ME 653 Jet Propulsion (3-0-0-6)

Air breathing and non-air breathing engines, aircraft gas turbine engine, cycles analysis of ideal and real engines, components performance-intake, combustor, nozzle, turbomachinery, etc. Turbojet, turboprop, turbofan engines, ramjet and pulsejet, performance parameters like thrust, propulsive efficiency, etc. Chemical Rockets, types of propellants and their properties, injectors, thrust chamber, burning rate, cryogenic propellant, combustion phenomena, thrust vector control, ignition and inhibitors. Basics of Electrical and Nuclear rockets.

References:

[1] J Mattingly, *Elements of Gas Turbine Propulsion*, McGraw-Hill Publications, 1996.

[2] G.P. Sutton and O. Biblarz, *Rocket Propulsion Elements*, John Wiley & Sons, 2001.

[3] G.C.Oates, *Aerothermodynamics of Gas Turbine and Rocket Propulsion*, AIAA, New York, 1988.

[4] N.A.Cumpsty, *Jet Propulsion*, Cambridge University Press, 2000.

[5] P G Hill and C R Peterson, *Mechanics and Thermodynamics of Propulsion*, Addison Wesley, 1965.

[6] M J Zucrow, *Aircraft and Missile Propulsion* (Vol. I and II), John Wiley, 1958.

[7] W W Bathie, *Fundamentals of Gas Turbines*, John Wiley, 1996.

[8] H Cohen, G F C Rogers and H I H Saravanamuttoo, *Gas Turbine Theory*, Addison Wesley, 1998.