ME 554 Rocket Propulsion
(3-0-0-6)

Classification of rockets – chemical, electrical and nuclear; Applications of rockets in launch vehicles, spacecraft, and missiles; Criteria of performance – thrust, specific impulse, energy and efficiencies, characteristic velocity, effective exhaust velocity; Isentropic flow through nozzles, nozzle configurations, real nozzles; Flight performance of rocket vehicles; Trajectories and orbits; Solid rocket motors, double-base and composite propellants, grain configurations, erosive burning; Liquid rocket engines, types of propellants; cryogenic and gelled propellants, injector design, gas pressure and turbo-pump feed systems, combustion instability; Heat transfer analysis; Thrust vector control; Hybrid rocket engines; Electrothermal, ion and magnetoplasma rockets; Rocket testing.

References

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