

Optimization Techniques By Gupta

This book reviews the fundamentals, background and theoretical concepts of optimization principles in comprehensive manner along with their potentials applications and implementation strategies. The book will be very useful for wide spectrum of target readers such as research scholars, academia, and industry professionals.

Talks about the applications of management science to: Multi-Criteria Decision Making, Operations and Supply Chain Management, Productivity Management (DEA), and Financial Management. This book provides an overview of some of the most essential aspects of the discipline. It is suitable for persons interested in management or management science.

This book "optimization theory" covers the basic techniques of operations research needed in arriving at an effective decision in areas of management, finance, production, marketing, personnel, transportation, public health, military, planning and agriculture, etc. The persons connected with management and business executives, are therefore, supposed to have a good knowledge of the techniques of optimization theory. It is intended that this book provides a sound basic knowledge on techniques of operations research.

Intelligent Data Analysis for Biomedical Applications: Challenges and Solutions presents specialized statistical, pattern recognition, machine learning, data abstraction and visualization tools for the analysis of data and discovery of mechanisms that create data. It provides computational methods and tools for intelligent data analysis, with an emphasis on problem-solving relating to automated data collection, such as computer-based patient records, data warehousing tools, intelligent alarming, effective and efficient monitoring, and

more. This book provides useful references for educational institutions, industry professionals, researchers, scientists, engineers and practitioners interested in intelligent data analysis, knowledge discovery, and decision support in databases. Provides the methods and tools necessary for intelligent data analysis and gives solutions to problems resulting from automated data collection Contains an analysis of medical databases to provide diagnostic expert systems Addresses the integration of intelligent data analysis techniques within biomedical information systems

Multi-Objective Optimization

Mechanical Design Optimization Using Advanced Optimization Techniques

Application of Analysis and Optimization Techniques

Optimization: Techniques And Applications (Icota '95)

International Asia Conference on Industrial Engineering and Management Innovation (IEMI2012) Proceedings

Computational Methods for Optimizing Manufacturing Technology: Models and Techniques

The International Conference on Industrial Engineering and Engineering Management is sponsored by the Chinese Industrial Engineering Institution, CMES, which is the only national-level academic society for Industrial Engineering. The conference is held annually as the major event in this arena. Being the largest and the most authoritative international academic conference held in China, it provides an academic platform for experts and entrepreneurs in the areas of international industrial engineering and management to exchange their research findings. Many experts in various fields from China and around the world gather together at the conference to review, exchange,

summarize and promote their achievements in the fields of industrial engineering and engineering management. For example, some experts pay special attention to the current state of the application of related techniques in China as well as their future prospects, such as green product design, quality control and management, supply chain and logistics management to address the need for, amongst other things low-carbon, energy-saving and emission-reduction. They also offer opinions on the outlook for the development of related techniques. The proceedings offers impressive methods and concrete applications for experts from colleges and universities, research institutions and enterprises who are engaged in theoretical research into industrial engineering and engineering management and its applications. As all the papers are of great value from both an academic and a practical point of view, they also provide research data for international scholars who are investigating Chinese style enterprises and engineering management.

Optimization Techniques In Operation Research I. K. International Pvt Ltd

It has been widely acknowledged the importance of Operations Research/Quantitative Techniques in Managerial decision-making. The need for a thorough understanding of various Operations Research Techniques by the students of management cannot be overemphasized. The present book is an attempt to provide a means for such understanding by concise explanation of the concepts and numerous solved examples and illustrations.

"This book contains the latest research developments in manufacturing technology and its optimization, and demonstrates the fundamentals of new computational approaches

and the range of their potential application"--Provided by publisher.

Models and Techniques

Proceedings of Third International Conference on Computing, Communications, and Cyber-Security

Optimization of Manufacturing Processes

Advances in Hybrid Multi-criteria Methodologies

Optimization Techniques

Fog, Edge, and Pervasive Computing in Intelligent IoT Driven Applications

This book provides a detailed understanding of optimization methods as they are implemented in a variety of manufacturing, fabrication and machining processes. It covers the implementation of statistical methods, multi-criteria decision making methods and evolutionary techniques for single and multi-objective optimization to improve quality, productivity, and sustainability in manufacturing. It reports on the theoretical aspects, special features, recent research and latest development in the field. Optimization of Manufacturing Processes is a valuable source of information for researchers and practitioners, as it fills the gap where no dedicated book is available on intelligent manufacturing/modeling and optimization in manufacturing. Readers will develop an understanding of the implementation of statistical and evolutionary techniques for modeling and optimization in manufacturing.

Multi-objective optimization (MO) is a fast-developing field in computational intelligence research. Giving decision makers more options to choose from using some post-analysis preference information, there are a number of competitive MO techniques with an increasingly large number of MO real-world applications. Multi-Objective Optimization in Computational

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Intelligence: Theory and Practice explores the theoretical, as well as empirical, performance of MOs on a wide range of optimization issues including combinatorial, real-valued, dynamic, and noisy problems. This book provides scholars, academics, and practitioners with a fundamental, comprehensive collection of research on multi-objective optimization techniques, applications, and practices.

The book presents recently developed efficient metaheuristic optimization algorithms and their applications for solving various optimization problems in civil engineering. The concepts can also be used for optimizing problems in mechanical and electrical engineering.

The book provides a collection of recent applications of nature inspired optimization in industrial fields. Different optimization techniques have been deployed, and different problems have been effectively analyzed. The valuable contributions from researchers focus on three ultimate goals (i) improving the accuracy of these techniques, (ii) achieving higher speed and lower computational complexity, and (iii) working on their proposed applications. The book is helpful for active researchers and practitioners in the field.

Decision Sciences

Recent Advances in Constructive Approximation Theory

Elements of Operations Research

Numerical Methods using MATLAB

Techniques of Operations Research

Design, Analysis and Applications of Renewable Energy Systems

The author have used numerical examples as the means for presentation of the

underlying ideas of different operations research techniques. Accordingly, a large number of comprehensive solved examples, taken from a variety of fields, have been added in every chapter and they are followed by a set of unsolved problems with answers (and hints wherever required) through which readers can test their understanding of the subject matter. The book, in its present form, contains around 650 examples, 1,280 illustrative diagrams.

This book describes different approaches for solving industrial problems like product design, process optimization, quality enhancement, productivity improvement and cost minimization. Several optimization techniques are described. The book covers case studies on the applications of classical as well as evolutionary and swarm optimization tools for solving industrial issues. The content is very helpful for industry personnel, particularly engineers from the Operation, R&D and Quality Assurance sectors, and also the academic researchers of different engineering and/or business administration background.

This Book Is Intended To Be A Text For Either A First Or A Second Course In Numerical Methods For Students In All Engineering Disciplines. Difficult Concepts, Which Usually Pose Problems To Students Are Explained In Detail And Illustrated With Solved Examples. Enough Elementary Material That Could Be Covered In The First-Level Course Is Included, For Example, Methods For Solving Linear And Nonlinear Algebraic

Equations, Interpolation, Differentiation, Integration, And Simple Techniques For Integrating Odes And Pdes (Ordinary And Partial Differential Equations). Advanced Techniques And Concepts That Could Form Part Of A Second-Level Course Include gears Method For Solving Ode-Ivps (Initial Value Problems), Stiffness Of Ode- Ivps, Multiplicity Of Solutions, Convergence Characteristics, The Orthogonal Collocation Method For Solving Ode-Bvps (Boundary Value Problems) And Finite Element Techniques. An Extensive Set Of Graded Problems, Often With Hints, Has Been Included. Some Involve Simple Applications Of The Concepts And Can Be Solved Using A Calculator, While Several Are From Real-Life Situations And Require Writing Computer Programs Or Use Of Library Subroutines. Practice On These Is Expected To Build Up The Reader'S Confidence In Developing Large Computer Codes.

This monograph presents a comprehensive study of portfolio optimization, an important area of quantitative finance. Considering that the information available in financial markets is incomplete and that the markets are affected by vagueness and ambiguity, the monograph deals with fuzzy portfolio optimization models. At first, the book makes the reader familiar with basic concepts, including the classical mean–variance portfolio analysis. Then, it introduces advanced optimization techniques and applies them for the development of various multi-criteria portfolio optimization models in an uncertain environment. The models are developed considering both the financial and non-financial

criteria of investment decision making, and the inputs from the investment experts. The utility of these models in practice is then demonstrated using numerical illustrations based on real-world data, which were collected from one of the premier stock exchanges in India. The book addresses both academics and professionals pursuing advanced research and/or engaged in practical issues in the rapidly evolving field of portfolio optimization.

Business Optimization in a Global Economy

Intelligent Data Analysis for Biomedical Applications

Multi-Objective Optimization in Computational Intelligence: Theory and Practice

Intelligent Computing Techniques for Smart Energy Systems

Nature Inspired Optimization Techniques for Image Processing Applications

Present Practices and Future Scopes

"This book discusses the considerations and implications surrounding the outsourcing and offshoring of professional services, such as software development computer-aided design, and healthcare, from multiple global perspectives. This book, offers industry professionals, policymakers, students, and educators with a balance between a broad overview and detailed analysis of offshore outsourcing, would make an invaluable addition to any reference library"--Provided by publisher.

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This book presents fundamental concepts of optimization problems and its real-world applications in various fields. The core concepts of optimization, formulations and solution procedures of various real-world problems are provided in an easy-to-read manner. The unique feature of this book is that it presents unified knowledge of the modelling of real-world decision-making problems and provides the solution procedure using the appropriate optimization techniques. The book will help students, researchers, and faculty members to understand the need for optimization techniques for obtaining optimal solution for the decision-making problems. It provides a sound knowledge of modelling of real-world problems using optimization techniques. It is a valuable compendium of several optimization techniques for solving real-world application problems using optimization software LINGO. The book is useful for academicians, practitioners, students and researchers in the field of OR. It is written in simple language with a detailed explanation of the core concepts of optimization techniques. Readers of this book will understand the formulation of real-world problems and their solution procedures obtained using the appropriate optimization techniques. This handbook is an endeavour to cover many current, relevant, and essential topics related to decision sciences in a scientific manner. Using this handbook, graduate students, researchers, as well as

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practitioners from engineering, statistics, sociology, economics, etc. will find a new and refreshing paradigm shift as to how these topics can be put to use beneficially. Starting from the basics to advanced concepts, authors hope to make the readers well aware of the different theoretical and practical ideas, which are the focus of study in decision sciences nowadays. It includes an excellent bibliography/reference/journal list, information about a variety of datasets, illustrated pseudo-codes, and discussion of future trends in research. Covering topics ranging from optimization, networks and games, multi-objective optimization, inventory theory, statistical methods, artificial neural networks, times series analysis, simulation modeling, decision support system, data envelopment analysis, queueing theory, etc., this reference book is an attempt to make this area more meaningful for varied readers. Noteworthy features of this handbook are in-depth coverage of different topics, solved practical examples, unique datasets for a variety of examples in the areas of decision sciences, in-depth analysis of problems through colored charts, 3D diagrams, and discussions about software.

Mechanical design includes an optimization process in which designers always consider objectives such as strength, deflection, weight, wear, corrosion, etc. depending on the requirements. However, design optimization for a complete mechanical assembly leads to a complicated

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objective function with a large number of design variables. It is a good practice to apply optimization techniques for individual components or intermediate assemblies than a complete assembly. Analytical or numerical methods for calculating the extreme values of a function may perform well in many practical cases, but may fail in more complex design situations. In real design problems, the number of design parameters can be very large and their influence on the value to be optimized (the goal function) can be very complicated, having nonlinear character. In these complex cases, advanced optimization algorithms offer solutions to the problems, because they find a solution near to the global optimum within reasonable time and computational costs. Mechanical Design Optimization Using Advanced Optimization Techniques presents a comprehensive review on latest research and development trends for design optimization of mechanical elements and devices. Using examples of various mechanical elements and devices, the possibilities for design optimization with advanced optimization techniques are demonstrated. Basic and advanced concepts of traditional and advanced optimization techniques are presented, along with real case studies, results of applications of the proposed techniques, and the best optimization strategies to achieve best performance are highlighted. Furthermore, a novel advanced optimization method named teaching-learning-based optimization (TLBO)

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is presented in this book and this method shows better performance with less computational effort for the large scale problems. Mechanical Design Optimization Using Advanced Optimization Techniques is intended for designers, practitioners, managers, institutes involved in design related projects, applied research workers, academics, and graduate students in mechanical and industrial engineering and will be useful to the industrial product designers for realizing a product as it presents new models and optimization techniques to make tasks easier, logical, efficient and effective. . Modeling and Optimization of Advanced Manufacturing Processes Optimization in Industry Microstrip Antennas The Analysis and Design of Microstrip Antennas and Arrays Core Areas of Industrial Engineering Applications of Metaheuristic Optimization Algorithms in Civil Engineering

Information Security and Optimization maintains a practical perspective while offering theoretical explanations. The book explores concepts that are essential for academics as well as organizations. It discusses aspects of techniques and tools—definitions, usage, and analysis—that are

invaluable for scholars ranging from those just beginning in the field to established experts. What are the policy standards? What are vulnerabilities and how can one patch them? How can data be transmitted securely? How can data in the cloud or cryptocurrency in the blockchain be secured? How can algorithms be optimized? These are some of the possible queries that are answered here effectively using examples from real life and case studies. Features: A wide range of case studies and examples derived from real-life scenarios that map theoretical explanations with real incidents. Descriptions of security tools related to digital forensics with their unique features, and the working steps for acquiring hands-on experience. Novel contributions in designing organization security policies and lightweight cryptography. Presentation of real-world use of blockchain technology and biometrics in cryptocurrency and personalized authentication systems. Discussion and analysis of security in the cloud that is important because of extensive use of cloud services to meet organizational and research demands

such as data storage and computing requirements. Information Security and Optimization is equally helpful for undergraduate and postgraduate students as well as for researchers working in the domain. It can be recommended as a reference or textbook for courses related to cybersecurity.

Annotation This book fills a gap within the finite element literature by addressing the challenges and developments in multidisciplinary analysis. Current developments include disciplines of structural mechanics, heat transfer, fluid mechanics, controls engineering and propulsion technology, and their interaction as encountered in many practical problems in aeronautical, aerospace, and mechanical engineering, among others. These topics are reflected in the 15 chapter titles of the book. Numerical problems are provided to illustrate the applicability of the techniques. Exercises may be solved either manually or by using suitable computer software. A version of the multidisciplinary analysis program STARS is available from the author. As a

textbook, the book is useful at the senior undergraduate or graduate level. The practicing engineer will find it invaluable for solving full-scale practical problems. This book covers various multiple-criteria decision making (mcdm) methods for modeling and optimization of advanced manufacturing processes (AMPs). Processes such as non-conventional machining, rapid prototyping, environmentally conscious machining and hybrid machining are finally put together in a single book. It highlights the research advances and discusses the published literature of the last 15 years in the field. Case studies of real life manufacturing situations are also discussed.

This book presents an in-depth study on advances in constructive approximation theory with recent problems on linear positive operators. State-of-the-art research in constructive approximation is treated with extensions to approximation results on linear positive operators in a post quantum and bivariate setting. Methods, techniques, and problems in approximation theory are demonstrated with

applications to optimization, physics, and biology. Graduate students, research scientists and engineers working in mathematics, physics, and industry will broaden their understanding of operators essential to pure and applied mathematics. Topics discussed include: discrete operators, quantitative estimates, post-quantum calculus, integral operators, univariate Gruss-type inequalities for positive linear operators, bivariate operators of discrete and integral type, convergence of GBS operators.

IC4S 2021

Operations Research

Optimizing Applied Research Decisions

Information Security and Optimization

Quantitative Techniques for Decision Making

Optimization Techniques In Operation Research

Presently, general-purpose optimization techniques such as Simulated Annealing, and Genetic Algorithms, have become standard optimization techniques. Concerted research efforts have been made recently in order to invent novel

optimization techniques for solving real life problems, which have the attributes of memory update and population-based search solutions. The book describes a variety of these novel optimization techniques which in most cases outperform the standard optimization techniques in many application areas. New Optimization Techniques in Engineering reports applications and results of the novel optimization techniques considering a multitude of practical problems in the different engineering disciplines – presenting both the background of the subject area and the techniques for solving the problems.

Special features of the book

1. A very comprehensive and accessible approach in the presentation of the material.
2. A variety of solved examples to illustrate the theoretical results.
3. A large number of unsolved exercises for the students are given for practice at the end of each section.
4. Solution to each unsolved examples are given at the end of each exercise.

This book on Quantitative Techniques and Operations Research

provides a conceptual understanding of basic quantitative techniques/methods used in solving managerial problems. It discusses comprehensively the essential topics of quantitative decision-making by using illustrations and examples. With revised and updated contents, this edition of the book will be useful to the students pursuing the undergraduate program in Management and Commerce.

"This anthology combines 15 years of microstrip antenna technology research into one significant volume and includes a special introductory tutorial by the co-editors. Covering theory, design and modeling techniques and methods, this source book is an excellent reference tool for engineers who want to become more familiar with microstrip antennas and microwave systems. Proven antenna designs, novel solutions to practical design problems and relevant papers describing the theory of operation and analysis of microstrip antennas are contained within this convenient reference."

Numerical Methods for Engineers
Problems and Applications

Scientific Method

Modern Optimization Methods for Science, Engineering and Technology

Developments and Applications

Optimization Theory

Numerical Methods with MATLAB provides a highly-practical reference work to assist anyone working with numerical methods. A wide range of techniques are introduced, their merits discussed and fully working MATLAB code samples supplied to demonstrate how they can be coded and applied. Numerical methods have wide applicability across many scientific, mathematical, and engineering disciplines and are most often employed in situations where working out an exact answer to the problem by another method is impractical. Numerical Methods with MATLAB presents each topic in a concise and readable format to help you learn fast and effectively. It is not intended to be a reference work to the conceptual theory that underpins the numerical methods themselves. A wide range of reference works are readily available to supply this information. If, however, you want assistance in applying numerical methods then this is the book for you.

The book compiles the research works related to smart solutions concept in context to smart energy systems, maintaining electrical grid discipline and resiliency, computational collective intelligence consisted of interaction between smart devices, smart environments and smart interactions, as well as information technology support

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for such areas. It includes high-quality papers presented in the International Conference on Intelligent Computing Techniques for Smart Energy Systems organized by Manipal University Jaipur. This book will motivate scholars to work in these areas. The book also prophesies their approach to be used for the business and the humanitarian technology development as research proposal to various government organizations for funding approval.

A practical guide to the design, implementation, evaluation, and deployment of emerging technologies for intelligent IoT applications. With the rapid development in artificially intelligent and hybrid technologies, IoT, edge, fog-driven, and pervasive computing techniques are becoming important parts of our daily lives. This book focuses on recent advances, roles, and benefits of these technologies, describing the latest intelligent systems from a practical point of view. Fog, Edge, and Pervasive Computing in Intelligent IoT Driven Applications is also valuable for engineers and professionals trying to solve practical, economic, or technical problems. With a uniquely practical approach spanning multiple fields of interest, contributors cover theory, applications, and design methodologies for intelligent systems. These technologies are rapidly transforming engineering, industry, and agriculture by enabling real-time processing of data via computational, resource-oriented metaheuristics and machine learning algorithms. As edge/fog computing and associated technologies are implemented far and wide, we are now able to solve previously intractable problems. With chapters contributed by experts in the field, this book: Describes Machine Learning frameworks and algorithms for edge, fog, and pervasive computing Considers

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probabilistic storage systems and proven optimization techniques for intelligent IoT Covers 5G edge network slicing and virtual network systems that utilize new networking capacity Explores resource provisioning and bandwidth allocation for edge, fog, and pervasive mobile applications Presents emerging applications of intelligent IoT, including smart farming, factory automation, marketing automation, medical diagnosis, and more Researchers, graduate students, and practitioners working in the intelligent systems domain will appreciate this book's practical orientation and comprehensive coverage. Intelligent IoT is revolutionizing every industry and field today, and Fog, Edge, and Pervasive Computing in Intelligent IoT Driven Applications provides the background, orientation, and inspiration needed to begin.

Design, Analysis and Applications of Renewable Energy Systems covers recent advancements in the study of renewable energy control systems by bringing together diverse scientific breakthroughs on the modeling, control and optimization of renewable energy systems as conveyed by leading energy systems engineering researchers. The book focuses on present novel solutions for many problems in the field, covering modeling, control theorems and the optimization techniques that will help solve many scientific issues for researchers. Multidisciplinary applications are also discussed, along with their fundamentals, modeling, analysis, design, realization and experimental results. This book fills the gaps between different interdisciplinary applications, ranging from mathematical concepts, modeling, and analysis, up to the realization and experimental work. Presents some of the latest innovative approaches to renewable energy systems from the point-of-view of dynamic modeling, system analysis,

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optimization, control and circuit design Focuses on advances related to optimization techniques for renewable energy and forecasting using machine learning methods Includes new circuits and systems, helping researchers solve many nonlinear problems In Productivity, Finance, and Operations

Fuzzy Portfolio Optimization

New Optimization Techniques in Engineering

Quantitative Techniques and Operations Research

Multi-Objective Optimization in Chemical Engineering

Challenges and Solutions

The book titled 'Optimization Techniques' is based on optimization techniques and O.R. related courses for undergraduate and postgraduate engineering and mathematics students of various universities as well as for researchers working on optimization problems. The main objective of the book is to acquaint and familiarize the readers with different types of optimization techniques, solving optimization problems, implementing computational techniques, abstracting mathematical results and proofs etc. The book gives a clear appreciation and good grasp over most of the currently available optimization techniques. Each method developed has been illustrated with solved examples. A set of exercises for self practice is given at the end of each chapter. A set of brief answer review questions relating to the finer detail of the topics discussed in each chapter preceding the set of exercises has been added to facilitate learning and enhance the value of the book. CONTENTS: Introduction

Classical Optimization Techniques Linear Programming Duality Theory and Post Optimality Analysis Transportation Problem and Its Variants Network Models Sequencing and Scheduling Problems Non-linear Programming: Kuhn-Tucker Theory Special Classes of Non-linear Optimization Problems Solution of Unconstrained Non-linear Optimization Problems Solution of Constrained Non-linear Optimization Problems Integer Programming Dynamic Programming Decision Theory Theory of Games Multiobjective and Goal Programming Heuristics Based Optimization Techniques

This book provides a platform for exploring nature-inspired optimization techniques in the context of imaging applications. Optimization has become part and parcel of all computational vision applications, and since the amount of data used in these applications is vast, the need for optimization techniques has increased exponentially. These accuracy and complexity are a major area of concern when it comes to practical applications. However, these optimization techniques have not yet been fully explored in the context of imaging applications. By presenting interdisciplinary concepts, ranging from optimization to image processing, the book appeals to a broad readership, while also encouraging budding engineers to pursue and employ innovative nature-inspired techniques for image processing applications.

For reasons both financial and environmental, there is a perpetual need to optimize the design and operating conditions of industrial process systems in order to improve their

performance, energy efficiency, profitability, safety and reliability. However, with most chemical engineering application problems having many variables with complex inter-relationships, meeting these optimization objectives can be challenging. This is where Multi-Objective Optimization (MOO) is useful to find the optimal trade-offs among two or more conflicting objectives. This book provides an overview of the recent developments and applications of MOO for modeling, design and operation of chemical, petrochemical, pharmaceutical, energy and related processes. It then covers important theoretical and computational developments as well as specific applications such as metabolic reaction networks, chromatographic systems, CO₂ emissions targeting for petroleum refining units, ecodesign of chemical processes, ethanol purification and cumene process design. Multi-Objective Optimization in Chemical Engineering: Developments and Applications is an invaluable resource for researchers and graduate students in chemical engineering as well as industrial practitioners and engineers involved in process design, modeling and optimization.

Frontiers in Nature-Inspired Industrial Optimization

Theory and Practice

Proceedings of ICTSES 2018

Finite Element Multidisciplinary Analysis

Outsourcing and Offshoring of Professional Services: Business Optimization in a Global Economy

Optimization with LINGO-18