



Sanjay Ghodawat University, Kolhapur

2018-19

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/01

Year and Program: 2018-19

School of Technology

Department of SY B.Tech

Course Code: AET203

Course Title: Elements of
Aeronautical Engineering

Semester – I

Day and Date

Thursday 29 Nov 18

End Semester Examination
(ESE)

Time: Max Marks: 100

2:30 pm to 5:00 pm

Instructions:

- 1) Use of Programmable calculators is not allowed.
- 2) Assume suitable data wherever necessary.
- 3) Draw neat sketch wherever necessary.

Q.1	Describe any Two.	Marks	Bloom's Level	CO
a)	Explain briefly the contribution of Wright brothers in Aeronautical and Aerospace Engineering.	06	L ₃	CO1
	OR			
a)	Briefly explain the classification and types of aircraft.	06	L ₃	CO1
b)	Plot C_L Vs. α curve for both symmetrical and unsymmetrical airfoil with salient features.	05		CO2
	OR			
b)	Explain the following terms with neat sketch.	05	L ₃	CO2
	a) Aerodynamic center b) Centre of Pressure c) Aspect ratio d) Taper ratio			
Q.2	Explain any Two.			
a)	Explain the basic components of jet engine and give function of each in detail.	07	L ₃	CO3
	OR			
a)	Explain non-air breathing engine and give its classification.	07	L ₃	CO3
b)	Explain with neat sketch the difference between monocoque and semi monocoque structure.	10	L ₃	CO4
	OR			
b)	Explain with neat sketches the structural parts of fuselage and wing of an aircraft.	10	L ₃	CO4

Q.3	Describe the following.			
a)	Write about nomenclature of an airfoil.	05	L ₂	CO2
b)	Derive the thrust equation for jet engine.	05	L ₂	CO3
c)	Explain the following:	08	L ₂	CO4
	1) Stresses acting on aircraft. 2) Ribs, Spars and Longerons.			
Q.4	Explain any Two.			
a)	Explain material selection criteria for aircraft applications.	09	L ₃	CO5
b)	Describe the different types of material used in aircraft application.	09	L ₃	CO5
c)	What is composite material and explain its merits over other types of material.	09	L ₃	CO5
Q.5	Write any Two.			
a)	Explain primary and secondary control surfaces and their functions.	06	L ₃	CO6
b)	What is steady level flight? Explain it with neat sketches.	06	L ₃	CO6
c)	How do you achieve longitudinal, lateral & direction controls in an aircraft?	06	L ₃	CO6
Q.6	Describe any three.			
a)	Give the significance of Strength to weight ratio in aircraft.	08	L ₂	CO5
b)	Enlist the different types of Aluminum alloy used in aircraft industry and explain any two.	08	L ₂	CO5
c)	Write about the structural elements used in Wing of an aircraft.	08	L ₂	CO6
d)	Explain in brief the structural details of landing gear of an aircraft.	08	L ₂	CO6
