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Nota di contenuto	Chapter 1 Celestial Mechanics: Keplerian Orbits -- Chapter 2 Celestial Mechanics: Real Orbits -- Chapter 3 Space Vehicle Manoeuvring -- Chapter 4 Interplanetary Trajectories -- Chapter 5 Space Vehicle Mission Planning -- Chapter 6 Trajectory Optimisation and Feedback Control -- Chapter 7 Patched Three-Body Approximation: Application to Inter-Planetary Trajectory Planning -- Chapter 8 Missions to the Asteroids -- Chapter 9 Physics of Plasmas -- Chapter 10 Space Vehicle Electric Propulsion -- Chapter 11 Space Vehicle Electro-Static and Electro-Magnetic Propulsion -- Chapter 12 Space Vehicle Electro-

Dynamic Propulsion.

Sommario/riassunto

This textbook introduces space vehicle maneuvering, propulsion, dynamics and control, and discusses the space environment and its influence on the spacecraft propulsion system. This is followed by an in depth description of Keplerian celestial mechanics, co-planar and non-planar orbital transfers involving both impulsive and continuous manoeuvers, and perturbation effects that characterize the real non-Keplerian nature of orbital motion. Dr. Vepa then explains the use of restricted two-body and three-body dynamics as descriptors of spacecraft motion, the limitations of these approach in terms of orbital perturbations and an understanding of the physical source and influence of these perturbations, and principles of the optimal synthesis of trajectories. Featuring many exercises, design case studies, and extensive use of MATLAB/SIMULINK and MATLAB analytical tools, the book is ideal for graduate students, post graduate students, researchers, as well professionals in the industry. Stands as a single, ready reference for all that would be required for design of a specific or a complete space mission; Explains the basics of celestial mechanics including Keplerian, Real and Non-Keplerian Orbits; Illustrates the principles of maneuvering vehicles in space, optimal trajectories, and space vehicle mission planning .