

Aerospace Engineering

Course Title: Principles of Propulsion

Number of Credits: 3

Course Topics:

- An introduction to the principles of propulsions
- Thermodynamics of gas turbines and jet engines
- Aerothermodynamics of different parts of gas turbine and jet engines
- Brief on jet engine turbomachines
- Matching of engine components
- The effect of altitude and flight speed on the performance of jet engines
- Reduction of air in jet engines
- Basics and principles of rocket engines
- At least one visit to the Aircraft and Helicopter Engine Repair Center

Reading Resources:

- [1] Philip Hill, Carl Peterson; *"Mechanics and Thermodynamics of Propulsion"*, 2nd revised and enlarged edition, 1992.
- [2] P. Hill, C. Peterson; *"Mechanics and Thermodynamics of Propulsion"*, 2nd Edition, Pearson Education, 2009.
- [3] Rolls Royce; *"The Jet Engine"*, 5th Edition, 1986, Reprinted 1996 with revisions.
- [4] Ronald D. Flack; *"Fundamentals of Jet Propulsion with Applications"*, (Cambridge Aerospace Series Book 17), 1st Edition, Cambridge University Press, 2010.
- [5] H. Cohen, G.F.C. Rogers, Paul Straznicky, H.I.H. Saravanamuttoo, Andrew Nix; *"Gas Turbine Theory"*, 7th Edition, Pearson, 2018.