

1. Record Nr.	UNINA9910778201803321
Autore	Dreyfus Stuart E
Titolo	Dynamic programming and the calculus of variations / / Stuart E. Dreyfus
Pubbl/distr/stampa	New York : , : Academic Press, , 1965
ISBN	1-282-28924-1 9786612289248 0-08-095527-4
Descrizione fisica	1 online resource (xix, 248 pages) : illustrations
Collana	Mathematics in science and engineering ; ; 21
Disciplina	519.92
Soggetti	Calculus of variations Dynamic programming Programming (Mathematics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Dynamic Programming and the Calculus of Variations; Copyright Page; Contents; Preface; Chapter I. Discrete Dynamic Programming; 1. Introduction; 2. An Example of a Multistage Decision Process Problem; 3. The Dynamic Programming solution of the Example; 4. The Dynamic Programming Formalism; 5. Two Properties of the Optimal Value Function; 6. An Alternative Method of Solution; 7. Modified Properties of the Optimal Value Function; 8. A Property of Multistage Decision Processes; 9. Further Illustrative Examples; 10. Terminal Control Problems; 11. Example of a Terminal Control Problem 12. Solution of the Example; 13. Properties of the Solution of a Terminal Control Problem; 14. Summary; Chapter II. The Classical Variational Theory; 1. Introduction; 2. A Problem; 3. Admissible Solutions; 4. Functions; 5. Functionals; 6. Minimization and Maximization; 7. Arc-Length; 8. The Simplest General Problem; 9. The Maximum-Value Functional; 10. The Nature of Necessary Conditions; 11. Example; 12. The Nature of Sufficient Conditions; 13. Necessary and Sufficient Conditions; 14. The Absolute Minimum of a Functional; 15. A Relative Minimum of a Function 16. A Strong Relative Minimum of a Functional; 17. A Weak Relative

Minimum of a Functional; 18. Weak Variations; 19. The First and Second Variations; 20. The Euler-Lagrange Equation; 21. Example; 22. The Legendre Condition; 23. The Second Variation and the Second Derivative; 24. The Jacobi Necessary Condition; 25. Example; 26. Focal Point; 27. Geometric Conjugate Points; 28. The Weierstrass Necessary Condition; 29. Example; 30. Discussion; 31. Transversality Conditions; 32. Corner Conditions; 33. Relative Summary; 34. Sufficient Conditions; 35. Hamilton-Jacobi Theory
36. Other Problem Formulations; 37. Example of a Terminal Control Problem; 38. Necessary Conditions for the Problem of Mayer; 39. Analysis of the Example Problem; 40. Two-Point Boundary Value Problems; 41. A Well-Posed Problem; 42. Discussion; 43. Computational Solution; 44. Summary; References to Standard Texts;
Chapter III. The Simplest Problem; 1. Introduction; 2. Notation; 3. The Fundamental Partial Differential Equation; 4. A Connection with Classical Variations; 5. A Partial Differential Equation of the Classical Type; 6. Two Kinds of Derivatives
7. Discussion of the Fundamental Partial Differential Equation; 8. Characterization of the Optimal Policy Function; 9. Partial Derivatives along Optimal Curves; 10. Boundary Conditions for the Fundamental Equation: I; 11. Boundary Conditions: II; 12. An Illustrative Example-Variable End Point; 13. A Further Example-Fixed Terminal Point; 14. A Higher-Dimensional Example; 15. A Different Method of Analytic Solution; 16. An Example; 17. From Partial to Ordinary Differential Equations; 18. The Euler-Lagrange Equation; 19. A Second Derivation of the Euler-Lagrange Equation; 20. The Legendre Necessary Condition
