PROPULSION LAB AND FLIGHT SIMULATION LAB

V Semester

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
A5AE21	PCC	-	-	3	1.5	30	70	100

COURSE OBJECTIVES:

The purpose of this subject is to provide the students with the theoretical background and engineering applications.

1. To understand the physical behaviour of various jet engines
2. To learn fundamental calculations in heat transfer applicable to propulsion.

LIST OF EXPERIMENTS

PROPULSION LAB

1. Stripping of a piston engine, visual inspection and reasoning for common troubles and trouble shooting
2. Study of Jet engine and its components.
3. Study of piston engine (Port Timing Diagram)
4. Study of piston engine (Valve Timing)
5. Performance of piston engine 2-stroke
6. Performance of piston engine 4-stroke
7. Heat Balance Test on piston engine
8. Engine Balancing

FLIGHT SIMULATION LAB

1. Explain the Communication and Navigation systems
2. Calculation of CL and CD using the Speed-Power Method
3. Effect of Flaps on Take-off and landing Performance
4. Effect of Weight on Take-off and landing Performance
5. Estimate the Distance travelled by the aircraft using GPS

Reference Books:

1. H. Cohen, G. F. C. Rogers and H. I. H. Saravanamuttoo, "Gas Turbine Theory", Longman,2006. .
2. M. L. Mathur and R. P. Sharma, "Gas Turbine, Jet and Rocket Propulsion", StandardPublishers & Distributors, Delhi, 2007.

COURSE OUTCOMES:

At the end of the course the students are able to:

1. Identify the components of IC engines and develop working cycle of IC engines.
2. Evaluate the performance of 2S and 4S Engines and Generate heat balance sheet for IC Engine.
3. Predict the Calorific Value of a solid propellant.
4. Explain the navigation systems and calculate the distance travelled
5. Calculate C_L and C_D for an aircraft.
6. Predict the effect of flaps and Weight on Take-off and landing.