

Sme Mining Engineering Handbook Volume 2

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Mining Engineers' Handbook - Robert Peele
1966

Underground Mining Methods - William A. Hustrulid 2001
Underground Mining Methods: Engineering Fundamentals and International Case Studies presents the latest principles and techniques in use today. Reflecting the international and diverse nature of the industry, a series of mining case studies is presented covering the commodity range from iron ore to diamonds extracted by operations located in all corners of the world. Industry experts have contributed sections on General Mine Design Considerations; Room-and-Pillar Mining of Hard Rock/Soft Rock; Longwall Mining of Hard Rock; Shrinkage Stopping; Sublevel Stopping; Cut-and-Fill Mining; Sublevel Caving; Panel Caving; Foundations for Design; and Underground Mining Looks to the Future.

Essentials of Mineral Exploration and Evaluation - S. M. Gandhi 2016-05-10
Essentials of Mineral Exploration and Evaluation offers a thorough overview of methods used in mineral exploration campaigns, evaluation, reporting and economic assessment processes. Fully illustrated to cover the state-of-the-art exploration techniques and evaluation of mineral assets being practiced globally, this up-to-date reference offers balanced coverage of the latest knowledge and current global trends in successful mineral exploration and evaluation. From mineral deposits, to remote sensing, to sampling and analysis, Essentials of Mineral Exploration and Evaluation offers an extensive look at this rapidly changing field. Covers the

complete spectrum of all aspects of ore deposits and mining them, providing a "one-stop shop" for experts and students Presents the most up-to-date information on developments and methods in all areas of mineral exploration Includes chapters on application of GIS, statistics, and geostatistics in mineral exploration and evaluation Includes case studies to enhance practical application of concepts
Techniques in Underground Mining - Richard E. Gertsch 1998

This 800+ page book contains a wealth of information for mining students and industry professionals. It consists of selected material from the out-of-print industry standard, *Underground Mining Methods Handbook*. More than 40 chapters covering such underground mining topics as sampling, planning, reserve analysis, cost calculations, various methods of support, block and panel caving, and sublevel caving make up this comprehensive text. Numerous tables and figures enhance the extensive material found in each chapter. An excellent teaching tool and source book, *Techniques in Underground Mining* is a must for any mining student or engineer.

SME Mining Reference Handbook - Raymond L. Lowrie 2002

A practical field reference for mining and mineral engineers that is small enough to carry into the field. With its comprehensive store of charts, graphs, tables, equations, and rules of thumb, this handbook is the essential technical reference for mobile mining professionals.

Dust Control Handbook for Industrial Minerals Mining and Processing - Andrew B. Andrew B. Cecala 2015-05-09

Throughout the mining and processing of minerals, the mined ore undergoes a number of crushing, grinding, cleaning, drying, and product sizing operations as it is processed into a marketable commodity. These operations are highly mechanized, and both individually and collectively these processes can generate large amounts of dust. If control technologies are inadequate, hazardous levels of respirable dust may be liberated into the work environment, potentially exposing workers. Accordingly, federal regulations are in place to limit the respirable dust exposure of mine workers. Engineering controls are implemented in mining operations in an effort to reduce dust generation and limit worker exposure.

Study Guide for the Professional Licensure of Mining and Mineral Processing Engineers - Society for Mining Metallurgy and Exploration
2008-06-30

Prepare for your Professional Engineering exam with this new edition of SME's Study Guide for the Professional Licensure of Mining and Mineral Processing Engineers. This handy workbook lets you know what to expect and provides an opportunity to practice your test-taking skills. The text covers the history of professional licensure and the Mining and Minerals Processing exam, explains what licensing can do for you, outlines the engineering licensure process, highlights the six steps to licensure, covers the application process, includes the National Council of Examiners for Engineering and Surveying Model Rules of Professional Conduct and NEEES publications, and describes the testing process. Perhaps the most useful element is a sample test, complete with questions and answers, that is similar in content and format to an actual principles and practice (PE) licensure exam. *Management of Mineral Resources - Juan P. Camus* 2002

DESCRIPTION The mining industry's strategy for coping with low profitability has focused primarily on controlling production costs. Despite mechanization, automation, and other technical improvements, the aggregate profitability of mining still falls far short of that realized by most other industries. Author Juan Camus contends that what is required is not additional technical knowledge, but rather sound

management practices that utilize the existing knowledge base more productively. *Management of Mineral Resources: Creating Value in the Mining Business* explores mining management--the process of generating plans and supervising their implementation. This book is concerned with the analysis of some of the internal, controllable factors that influence mining production effectiveness. It combines the best thinking in mining and management so that practitioners can devise a concrete strategy for generating maximum shareholder value.

Drilling and Blasting of Rocks -

Francisco Javier Ayala Carcedo 2017-11-22

Rock breakage with explosives has existed since the seventeenth century when black powder came into use in mining. Since then it has progressed from the invention of dynamite to the use of heavy ANFO. During the past two decades, there have been numerous technical contributions which have brought a better understanding of rock fragmentation with explosives, an improvement in drilling equipment and a noticeable evolution in the development of new explosives and blasting accessories. The Geomining Technological Institute of Spain (ITCE), aware of this progress and of the importance which the breakage process has acquired in mining and civil engineering projects, has ordered the publication of *Drilling and Blasting of Rocks*. The purpose of this Handbook is to give basic knowledge of the drilling systems, the types of available explosives and the accessories and the parameters that intervene in blast designing, whether controllable or not; at the same time the objectives and contents contribute to improved safety in mining. The Handbook is meant for all professionals who are involved with explosives in mining operations and civil engineering projects, as well as for students of technical schools.

Reverse Engineering - Wego Wang 2010-09-16

The process of reverse engineering has proven infinitely useful for analyzing Original Equipment Manufacturer (OEM) components to duplicate or repair them, or simply improve on their design. A guidebook to the rapid-fire changes in this area, *Reverse Engineering: Technology of Reinvention* introduces the fundamental principles, advanced

methodologies, and other essential aspects of reverse engineering. The book's primary objective is twofold: to advance the technology of reinvention through reverse engineering and to improve the competitiveness of commercial parts in the aftermarket. Assembling and synergizing material from several different fields, this book prepares readers with the skills, knowledge, and abilities required to successfully apply reverse engineering in diverse fields ranging from aerospace, automotive, and medical device industries to academic research, accident investigation, and legal and forensic analyses. With this mission of preparation in mind, the author offers real-world examples to: Enrich readers' understanding of reverse engineering processes, empowering them with alternative options regarding part production Explain the latest technologies, practices, specifications, and regulations in reverse engineering Enable readers to judge if a "duplicated or repaired" part will meet the design functionality of the OEM part This book sets itself apart by covering seven key subjects: geometric measurement, part evaluation, materials identification, manufacturing process verification, data analysis, system compatibility, and intelligent property protection. Helpful in making new, compatible products that are cheaper than others on the market, the author provides the tools to uncover or clarify features of commercial products that were either previously unknown, misunderstood, or not used in the most effective way.

The Requirements Engineering Handbook - Ralph Rowland Young 2004

Gathering customer requirements is a key activity for developing software that meets the customer's needs. A concise and practical overview of everything a requirement's analyst needs to know about establishing customer requirements, this first-of-its-kind book is the perfect desk guide for systems or software development work. The book enables professionals to identify the real customer requirements for their projects and control changes and additions to these requirements. This unique resource helps practitioners understand the importance of requirements, leverage effective requirements practices, and better utilize resources. The book also explains

how to strengthen interpersonal relationships and communications which are major contributors to project effectiveness. Moreover, analysts find clear examples and checklists to help them implement best practices.

Mineral Processing and Extractive Metallurgy - Corby G. Anderson 2014

Here is the information you need to face the ever-increasing technological, economic, environmental, and geopolitical challenges of this industry and ensure long-term productivity and growth for your organization. Mineral Processing and Extractive Metallurgy presents more than a century of innovation drivers that have advanced the mineral processing industry. Trends, developments, and improvements are discussed in depth, and likely areas for future innovations are explored. This proceedings from the successful 2013 symposium features more than 75 subject-matter experts. These authors share their knowledge, experience, and passion for the metallurgical industry. Topics include: Comminution equipment, modeling, and instrumentation Magnetic, electrostatic, density-based, dense medium, and liquid/solid separations Nickel and cobalt, zinc and lead, copper and rare earth hydrometallurgy, and gold and silver extraction Innovations in pyrometallurgy, copper smelting, and the iron and steel industry, and refining of platinum group metals Process mineralogy and laboratory automation, analytical chemistry, and measurement of mineral structure and surface chemistry Environmental breakthroughs in acid rock drainage, tailings management, water and brine treatment, chemical and bacterial water treatment, and air pollution control The papers are accompanied by abundant full-color photographs, figures, illustrations, charts, and author biographies.

Hard Rock Miner's Handbook - Jack De la Vergne 2008

Intelligence Community Legal Reference Book - United States. Office of the Director of National Intelligence. Office of General Counsel 2009

Mining Engineering Analysis - Christopher J. Bise 2003

This textbook sets the standard for university-

level instruction of mining engineering principles. With a thoughtful balance of theory and application, it gives students a practical working knowledge of the various concepts presented. Its utility extends beyond the classroom as a valuable field reference for practicing engineers and those preparing for the Professional Engineers Exam in Mining Engineering. This practical guidebook covers virtually all aspects of successful mine design and operations. It is an excellent reference for engineering students who are studying mine design or who require guidance in assembling a mine-design project, and industry professionals who require a comprehensive mine-design reference book. Topics include everything from mine preplanning to ventilation to pumping, power, and hauling systems. The text presents widely accepted principles that promote safe, efficient, and profitable mining operations. The book is an excellent text and self-study guide. Each chapter is organized to demonstrate how to apply various equations to solve day-to-day operational challenges. In addition, each chapter offers a series of practice problems with solutions.

Mine Power Systems - Lloyd A. Morley 1981

The Aggregates Handbook, Second Edition - National Stone, Sand & Gravel Association 2013-03-20

Mineral Processing Plant Design, Practice, and Control - Andrew L. Mular 2002

Annotation Based on 138 proceedings papers from October 2002, this broad reference will become the new standard text for colleges and will become a must for engineers, consultants, suppliers, manufacturers.

SME Mineral Processing and Extractive Metallurgy Handbook - Courtney A. Young 2019-02-01

This landmark publication distills the body of knowledge that characterizes mineral processing and extractive metallurgy as disciplinary fields. It will inspire and inform current and future generations of minerals and metallurgy professionals. Mineral processing and extractive metallurgy are atypical disciplines, requiring a combination of knowledge, experience, and art. Investing in this trove of valuable information is

a must for all those involved in the industry—students, engineers, mill managers, and operators. More than 192 internationally recognized experts have contributed to the handbook's 128 thought-provoking chapters that examine nearly every aspect of mineral processing and extractive metallurgy. This inclusive reference addresses the magnitude of traditional industry topics and also addresses the new technologies and important cultural and social issues that are important today. Contents
Mineral Characterization and Analysis
Management and Reporting
Comminution
Classification and Washing
Transport and Storage
Physical Separations
Flotation
Solid and Liquid Separation
Disposal
Hydrometallurgy
Pyrometallurgy
Processing of Selected Metals, Minerals, and Materials

Rotary Drilling and Blasting in Large Surface Mines - Bhalchandra V. Gokhale 2010-12-14

In large surface mining operations, drilling and blasting activities constitute more than 15% of the total costs. In order to optimize performance and minimize costs, a thorough knowledge of drill and blast operations is, therefore, extremely important. In this unique reference volume, rotary blasthole drilling and surface blasting, as applied in la

The Chemistry of Gold Extraction - John Marsden 2006

The Chemistry of Gold Extraction bridges the gap between research and industry by emphasizing the practical applications of chemical principles and techniques. Covering what everyone in the gold extraction and processing industries should know: Historical Developments; Ore Deposits and Process Mineralogy; Process Selection; Principles of Gold Hydrometallurgy; Oxidative Pretreatment; Leaching; Solution Purification and Concentration; Recovery; Surface Chemical Methods; Refining; Effluent Treatment; and Industrial Applications. This book is a valuable asset for all professionals involved in the precious metals industries. It will be of particular interest and use to engineers and scientists (including extraction metallurgists, mineral/metallurgical engineers, electrochemists, chemical engineers, mineral technologists, mining engineers, and material

scientists), plant managers and operators, academics, educators, and students working in gold extraction in either production, research, or consulting capacities.

Mine Ventilation and Air Conditioning - Howard L. Hartman 2012-12-03

This revised edition presents an engineering design approach to ventilation and air conditioning as part of the comprehensive environmental control of the mine atmosphere. It provides an in-depth look, for practitioners who design and operate mines, into the health and safety aspects of environmental conditions in the underground workplace.

SME Mining Engineering Handbook - Arthur B. Cummins 1973

INCOSE Systems Engineering Handbook - INCOSE 2015-06-12

A detailed and thorough reference on the discipline and practice of systems engineering. The objective of the International Council on Systems Engineering (INCOSE) Systems Engineering Handbook is to describe key process activities performed by systems engineers and other engineering professionals throughout the life cycle of a system. The book covers a wide range of fundamental system concepts that broaden the thinking of the systems engineering practitioner, such as system thinking, system science, life cycle management, specialty engineering, system of systems, and agile and iterative methods. This book also defines the discipline and practice of systems engineering for students and practicing professionals alike, providing an authoritative reference that is acknowledged worldwide. The latest edition of the INCOSE Systems Engineering Handbook: Is consistent with ISO/IEC/IEEE 15288:2015 Systems and software engineering—System life cycle processes and the Guide to the Systems Engineering Body of Knowledge (SEBoK) Has been updated to include the latest concepts of the INCOSE working groups Is the body of knowledge for the INCOSE Certification Process This book is ideal for any engineering professional who has an interest in or needs to apply systems engineering practices. This includes the experienced systems engineer who needs a convenient reference, a product engineer or

engineer in another discipline who needs to perform systems engineering, a new systems engineer, or anyone interested in learning more about systems engineering.

The Surveying Handbook - Russell C. Brinker 2013-06-29

Longwall Mining, 3rd Edition - Syd S. Peng 2019-10-29

In the past 13 years since the publication of Longwall Mining, 2nd edition in 2006, although there have been no major changes in longwall mining technology and operations, many incremental developments in the whole system as well as various subsystems of the existing longwall mining operational technologies as detailed in the 2nd edition have been added to this edition. Major developments are automation, and health and safety technology, as well as equipment reliability, thereby greatly increasing productivity and cutting cost. In particular, the longwall system can now run automatically cut by cut forever without operators' intervention provided that the geology allows it. Other health and safety features such as LASC, personal proximity detection, color lighting, automatic shield water sprays and remote shearer control are fully operational. There are more than 7000 sensors installed in current longwall mining systems. The big data obtained and fast communication technology have been fully utilized to improve and solve operational problems in real time. Those features are fully documented in the new edition. In pursuit of high productivity and cutting cost, life cycle management that increases equipment reliability has been implemented by OEM. Automation improvement such as tail-end automatic chain tensioner greatly extends AFC chain's service life. Other incremental improvements including dust and methane controls, entry development, panel design and face move are addressed. Additional operational issues such as extension of panel width and compatibility test are also discussed. Since the last plow longwall mine was closed in 2018, the chapter on plow longwalling has been dropped and in its place Automation of Longwall Components and System is added. Also, a new chapter Longwall Top Coal Caving Mining (LTCC) is added due to its successful application

in Australia since 2005. Longwall Mining, 3rd edition will be of interest to professionals and academics in the field of mining engineering specifically, serving both as a reference work and an (under)graduate textbook, but will also interest civil, geomechanical and geological engineers and rock mechanics professionals, as well as coal operators, mining consultants, researchers, equipment manufacturers, and government regulators.

Tailings Management Handbook - Kimberly Finke Morrison 2022-02-01

As long as we have mining and mineral processing, tailings and the responsible management thereof will remain at the forefront, with a company's environmental, social, and governance (ESG) performance in part a reflection of how well tailings risks are being managed. The Global Industry Standard on Tailings Management (GISTM) was published in August 2020, aiming to prevent catastrophic failure of tailings facilities by providing operators with specified measures and approaches throughout the mine life cycle, taking into account multiple stakeholder perspectives. In 2021, the International Council on Mining & Metals (ICMM) published the Tailings Management: Good Practice Guide intended to support safe, responsible management of tailings across the global mining industry, providing guidance on good governance and engineering practices to support continual improvement in tailings storage facility (TSF) management and help foster and strengthen the safety culture of mining companies. The Tailings Management Handbook is important and timely because there is no other comprehensive resource rooted in these new fundamentals and global principles for tailings management. Tailings management requires interdisciplinary and cross-functional understanding and support, which is apparent throughout this handbook. Dive into the wealth of information contributed by more than 100 world-renowned experts, beautifully crafted into a full-color handbook that focuses on the basics, life-cycle planning, site and tailings characterization, TSF design and construction, as well as systems and operations of TSFs. The inclusion of 42 case studies is an added plus with real-world successes and lessons learned.

Memorial Tributes - National Academy of Engineering 2011-06-20

This is the fourteenth volume in the series of Memorial Tributes compiled by the National Academy of Engineering as a personal remembrance of the lives and outstanding achievements of its members and foreign associates. These volumes are intended to stand as an enduring record of the many contributions of engineers and engineering to the benefit of humankind. In most cases, the authors of the tributes are contemporaries or colleagues who had personal knowledge of the interests and the engineering accomplishments of the deceased.

Mine Planning and Equipment Selection - Carsten Drebenstedt 2013-10-16

This edited volume includes all papers presented at the 22nd International Conference on Mine Planning and Equipment Selection (MPES), Dresden, Germany, 2013. Mineral Resources are needed for almost all processes of modern life, whilst the mining industry is facing strict requirements regarding efficiency and sustainability. The research papers in this volume deal with the latest developments and research results in the fields of mining, machinery, automatization and environment protection.

SME Mining Engineering Handbook - 1992

SME Mining Reference Handbook, 2nd Edition - Heather N. Dougherty 2020-02-01

The go-to resource for professionals in the mining industry. The SME Mining Reference Handbook was the first concise reference published in the mining field and it quickly became the industry standard. It sits on almost every mining engineer's desk or bookshelf with worn pages, tabs to find most used equations, and personal notes. It has been the unequaled single reference and the first source of information for countless engineers. This second edition of the SME Mining Reference Handbook builds on that success. With an enhanced presentation, new and updated information is represented in a concise, well-organized guide of important data for everyday use by engineers and other professionals engaged in mining, exploration, mineral processing, and environmental compliance and reclamation. With its exhaustive trove of charts, graphs, tables,

equations, and guidelines, the handbook is the essential technical reference for mobile mining professionals. With its exhaustive trove of charts, graphs, tables, equations, and guidelines, the handbook is the essential technical reference for mobile mining professionals.

Modeling and Simulation of Mineral

Processing Systems - R. Peter King 2012-12-02

Dr. R. Peter King covers the field of quantitative modeling of mineral processing equipment and the use of these models to simulate the actual behavior of ore dressing and coal washing as they are configured to work in industrial practice. The material is presented in a pedagogical style that is particularly suitable for readers who wish to learn the wide variety of modeling methods that have evolved in this field. The models vary widely from one unit type to another. As a result each model is described in some detail. Wherever possible model structure is related to the underlying physical processes that govern the behaviour of particulate material in the processing equipment. Predictive models are emphasised throughout so that, when combined, they can be used to simulate the operation of complex mineral processing flowsheets. The development of successful simulation techniques is a major objective of the work that is covered in the text. Covers all aspects of modeling and simulation Provides all necessary tools to put the theory into practice
Advanced Mine Ventilation - Pramod Thakur 2018-11-23

Advanced Mine Ventilation presents the reader with a unique book providing the theory and applications for designing mine ventilation with computers, controlling respirable coal dust and diesel particulate matter, combustible gas control and, mine fire management. The book summarizes the latest knowledge created in the past 40 years in these areas. Authored by an expert in the field with 50 years' experience, the book is a great combination of theory and applications. The mine ventilation section provides computer programs (both FORTRAN and C++) to calculate not only air quantities and pressure losses but also the concentration of any pollutant in all junctions and branches of the mine network. Small particle mechanics and dust control is covered in the second section of the book. The third section on combustible gas

control discusses all aspects of mine gases from origin to control. The last section on mine fire control discusses spontaneous combustion, frictional ignitions, mine explosions, and mine sealing and recovery. The book is not only a very good reference book but also an excellent textbook for two graduate level courses in Mining Engineering. Provides the latest knowledge on the four related topics of mine environment control; that is, ventilation, dust, gas, and fire in a single volume. Computer simulation of mine ventilation in both FORTRAN and C++. State-of-the-art respirable dust control. Mine degasification and methane production from a coal lease. Mine fire management.

Minefill 2020-2021 - Ferri Hassani 2021-06-02

The series of International Symposiums on Mining with Backfill explores both the theoretical and practical aspects of the application of mine fill, with many case studies from both underground and open-pit mines. Minefill attendees and the Proceedings book audience include mining practitioners, engineering students, operating and regulatory professionals, consultants, academics, researchers, and interested individuals and groups. The papers presented at Minefill symposiums regularly offer the novelties and most modern technical solutions in technology, equipment, and research. In that way, the papers submitted for the Minefill Symposia represent the highest quality and level in the conference domain. For the 2020-2021 edition organizers hope that the papers presented in this publication will also be received with interest by readers around the world, providing inspiration and valuable examples for industry and R&D research.

Open Pit Mine Planning & Design - W. A. Hustrulid 2006

Introductory Mining Engineering - Howard L. Hartman 2002-08-09

An introductory text and reference on mining engineering highlighting the latest in mining technology Introductory Mining Engineering outlines the role of the mining engineer throughout the life of a mine, including prospecting for the deposit, determining the site's value, developing the mine, extracting the

mineral values, and reclaiming the land afterward. This Second Edition is written with a focus on sustainability—managing land to meet the economic and environmental needs of the present while enhancing its ability to also meet the needs of future generations. Coverage includes aboveground and underground methods of mining for a wide range of substances, including metals, nonmetals, and fuels.

Completely up to date, this book presents the latest information on such technologies as remote sensing, GPS, geophysical surveying, and mineral deposit evaluation, as well as continuous integrated mining operations and autonomous trucks. Also included is new information on landscape restoration, regional planning, wetlands protection, subsidence mitigation, and much more. New chapters include coverage of: * Environmental responsibilities * Regulations * Health and safety issues Generously supplemented with more than 200 photographs, drawings, and tables, *Introductory Mining Engineering, Second Edition* is an indispensable book for mining engineering students and a comprehensive reference for professionals.

Project Management for Mining - Robin J. Hickson 2015-01-16

Before You Ever Put the First Shovel in the Ground—This Book Could Be the Difference Between a Successful Mining Operation and a Money Pit Opening a successful new mine is a vastly complex undertaking entailing several years and millions to billions of dollars. In today's world, when environmental and labor policies, regulatory compliance, and impact on the community must be factored in, you cannot afford to make a mistake. So the Society for Mining, Metallurgy & Exploration has created this road map for you. Written by two hands-on, in-the-trenches mining project managers with decades of experience who bring some of the world's most successful, profitable mines into operation on time, within budget, and ethically, *Project Management for Mining* gives you step-by-step instructions in every process you are likely to encounter. Beginning with a discussion of mining ethics and governance, this clearly written handbook walks you through all the project management steps—defining the scope, performing prefeasibility and feasibility studies, gaining societal acceptance, minimizing the

impact and risks, creating workable schedules and budgets, setting in place the project execution plan, assembling the human resources, hiring the contractors, and establishing project controls—and then on into the delivery of the engineering and design, construction, progress reviews, pre-launch commissioning, and ramping up for operation. Each chapter includes several useful aids such as figures, checklists, and flowcharts to guide you through every step, from conception through successful opening.

SME Mining Engineering Handbook, Third Edition - Peter Darling 2011

This third edition of the *SME Mining Engineering Handbook* reaffirms its international reputation as "the handbook of choice" for today's practicing mining engineer. It distills the body of knowledge that characterizes mining engineering as a disciplinary field and has subsequently helped to inspire and inform generations of mining professionals. Virtually all of the information is original content, representing the latest information from more than 250 internationally recognized mining industry experts. Within the handbook's 115 thought-provoking chapters are current topics relevant to today's mining professional:

Analyzing how the mining and minerals industry will develop over the medium and long term—why such changes are inevitable, what this will mean in terms of challenges, and how they could be managed Explaining the mechanics associated with the multifaceted world of mine and mineral economics, from the decisions associated with how best to finance a single piece of high-value equipment to the long-term cash-flow issues associated with mine planning at a mature operation Describing the recent and ongoing technical initiatives and engineering developments in relation to robotics, automation, acid rock drainage, block caving optimization, or process dewatering methods Examining in detail the methods and equipment available to achieve efficient, predictable, and safe rock breaking, whether employing a tunnel boring machine for development work, mineral extraction using a mobile miner, or cast blasting at a surface coal operation Identifying the salient points that dictate which is the safest, most efficient, and most versatile extraction

method to employ, as well as describing in detail how each alternative is engineered. Discussing the impacts that social and environmental issues have on mining from the pre-exploration phase to end-of-mine issues and beyond, and how to manage these two increasingly important factors to the benefit of both the mining companies and other stakeholders.

Engineering Fundamentals: An Introduction to Engineering, SI Edition - Saeed Moaveni
2011-01-01

Specifically designed as an introduction to the exciting world of engineering, **ENGINEERING FUNDAMENTALS: AN INTRODUCTION TO ENGINEERING** encourages students to become engineers and prepares them with a solid foundation in the fundamental principles and physical laws. The book begins with a discovery of what engineers do as well as an inside look into the various areas of specialization. An explanation on good study habits and what it takes to succeed is included as well as an introduction to design and problem solving, communication, and ethics. Once this foundation is established, the book moves on to the basic physical concepts and laws that students will encounter regularly. The framework of this text teaches students that engineers apply physical and chemical laws and principles as well as mathematics to design, test, and supervise the production of millions of parts, products, and services that people use every day. By gaining problem solving skills and an understanding of fundamental principles, students are on their way to becoming analytical, detail-oriented, and creative engineers. Important Notice: Media content referenced within the product description or the product text may not be

available in the ebook version.

Rock Mass Stability Around Underground Excavations in a Mine - Yan Xing 2019-11-20
Stability of underground excavations is of great importance to an operating mine because it ensures the safety of the working people and operating equipment, and successful ore production. Due to the complex geological conditions and mine constructions, and variability and uncertainty in estimating rock mass mechanical properties, the assessment of rock mass stability for an underground mine is extremely challenging and difficult. Tackling of this difficult problem is not covered in detail in any of the textbooks currently available in the rock mechanics literature. This monograph aims to cover this gap in the rock mechanics and rock engineering field. This monograph provides detailed procedures for the stability assessment and support design for an underground mine case study. It covers the background of the mine site including the monitored deformation data, the state-of-art methodologies for the stability analysis of rock masses around underground excavations, performed laboratory tests, estimation of the rock mass properties, a brief theory and background of the 3-D Distinct Element Code (3DEC), and numerical modeling of underground rock mass stability including investigation of the effectiveness of rock supports. The monograph is an excellent reference for the senior undergraduates, graduate students, researchers and practitioners who work in the Underground Rock Mechanics and Rock Engineering area in the Mining Engineering, Civil Geotechnical Engineering and DEM (Distinct Element Method) Numerical modeling.