

1. Record Nr.	UNINA9910783937203321
Titolo	Orbital mechanics [[electronic resource] /] / edited by Vladimir A. Chobotov
Pubbl/distr/stampa	Reston, Va., : American Institute of Aeronautics and Astronautics, Inc., c2002
ISBN	1-60086-097-4 1-60119-208-8
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (450 p.)
Collana	AIAA education series
Altri autori (Persone)	ChobotovVladimir A
Disciplina	629.4/113
Soggetti	Orbital mechanics Artificial satellites - Orbits Navigation (Astronautics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	""Cover""; ""Title""; ""Copyright""; ""Foreword""; ""Preface""; ""About the Authors""; ""Table of Contents""; ""Chapter 1. Basic Concepts""; ""1.1 A Historical Perspective""; ""1.2 Velocity and Acceleration""; ""Problems""; ""Selected Solutions""; ""Chapter 2. Celestial Relationships""; ""2.1 Coordinate Systems""; ""2.2 Time Systems""; ""References""; ""Chapter 3. Keplerian Orbits""; ""3.1 Newton's Universal Law of Gravitation""; ""3.2 General and Restricted Two-Body Problem""; ""3.3 Conservation of Mechanical Energy""; ""3.4 Conservation of Angular Momentum"" ""3.5 Orbital Parameters of a Satellite"" ""3.6 Orbital Elements""; ""References""; ""Problems""; ""Selected Solutions""; ""Chapter 4. Position and Velocity as a Function of Time""; ""4.1 General Relationships""; ""4.2 Solving Kepler's Equation""; ""4.3 A Universal Approach""; ""4.4 Expressions with f and g""; ""4.5 Summary of the Universal Approach""; ""4.6 The Classical Element Set""; ""4.7 The Rectangular Coordinate System""; ""4.8 Modified Classical to Cartesian Transformation""; ""4.9 Rectangular to Modified Classical Elements Transformation"" ""4.10 The Spherical (ADBARV) Coordinate System"" ""4.11 Rectangular to Spherical Transformation""; ""4.12 Spherical to Rectangular Transformation""; ""4.13 The Earth-Relative Spherical (LDBARV) Coordinate System""; ""4.14 Geodetic and Geocentric Altitudes""; ""4.15

Converting from Perigee/Apogee Radii to Perigee/Apogee Altitudes";
""4.16 Converting from Perigee/Apogee Altitudes to Perigee/Apogee
Radii""; ""References""; ""Problems""; ""Selected Solutions""; ""Chapter 5.
Orbital Maneuvers""; ""5.1 Orbital Energy""; ""5.2 Single-Impulse
Maneuvers""
""5.3 Single- and Two-Impulse Transfer Comparison for Coplanar
Transfers Between Elliptic Orbits That Differ Only in Their Apsidal
Orientation""""5.4 Hohmann Transfer""; ""5.5 The Bi-elliptic Transfer"";
""5.6 Restricted Three-Impulse Plane Change Maneuver for Circular
Orbits""; ""5.7 General Three-Impulse Plane Change Maneuver for
Circular Orbit""; ""5.8 Hohmann Transfer with Split-Plane Change"";
""5.9 Bi-elliptic Transfer with Split-Plane Change""; ""5.10 Transfer
Between Coplanar Elliptic Orbits""; ""References""; ""Problems"";
""Selected Solutions""
""Chapter 6. Complications to Impulsive Maneuvers""""6.1 N-Impulse
Maneuvers""; ""6.2 Fixed-Impulse Transfers""; ""6.3 Finite-Duration
Burns: Gravity Losses""; ""6.4 Very Low Thrust Transfers"";
""References""; ""Problems""; ""Selected Solutions""; ""Chapter 7. Relative
Motion in Orbit""; ""7.1 Space Rendezvous""; ""7.2 Terminal
Rendezvous""; ""7.3 Applications of Rendezvous Equations""; ""7.4 An
Exact Analytical Solution for Two-Dimensional Relative Motion""; ""7.5
Optimal Multiple-Impulse Rendezvous""; ""References""; ""Problems"";
""Selected Solutions""
""Chapter 8. Introduction to Orbit Perturbations""
