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Autore	Udriste Constantin
Titolo	Variational calculus with engineering applications / / Constantin Udriste and Ionel Tevy
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Descrizione fisica	1 online resource (224 pages)
Disciplina	515.64
Soggetti	Calculus of variations Engineering mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references (pages 214-219) and index.
Nota di contenuto	Intro -- Variational Calculus with Engineering Applications -- Contents -- Preface -- 1 Extrema of Differentiable Functionals -- 1.1 Differentiable Functionals -- 1.2 Extrema of Differentiable Functionals -- 1.3 Second Variation -- Sufficient Conditions for Extremum -- 1.4 Optimum with Constraints -- the Principle of Reciprocity -- 1.4.1 Isoperimetric Problems -- 1.4.2 The Reciprocity Principle -- 1.4.3 Constrained Extrema: The Lagrange Problem -- 1.5 Maple Application Topics -- 2 Variational Principles -- 2.1 Problems with Natural Conditions at the Boundary -- 2.2 Sufficiency by the Legendre-Jacobi Test -- 2.3 Unitemporal Lagrangian Dynamics -- 2.3.1 Null Lagrangians -- 2.3.2 Invexity Test -- 2.4 Lavrentiev Phenomenon -- 2.5 Unitemporal Hamiltonian Dynamics -- 2.6 Particular Euler-Lagrange ODEs -- 2.7 Multitemporal Lagrangian Dynamics -- 2.7.1 The Case of Multiple Integral Functionals -- 2.7.2 Invexity Test -- 2.7.3 The Case of Path-Independent Curvilinear Integral Functionals -- 2.7.4 Invexity Test -- 2.8 Multitemporal Hamiltonian Dynamics -- 2.9 Particular Euler-Lagrange PDEs -- 2.10 Maple Application Topics -- 3 Optimal Models Based on Energies -- 3.1 Brachistochrone Problem -- 3.2 Ropes, Chains and Cables -- 3.3 Newton's Aerodynamic Problem -- 3.4 Pendulums -- 3.4.1 Plane Pendulum -- 3.4.2 Spherical Pendulum

-- 3.4.3 Variable Length Pendulum -- 3.5 Soap Bubbles -- 3.6 Elastic Beam -- 3.7 The ODE of an Evolutionary Microstructure -- 3.8 The Evolution of a Multi-Particle System -- 3.8.1 Conservation of Linear Momentum -- 3.8.2 Conservation of Angular Momentum -- 3.8.3 Energy Conservation -- 3.9 String Vibration -- 3.10 Membrane Vibration -- 3.11 The Schrödinger Equation in Quantum Mechanics -- 3.11.1 Quantum Harmonic Oscillator -- 3.12 Maple Application Topics -- 4 Variational Integrators -- 4.1 Discrete Single-time Lagrangian Dynamics.
4.2 Discrete Hamilton's Equations -- 4.3 Numeric Newton's Aerodynamic Problem -- 4.4 Discrete Multi-time Lagrangian Dynamics -- 4.5 Numerical Study of the Vibrating String Motion -- 4.5.1 Initial Conditions for Infinite String -- 4.5.2 Finite String, Fixed at the Ends -- 4.5.3 Monomial (Soliton) Solutions -- 4.5.4 More About Recurrence Relations -- 4.5.5 Solution by Maple via Eigenvalues -- 4.5.6 Solution by Maple via Matrix Techniques -- 4.6 Numerical Study of the Vibrating Membrane Motion -- 4.6.1 Monomial (Soliton) Solutions -- 4.6.2 Initial and Boundary Conditions -- 4.7 Linearization of Nonlinear ODEs and PDEs -- 4.8 Von Neumann Analysis of Linearized Discrete Tzitzeica PDE -- 4.8.1 Von Neumann Analysis of Dual Variational Integrator Equation -- 4.8.2 Von Neumann Analysis of Linearized Discrete Tzitzeica Equation -- 4.9 Maple Application Topics -- 5 Miscellaneous Topics -- 5.1 Magnetic Levitation -- 5.1.1 Electric Subsystem -- 5.1.2 Electromechanic Subsystem -- 5.1.3 State Nonlinear Model -- 5.1.4 The Linearized Model of States -- 5.2 The Problem of Sensors -- 5.2.1 Simplified Problem -- 5.2.2 Extending the Simplified Problem of Sensors -- 5.3 The Movement of a Particle in Non-stationary Gravito-vortex Field -- 5.4 Geometric Dynamics -- 5.4.1 Single-time Case -- 5.4.2 The Least Squares Lagrangian in Conditioning Problems -- 5.4.3 Multi-time Case -- 5.5 The Movement of Charged Particle in Electromagnetic Field -- 5.5.1 Unitemporal Geometric Dynamics Induced by Vector Potential -- 5.5.2 Unitemporal Geometric Dynamics Produced by Magnetic Induction -- 5.5.3 Unitemporal Geometric Dynamics Produced by Electric Field -- 5.5.4 Potentials Associated to Electromagnetic Forms -- 5.5.5 Potential Associated to Electric 1-form -- 5.5.6 Potential Associated to Magnetic 1-form -- 5.5.7 Potential Associated to Potential 1-form.
5.6 Wind Theory and Geometric Dynamics -- 5.6.1 Pendular Geometric Dynamics and Pendular Wind -- 5.6.2 Lorenz Geometric Dynamics and Lorenz Wind -- 5.7 Maple Application Topics -- 6 Nonholonomic Constraints -- 6.1 Models With Holonomic and Nonholonomic Constraints -- 6.2 Rolling Cylinder as a Model with Holonomic Constraints -- 6.3 Rolling Disc (Unicycle) as a Model with Nonholonomic Constraint -- 6.3.1 Nonholonomic Geodesics -- 6.3.2 Geodesics in Sleigh Problem -- 6.3.3 Unicycle Dynamics -- 6.4 Nonholonomic Constraints to the Car as a Four-wheeled Robot -- trailer -- 6.5 Nonholonomic Constraints to the -- 6.6 Famous Lagrangians -- 6.7 Significant Problems -- 6.8 Maple Application Topics -- 7 Problems: Free and Constrained Extremals -- 7.1 Simple Integral Functionals -- 7.2 Curvilinear Integral Functionals -- 7.3 Multiple Integral Functionals -- 7.4 Lagrange Multiplier Details -- 7.5 Simple Integral Functionals with ODE Constraints -- 7.6 Simple Integral Functionals with Nonholonomic Constraints -- 7.7 Simple Integral Functionals with Isoperimetric Constraints -- 7.8 Multiple Integral Functionals with PDE Constraints -- 7.9 Multiple Integral Functionals With Nonholonomic Constraints -- 7.10 Multiple Integral Functionals With Isoperimetric Constraints -- 7.11 Curvilinear Integral Functionals With PDE Constraints -- 7.12 Curvilinear Integral Functionals With

		Nonholonomic Constraints -- 7.13 Curvilinear Integral Functionals with Isoperimetric Constraints -- 7.14 Maple Application Topics -- Bibliography -- Index -- EULA.
2.	Record Nr.	UNINA9910869166003321
	Autore	Dooley John F.
	Titolo	Software Development, Design, and Coding : With Patterns, Debugging, Unit Testing, and Refactoring / / by John F. Dooley, Vera A. Kazakova
	Pubbl/distr/stampa	Berkeley, CA : , : Apress : , : Imprint : Apress, , 2024
	ISBN	979-88-6880-285-0
	Edizione	[3rd ed. 2024.]
	Descrizione fisica	1 online resource (521 pages)
	Disciplina	001.642
	Soggetti	Software engineering Java (Computer program language) Compilers (Computer programs) Software Engineering Java Compilers and Interpreters
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Chapter 1: Introduction to Software Development -- PART ONE: MODELS AND TEAM PRACTICES -- Chapter 2: Software Process Models -- Chapter 3: Project Management Essentials -- Chapter 4: Ethics and Professional Practice -- Chapter 5: Intellectual Property, Obligations, and Ownership -- Chapter 6: Requirements -- PART TWO: DESIGN PRACTICES -- Chapter 7: Software Architecture -- Chapter 8: Design Principles -- Chapter 9: Structured Design -- Chapter 10: Object-Oriented Overview -- Chapter 11: Object-Oriented Analysis and Design -- Chapter 12: Object-Oriented Design Principles -- Chapter 13: Design Patterns -- Chapter 14:Parallel Programming -- Chapter 15: Parallel; Design Patterns -- PART THREE: CODING PRACTICES -- Chapter 16: Code Construction -- Chapter 17: Debugging -- Chapter 18: Unit Testing -- Chapter 19:P Code Reviews and Inspections -- Chapter 20: Wrapping It All Up.

Sommario/riassunto

Learn the principles of good software design and then turn those principles into great code. This book introduces you to software engineering, from the application of engineering principles to the development of software. You'll see how to run a software development project, examine the different phases of a project, and learn how to design and implement programs that solve specific problems. This book is also about code construction — how to write great programs and make them work. Whether you're new to programming or have written hundreds of applications, in this book you'll re-examine what you already do, and you'll investigate ways to improve. Using examples in the Java and C programming languages, you'll look deeply into coding standards, debugging, unit testing, modularity, and other characteristics of effective programs. This new third edition incorporates new content, new figures, clarifying revisions, and content reorganization across all chapters. The Software Development Approaches chapter has been updated to highlight the differences between lean and agile general approaches, their various specific implementations, and how they can be effectively combined in software development practices. The Project Management Essentials chapter has been expanded to incorporate "SoftAware Development": a new paradigm which centers individuals, interpersonal relationships, and workplace culture as the heart of healthy and sustainable joint creation of software. Finally, a brand new chapter on intellectual property discusses copyright, patents, and how joint work affects code ownership rights. You Will Learn Modern agile methodologies How to work on and with development teams How to leverage the capabilities of modern computer systems with parallel programming How to work with design patterns to exploit application development best practices How to use modern tools for development, collaboration, and source code controls.

3. Record Nr. UNINA9910971119503321

Autore	Morris Peter
Titolo	Introduction to Game Theory / / by Peter Morris
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 1994
ISBN	1-4612-4316-5
Edizione	[1st ed. 1994.]
Descrizione fisica	1 online resource (XXVI, 252 p.)
Collana	Universitext, , 2191-6675
Disciplina	519.3
Soggetti	Discrete mathematics Discrete Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Games in Extensive Form -- 1.1. Trees -- 1.2. Game Trees -- 1.3. Choice Functions and Strategies -- 1.4. Games with Chance Moves -- 1.5. Equilibrium N-tuples of Strategies -- 1.6. Normal Forms -- 2. Two-Person Zero-Sum Games -- 2.1. Saddle Points -- 2.2. Mixed Strategies -- 2.3. Small Games -- 2.4. Symmetric Games -- 3. Linear Programming -- 3.1. Primal and Dual Problems -- 3.2. Basic Forms and Pivots -- 3.3. The Simplex Algorithm -- 3.4. Avoiding Cycles and Achieving Feasibility -- 3.5. Duality -- 4. Solving Matrix Games -- 4.1. The Minimax Theorem -- 4.2. Some Examples -- 5. Non-Zero-Sum Games -- 5.1. Noncooperative Games -- 5.2. Solution Concepts for Noncooperative Games -- 5.3. Cooperative Games -- 6. N-Person Cooperative Games -- 6.1. Coalitions -- 6.2. Imputations -- 6.3. Strategic Equivalence -- 6.4. Two Solution Concepts -- 7. Game-Playing Programs -- 7.1. Three Algorithms -- 7.2. Evaluation Functions -- Appendix. Solutions.
Sommario/riassunto	The mathematical theory of games has as its purpose the analysis of a wide range of competitive situations. These include most of the recreations which people usually call "games" such as chess, poker, bridge, backgam- mon, baseball, and so forth, but also contests between companies, military forces, and nations. For the purposes of developing the theory, all these competitive situations are called games. The analysis of games has two goals. First, there is the descriptive goal of understanding why the parties ("players") in

competitive situations behave as they do. The second is the more practical goal of being able to advise the players of the game as to the best way to play. The first goal is especially relevant when the game is on a large scale, has many players, and has complicated rules. The economy and international politics are good examples. In the ideal, the pursuit of the second goal would allow us to describe to each player a strategy which guarantees that he or she does as well as possible. As we shall see, this goal is too ambitious. In many games, the phrase "as well as possible" is hard to define. In other games, it can be defined and there is a clear-cut "solution" (that is, best way of playing).

4. Record Nr. UNINA9910983493403321

Autore	Verma Ashok Kumar
Titolo	Process Design for Chemical and Environmental Engineering / / by Ashok Kumar Verma
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	9783031648618 3031648617
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (606 pages)
Disciplina	660
Soggetti	Chemical engineering Chemical processes Production engineering Chemical Process Engineering Process Chemistry Thermal Process Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction to Process Design -- Process Design Fundamentals -- Design of Heat Exchangers -- Mass Transfer Equipment -- Solid-Liquid and Liquid-Liquid Extraction -- Humidification, Dehumidification and Drying -- Reactor Design.
Sommario/riassunto	This book discusses the design methodology for chemical process

equipment carrying out heat and mass transfer operations and various types of reactors. Process design is an important step before achieving a mechanical design of chemical process equipment. It requires comprehensive knowledge of thermodynamics, fluid flow, heat, and mass transfer operations, and chemical reaction engineering, which is covered by the various chapters in this book. It covers process design of (1) heat exchangers, condensers, and reboilers; (2) packed and stage columns for distillation and gas absorption in chapter; (3) liquid–liquid extractor and solid–liquid leaching systems; (4) cooling towers; and (5) four different types of catalytic reactors, packed bed, fluidized bed, slurry bubble column, and mechanically agitated slurry reactor. The book emphasizes using correlations and equations in place of design data available in graphical or tabular forms to make it suitable for solving problems using spreadsheets and other software. It includes new correlations if not available in the literature and references to data available on web resources. The book covers all major topics for the course Chemical Process Engineering for undergraduate students and is also helpful in carrying out process design calculations for undergraduate design projects.