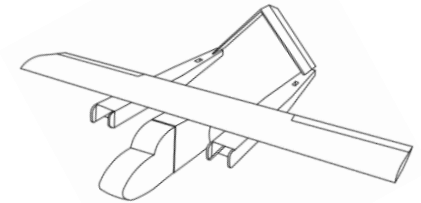
GEOMETRÍA  
DEL ALA



GEOMETRÍA  
DEL  
ESTABILIZADOR



GEOMETRÍA  
DEL FUSELAJE



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# CAPÍTULO III

## CONSTRUCCIÓN

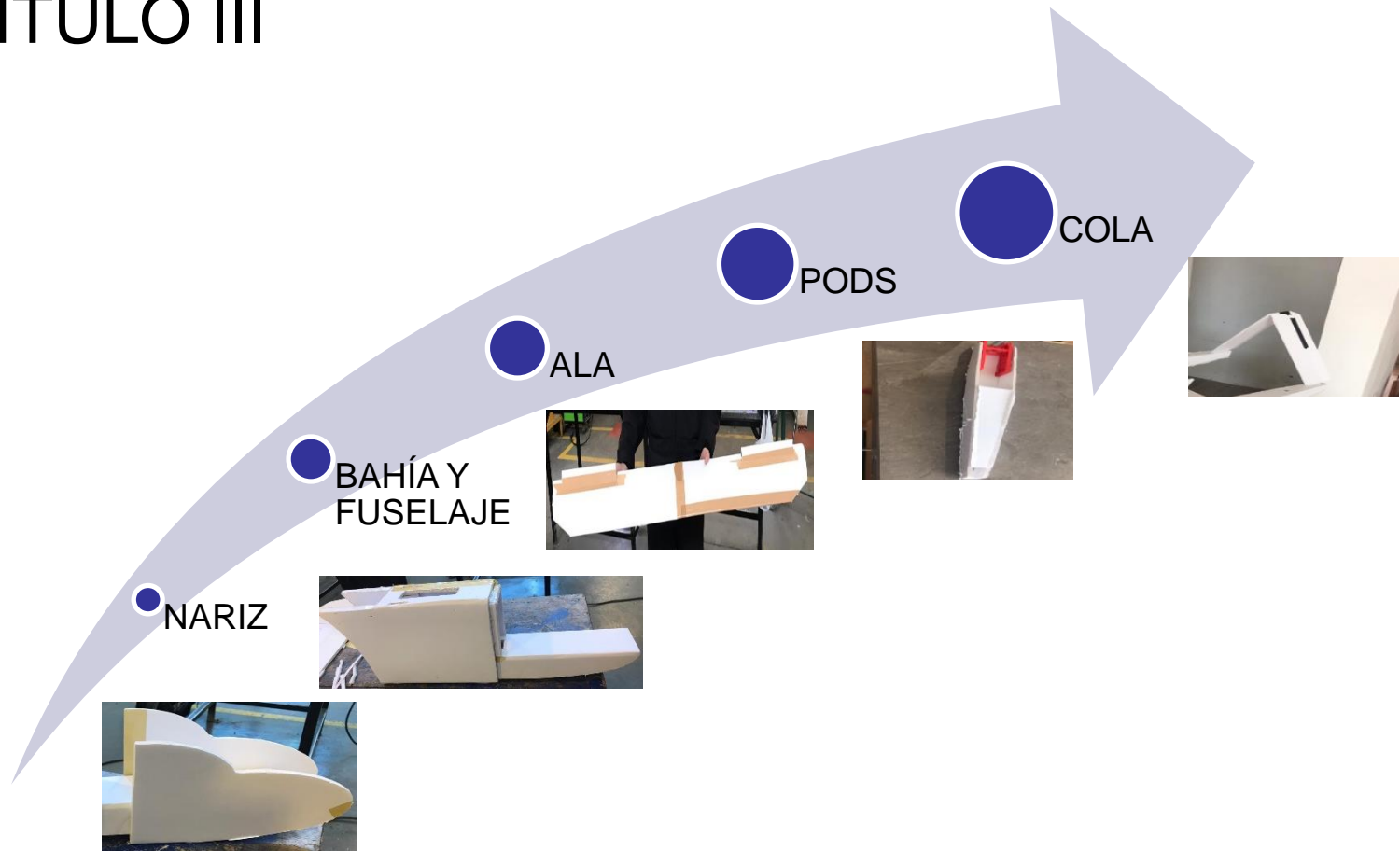
Materiales	Cantidad
Foam board (lámina)	10
Pistola de silicón	1
Silicón en tubo	15
Cinta adhesiva	1
Tijeras	1
Estilete o cuchilla	1
Cinta <u>taipe</u>	2
Palillos	5
Ligas	100
Pintura en aerosol	5

### AIRCRAFT SPECIFICATIONS:

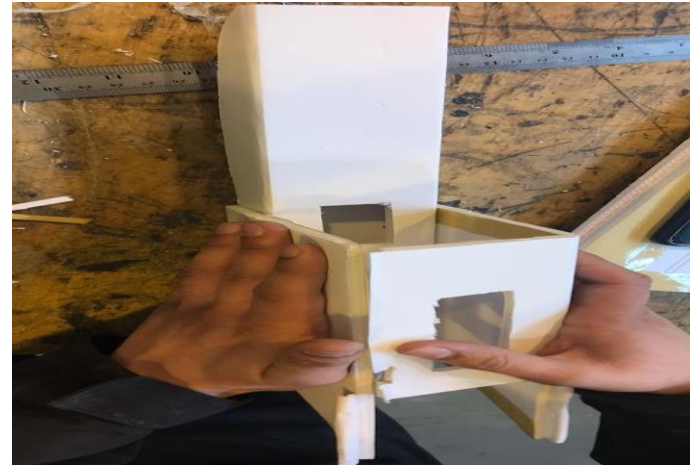
LENGTH:	36 in	927 mm
WING SPAN:	42.75 in	1086 mm
WING AREA:	323 in <sup>2</sup>	20.8 dm <sup>2</sup>
CG:	2 in	51 mm
AUW:	29.3 oz	830 g



# CAPÍTULO III

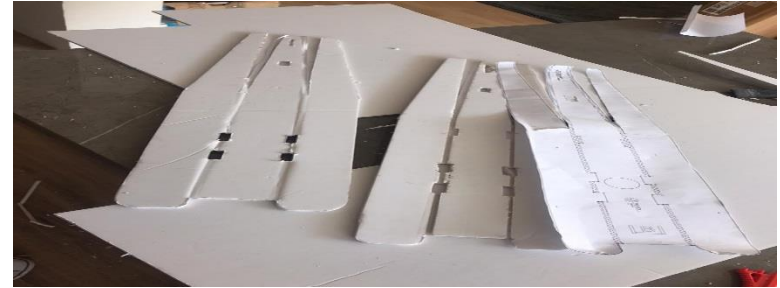
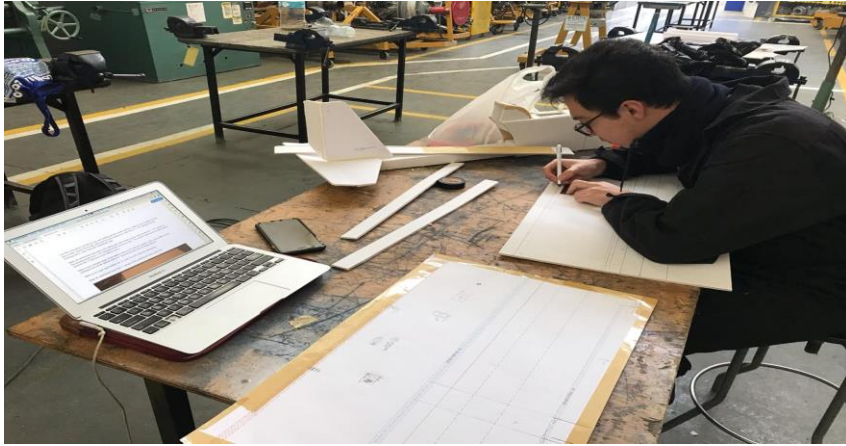


# CAPÍTULO III



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# CAPÍTULO III



# CAPÍTULO III



•TEST I



TEST II



TEST FINAL  
III



PROTOTIPO I

PROTOTIPO II

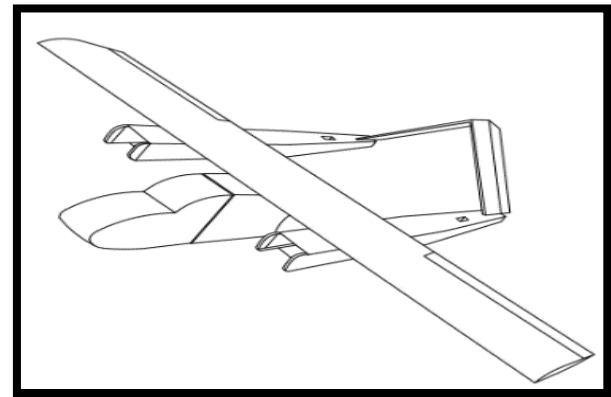
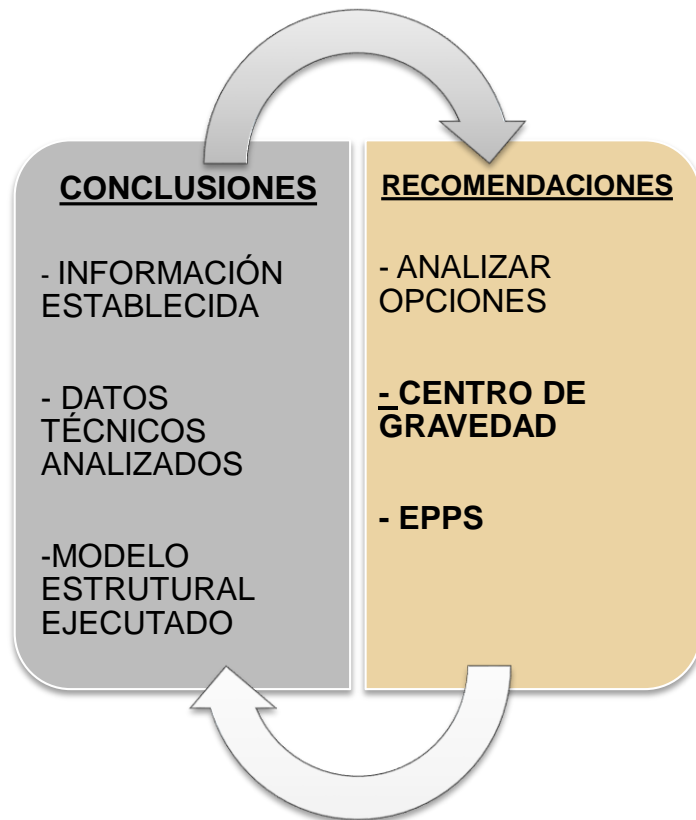
PROTOTIPO III



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# CAPÍTULO IV





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INNOVACIÓN PARA LA EXCELENCIA

# GRACIAS

***AUTOR: AVILÉS ERAZO, VINICIO ALEJANDRO***

***DIRECTOR DE TESIS: ING. MUÑOZ GRANDES MILTON STALIN***

***Enero 2020***



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