

# Plant Maintenance Engineering Handbook

Here at last is a major revision of a definitive reference on industrial engineering principles and practices. It includes these topics: the industrial function; industrial engineering in practice; methods engineering; work-measurement techniques; work-measurement application and control; incentive programs; manufacturing engineering; human factors, ergonomics, and human relations; economics and controls; facilities and material flow; mathematics and optimization techniques; and special industry applications. With 800 illustrations and an index. The Most Complete, Current Guide to Every Aspect of Maintenance Engineering Extensively updated to cover the latest technologies and methods, Maintenance Engineering Handbook, Eighth Edition offers in-depth details on identifying and repairing faulty equipment. This definitive resource focuses on proven best practices for maintenance, repair, and overhaul (MRO), inventory management, root-cause analysis, and performance management. This thoroughly revised edition contains new chapters on: Reliability-based maintenance Preventive maintenance Sustaining maintenance Ultrasonics Operating dynamics Simplified failure modes and effects analysis Criticality analysis Process and value-stream mapping Featuring contributions from noted experts in the field, this authoritative reference will help you to successfully reduce excessive downtime and high maintenance costs by detecting and mitigating repetitive failures. Comprehensive coverage of: Organization and management of the maintenance function \* Best practices for maintenance and predictive maintenance \* Engineering and analysis tools \* Maintenance of mechanical, electrical, and facilities equipment

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The Best On-the-Job Guide to Industrial Plant Equipment and Systems This practical, one-of-a-kind field manual explains how equipment in industrial facilities operates and covers all aspects of commissioning relevant to engineers and project managers. Plant Equipment and Maintenance Engineering Handbook contains a data log of all major industrial and power plant components, describes how they function, and includes rules of thumb for operation. Hundreds of handy reference materials, such as calculations and tables, plus a comprehensive listing of electrical parts with common supplier nomenclature are also included in this time-saving resource. FEATURES DETAILED COVERAGE OF: Compressors \* Air conditioning \* Ash handling \* Bearings and lubrication \* Boilers \* Chemical cleaning and Flushing \* Condensers and circulating water systems \* Controls \* Conveyor systems \* Cooling towers \* Corrosion Deaerators \* Diesel and gas turbines \* Electrical \* Fans \* Fire protection \* Fuels and combustion \* Piping \* Pumps Turbines \* Vibration \* Water treatment

Industrial Machinery Repair provides a practical reference for practicing plant engineers, maintenance supervisors, physical plant supervisors and mechanical maintenance technicians. It focuses on the skills needed to select, install and maintain electro-mechanical equipment in a typical industrial plant or facility. The authors focuses on "Best Maintenance Repair Practices" necessary for maintenance personnel to keep equipment operating at peak reliability and companies functioning more profitably through reduced maintenance costs and increased productivity and capacity. A number of surveys conducted in industries throughout the United States have found that 70% of equipment failures are self-induced. If the principles and techniques in this book are followed, it will result in a serious reduction in "self induced failures". In the pocketbook format, this reference material can be directly used on the plant

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floor to aid in effectively performing day-to-day duties. Data is presented in a concise, easily understandable format to facilitate use in the adverse conditions associated with the plant floor. Each subject is reduced to its simplest terms so that it will be suitable for the broadest range of users. Since this book is not specific to any one type of industrial plant and is useful in any type of facility. The new standard reference book for industrial and mechanical trades Accessible pocketbook format facilitates on-the-job use Suitable for all types of plant facilities

Volume 2 focuses on the design and application aspects of hydraulic and pneumatic systems. We've all lived through long hot summers with power shortages, brownouts, and blackouts. But at last, all the what-to-do and how-to-do it information you'll need to handle a full range of operation and maintenance tasks at your fingertips. Written by a power industry expert, Power Generation Handbook: Selection, Applications, Operation, Maintenance helps you to gain a thorough understanding of all components, calculations, and subsystems of the various types of gas turbines, steam power plants, co-generation, and combined cycle plants. Divided into five sections, Power Generation Handbook: Selection, Applications, Operation, Maintenance provides a thorough understanding of co-generation and combined cycle plants. Each of the components such as compressors, gas and steam turbines, heat recovery steam generators, condensers, lubricating systems, transformers, and generators are covered in detail. The selection considerations, operation, maintenance and economics of co-generation plants and combined cycles as well as emission limits, monitoring and governing systems will also be covered thoroughly. This all-in-one resource gives you step-by-step guidance on how to maximize the efficiency, reliability and longevity of your power generation plant. Generations of engineers and managers have turned to this popular handbook for expert

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guidance on maintenance for all types of facilities, including industrial plants, power generating stations, refineries, schools, hospitals, and office buildings. Now revised and updated with 40% new material, the Fifth Edition offers you detailed information on every aspect of maintenance engineering - from new technical advances to maintaining the latest machinery. You'll find practical advice from 55 specialists on the organization and management of the maintenance function ... establishing costs and controls ... maintenance of plant facilities ... sanitation and housekeeping ... maintenance of mechanical and electrical equipment ... and maintenance of service equipment. The Fifth Edition also discusses new ways of using computers to manage maintenance procedures for machinery, physical plant, and fixed support service - and presents all-new material on lubrication, instruments and vibration, and chemical corrosion control and cleaning. Whether you're a plant engineer, facilities manager, or maintenance engineer, this updated handbook will give you the on-the-job information and skills needed to solve virtually any maintenance problem!

Integrating very interesting results from the most important R & D project ever made in Germany, this book offers a basic understanding of tribological systems and the latest developments in reduction of wear and energy consumption by tribological measures. This ready reference and handbook provides an analysis of the most important tribosystems using modern test equipment in laboratories and test fields, the latest results in material selection and wear protection by special coatings and surface engineering, as well as with lubrication and lubricants. This result is a quick introduction for mechanical engineers and laboratory technicians who have to monitor and evaluate lubricants, as well as for plant maintenance personnel, engineers and chemists in the automotive and transportation industries and in all

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fields of mechanical manufacturing industries, researchers in the field of mechanical engineering, chemistry and material sciences.

Part I: Process design -- Introduction to design -- Process flowsheet development -- Utilities and energy efficient design -- Process simulation -- Instrumentation and process control -- Materials of construction -- Capital cost estimating -- Estimating revenues and production costs -- Economic evaluation of projects -- Safety and loss prevention -- General site considerations -- Optimization in design -- Part II: Plant design -- Equipment selection, specification and design -- Design of pressure vessels -- Design of reactors and mixers -- Separation of fluids -- Separation columns (distillation, absorption and extraction) -- Specification and design of solids-handling equipment -- Heat transfer equipment -- Transport and storage of fluids.

This second edition of An Introduction to Predictive Maintenance helps plant, process, maintenance and reliability managers and engineers to develop and implement a comprehensive maintenance management program, providing proven strategies for regularly monitoring critical process equipment and systems, predicting machine failures, and scheduling maintenance accordingly. Since the publication of the first edition in 1990, there have been many changes in both technology and methodology, including financial implications, the role of a maintenance organization, predictive maintenance techniques, various analyses, and maintenance of the program itself. This revision includes a complete update of the applicable chapters from the first edition as well as six additional chapters outlining the most recent information available. Having already been implemented and maintained successfully in hundreds of manufacturing and process plants worldwide, the practices detailed in this second edition of An Introduction to Predictive Maintenance will save plants and corporations, as well

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as U.S. industry as a whole, billions of dollars by minimizing unexpected equipment failures and its resultant high maintenance cost while increasing productivity. A comprehensive introduction to a system of monitoring critical industrial equipment Optimize the availability of process machinery and greatly reduce the cost of maintenance Provides the means to improve product quality, productivity and profitability of manufacturing and production plants This work sets out to furnish all levels of engineering management with the material necessary to provide cost-effective maintenance, discussing the functional design of products as well as the identification of failure systems that permit scheduled maintenance procedures. This second edition presents information on ISO 9000 requirements, utilities management, the use of bar-coding in maintenance efforts, plant re-arrangement and minor construction, and more. MAINTENANCE ENGINEERING HANDBOOK Sixth Edition The latest science, technology, and management solutions for facility maintenance issues The one reference you can bank on for current answers to virtually any maintenance question, Lindley R. Higgins' and R. Keith Mobley's Maintenance Engineering Handbook provides the best of today's strategies and technologies from the world's leading experts. • One-stop source of answers on all maintenance engineering functions, from managing, planning, and budgeting to solving environmental problems • New coverage of the latest computer applications, maintenance technologies, and tools • Strategies, equipment, techniques, and tips for facilities from industrial plants to residential complexes, institutions, schools, hospitals, and office buildings NEW IN THIS EDITION • Technology updates • Improvements in prevention and prediction • Equipment testing and monitoring tools • The latest computer programs • Advances in maintenance economics • Guidance on insurance administration • New maintenance

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techniques for centrifugal air compressors, centrifugal pumps, and other equipment  
Maintenance Engineering's Most Current, Comprehensive, and Complete Reference A  
McGraw-Hill Classic 55 SPECIALISTS Buildings and grounds Computer applications  
Corrosion and cleaning Costs and controls Electrical equipment Estimates and budgets  
Instrumentation and monitoring tools Inventory Lubrication Measuring, servicing, testing  
Mechanical equipment Organization and management Parts and components Personnel and  
policies Practices and prevention Sanitation and housekeeping Specialized equipment Welding  
This is a hands-on reference guide for the maintenance or reliability engineer and plant  
manager. As the third volume in the "Life Cycle Engineering series, this book takes the guiding  
principles of Lean Manufacturing and Maintenance and applies these concepts to everyday  
planning and scheduling tasks allowing engineers to keep their equipment running smoothly,  
while decreasing downtime. The authors offer invaluable advice on the effective use of work  
orders and schedules and how they fit into the overall maintenance plan. There are not many  
books out there on planning and scheduling, that go beyond the theory and show the engineer,  
in a hands-on way, how to use planning and scheduling techniques to improve performance,  
cut costs, and extend the life of their plant machinery. \* The only book that takes a direct look  
at streamlining planning and scheduling for a Lean Manufacturing Environment \* This book  
shows the engineer how to create and stick to effective schedules \* Gives examples and  
templates in the back of the book for use in day-to-day scheduling and calculations  
THE DEFINITIVE GUIDE TO SELECTING, OPERATING, AND MAINTAINING POWER  
PLANT EQUIPMENT Power Plant Equipment Operation and Maintenance Guide provides  
detailed coverage of different types of power plants such as modern co-generation, combined-

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cycle, and integrated gasification combined cycle (IGCC) plants. The book describes the design, selection, operation, maintenance, and economics of all these power plants. The best available power enhancement options are discussed, including duct burners, evaporative cooling, inlet-air chilling, absorption chilling, steam and water injection, and peak firing. This in-depth resource addresses the sizing, selection, calculations, operation, diagnostic testing, troubleshooting, maintenance, and refurbishment of all power plant equipment, including steam turbines, steam generators, boilers, condensers, heat exchangers, gas turbines, compressors, pumps, advanced sealing mechanisms, magnetic bearings, and advanced generators. Coverage includes: Methods for enhancing the reliability and maintainability of all power plants Economic analysis of modern co-generation and combined-cycle plants Selection of the best emission-reduction method for power plants Preventive and predictive maintenance required for power plants Gas turbine applications in power plants, protective systems, and tests This must-have guide teaches you how to make the most of SAP Plant Maintenance (PM). Learn how to use SAP from a maintenance perspective, and how to align SAP PM functions with your own workflow. In addition, discover the power of SAP PM and how to use it with your own best practices. The authors break plant maintenance down into three key areas: building best practices with the right people, making sure the SAP configuration matches the company's best practices, and measuring SAP PM success. The book also provides explanations of the key obstacles to a successful plant maintenance implementation and presents solutions for each. In addition, it explores topics such as organisational preparation and focus, common configuration and implementation issues, and the information systems of plant maintenance. Throughout this comprehensive reference book, you'll find useful, real-

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world examples that demonstrate the topics at hand. This is the one resource you need to understand how to approach SAP PM according to your own maintenance best practices. The book aims to be reading for asset maintenance management in a perspective of whole life cycle of any type of physical asset. It deals with acquisition management, including econometric models to evaluate its life cycle, and the maintenance policies to adopt during its life until withdrawal. It also covers vital areas such as EAM/CMMS systems and its integration with the many technologies that are used to aid condition monitoring and the internet of things to improve maintenance management and to increase equipment availability. This will equip readers with new management methodologies, their requisites, and its importance to the improvement of corporate competitiveness. Key Features • Presents life cycle analysis in asset management • Attribution of tools to improve the life cycle of equipment • Provides assistance on the diagnosis of the maintenance state • Presentation of the state-of-the-art of technology to aid maintenance • Explores integration of EAM/CMMS systems with internet of things

\* Useful to engineers in any industry \* Extensive references provided throughout \* Comprehensive range of topics covered \* Written with practical situations in mind A plant engineer is responsible for a wide range of industrial activities, and may work in any industry. The breadth of knowledge required by such professionals is so wide that previous books addressing plant engineering have either been limited to certain subjects or cursory in their treatment of topics. The Plant Engineer's Reference Book is the first volume to offer complete coverage of subjects of interest to the plant engineer.

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This reference work provides a primary source of information for the plant engineer. Subjects include selection of a suitable site for a factory and provision of basic facilities (including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes). Detailed chapters deal with basic issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. The authors chosen to contribute to the book are experts in their various fields. The Editor has experience of a wide range of operations in the UK, other European countries, the USA, and elsewhere in the world. Produced with the backing of the Institution of Plant Engineers, this work is the primary source of information for plant engineers in any industry worldwide.

Maintenance Engineering Handbook, Eighth Edition McGraw Hill Professional  
Get the big picture in facility management and engineering for greater safety, efficiency, and economy A complete desktop reference, Facilities Engineering and Management Handbook -- by Paul Smith, Anand Seth, Roger Wessel, David Stymiest, William Porter and Mark Neitlich -- gives you all the tools you need for analyzing, comparing, anticipating, and managing the implications of engineering, maintenance, operating, and design decisions, and integrating facility systems for best results. The Handbook's life-cycle approach helps you put all relevant issues in context -- cost, durability, maintainability, operability, safety, and more -- so you can: Make farsighted, well-

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integrated decisions Coordinate architectural, structural, mechanical, electrical, HVAC, control instrumentation, and other needs in any type of building Handle today's concerns and technologies, such as smart buildings and telecommunications networks Visualize solutions with hundreds of illustrations Find information on all needed codes and standards governing facility design, installation, operation, and maintenance Evaluate loads on mechanical and other systems Use computer-aided systems Prepare a whole-facility economic analysis Apply useful guidance on complex specialized facilities, such as airports and industrial process plants—plus integrated complexes such as malls and government installations Plan for and integrate fire, safety, security, data, communications, lightning, controls, fuel, power, plumbing, and many other types of systems

The Gas Turbine Engineering Handbook has been the standard for engineers involved in the design, selection, and operation of gas turbines. This revision includes new case histories, the latest techniques, and new designs to comply with recently passed legislation. By keeping the book up to date with new, emerging topics, Boyce ensures that this book will remain the standard and most widely used book in this field. The new Third Edition of the Gas Turbine Engineering Hand Book updates the book to cover the new generation of Advanced gas Turbines. It examines the benefit and some of the major problems that have been encountered by these new turbines. The book keeps abreast of the environmental changes and the industries answer to these new

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regulations. A new chapter on case histories has been added to enable the engineer in the field to keep abreast of problems that are being encountered and the solutions that have resulted in solving them. Comprehensive treatment of Gas Turbines from Design to Operation and Maintenance. In depth treatment of Compressors with emphasis on surge, rotating stall, and choke; Combustors with emphasis on Dry Low NOx Combustors; and Turbines with emphasis on Metallurgy and new cooling schemes. An excellent introductory book for the student and field engineers A special maintenance section dealing with the advanced gas turbines, and special diagnostic charts have been provided that will enable the reader to troubleshoot problems he encounters in the field The third edition consists of many Case Histories of Gas Turbine problems. This should enable the field engineer to avoid some of these same generic problems Many readers already regard the Maintenance Planning and Scheduling Handbook as the chief authority for establishing effective maintenance planning and scheduling in the real world. The second edition adds new sections and further develops many existing discussions to make the handbook more comprehensive and helpful. In addition to practical observations and tips on such topics as creating a weekly schedule, staging parts and tools, and daily scheduling, this second edition features a greatly expanded CMMS appendix which includes discussion of critical cautions for implementation, patches, major upgrades, testing, training, and interfaces with other company software. Readers will also find a timely appendix devoted to judging the potential benefits and

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risks of outsourcing plant work. A new appendix provides guidance on the "people side" of maintenance planning and work execution. The second edition also has added a detailed aids and barriers analysis that improves the appendix on setting up a planning group. The new edition also features "cause maps" illustrating problems with a priority systems and schedule compliance. These improvements and more continue to make the Maintenance Planning and Scheduling Handbook a maintenance classic.

This book offers comprehensive coverage of the operation and maintenance of large hydro generators This book is a practical handbook for engineers and maintenance staff responsible for the upkeep of large salient-pole hydro generators used in electric power plants. Focusing on the physics and maintenance of large vertical salient pole generators, it offers readers real-world experience, problem description, and solutions, while teaching them about the design, modernization, inspections, maintenance, and operation of salient pole machines. Handbook of Large Hydro Generators: Operation and Maintenance provides an introduction to the principles of operation of synchronous machines. It then covers design and construction, auxiliary systems, operation and control, and monitoring and diagnostics of generators. Generator protection, inspection practices and methodology and auxiliaries inspections are also examined. The final two chapters are dedicated to maintenance and testing, and maintenance philosophies, upgrades, and uprates. The handbook includes over 420 color photos and 180 illustrations, forms, and tables to complement the topics covered in the chapters.

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Written with a machine operator and inspector in mind, Handbook of Large Hydro Generators: Operation and Maintenance: Instructs readers how to perform complete machine inspections, understand what they are doing, and find solutions for any problems encountered Includes real-life, practical, field experiences so that readers can familiarize themselves with aspects of machine operation, maintenance, and solutions to common problems Benefits experienced and new power plant operators, generator design engineers and operations engineers. Is authored by industry experts who participated in the writing and maintenance of IEEE standards (IEEE C50.12 and C50.13) on the subject Handbook of Large Hydro Generators: Operation and Maintenance is an ideal resource for scientists and engineers whose research interest is in electromagnetic and energy conversion. It is also an excellent book for senior undergraduate and graduate students majoring in energy generation, and generator operation and maintenance.

Of the more than \$300 billion spent on plant maintenance and operations, U.S. industry spends as much as 80 percent of this amount to correct chronic failures of machines, systems, and people. With machines and systems becoming increasingly complex, this problem can only worsen, and there is a clear and pressing need to establish comprehensive equi

Plant Maintenance and Reliability Engineering provides both theoretical and practical knowledge together with the latest technological concepts and research in the field. The

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topics covered in this book are an integral part of the syllabi in most of the universities in India and meet the requirements of the course plant maintenance and reliability engineering taught in mechanical engineering and all allied branches. This book aims at providing the readers an insight into the working and maintenance of plant equipment and machinery. The text substantially deals with the emerging issues faced by plant engineers on a day-to-day basis and discusses the measures to address such issues. This book emphasises on the safety of workplace and workers and discusses the increasing role of plant managers in the corporate management. This text is precise, systematic, and uses an easy-to-understand language and is enriched with several illustrative examples.

In the Standard Handbook of Plant Engineering, Second Edition, Robert C. Rosaler and 70 other industry experts take you on an exhaustive tour of the basic plant facility, plant operation equipment and the all-important maintenance function-giving you the hands-on skill and essential technical data you need to keep your plant running smoothly. You get complete, up-to-the-minute details on: In-plant prime power generation and cogeneration; Heating, ventilating and air conditioning; Water sources, use and disposition; Mechanical power transmission; Instrumentation and automatic control; Pollution control and waste disposal; Plant safety and sanitation; Energy conservation; Lubricants and lubrication systems.

An Updated Guide to Establishing Cutting-Edge Operations and Maintenance

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Procedures for Today's Complex Facilities An essential on-the-job resource, Facility Manager's Maintenance Handbook presents step-by-step coverage of the planning, design, and execution of operations and maintenance procedures for structures, equipment, and systems in any type of facility. This career-building reference provides the tools needed to streamline facility management processes...reduce operational costs...and ensure the effective utilization, maintenance, repair, and renovation of existing physical assets. Now with 40% new information, this Second Edition includes brand-new chapters on emergency response procedures...maintenance operations benchmarking...capital and operational budgets management...boiler and steam plant operations... and other vital topics. The only book of its kind to cover both operations and maintenance, the updated Facility Manager's Maintenance Handbook features:

Updated information on mechanical equipment and systems maintenance  
The latest fire protection procedures  
A comprehensive account of building codes  
Guidance on hazardous materials handling  
Excellent preparation for the IFMA Certified Facility Manager (CFM) qualification  
Inside This State-of-the-Art Facility Management Resource

- Part 1: Organizing for Maintenance Operations
- Part 2: Facility Operations and Maintenance
- Operations Plans
- Maintenance Plans
- Part 3: Equipment and Systems Operations
- Maintenance o
- Part 4: Facilities Emergency Preparedness o
- Part 5: Capital Investment

Optimize plant asset safety and reliability while minimizing operating costs with this

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invaluable guide to the engineering, operation and maintenance of rotating equipment. Based upon his multi-volume Rotating Equipment Handbooks, Forsthoffer's Best Practice Handbook for Rotating Machinery summarises, expands and updates the content from these previous books in a convenient all-in-one volume. Offering comprehensive technical coverage and insider information on best practices derived from lessons learned in the engineering, operation and maintenance of a wide array of rotating equipment, this new title presents: A unique "Best Practice" and "Lessons Learned" chapter framework, providing bite-sized, troubleshooting instruction on complex operation and maintenance issues across a wide array of industrial rotating machinery. Five chapters of completely new material combined with updated material from earlier volumes, making this the most comprehensive and up-to-date handbook for rotary equipment currently available. Intended for maintenance, engineering, operation and management, Forsthoffer's Best Practice Handbook for Rotating Machinery is a one-stop resource, packed with a lifetime's rotating machinery experience, to help you improve efficiency, safety, reliability and cost. A unique "Lessons Learned/Best Practices" component opens and acts as a framework for each chapter. Readers not only become familiar with a wide array of industrial rotating machinery; they learn how to operate and maintain it by adopting the troubleshooting perspective that the book provides. Five chapters of completely new material combined with totally updated material from earlier volumes of Forsthoffer's Handbook make this the most

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comprehensive and up-to-date handbook for rotary equipment currently Users of Forsthoffer's multi-volume Rotating Equipment Handbooks now have an updated set, with expanded coverage, all in one convenient, reasonably-priced volume "Updated, modernized, digitized, and streamlined edition of this classic handbook which has been educating plant and facility professionals in every aspect of maintenance engineering for more than half a century"--

Plant engineers are responsible for a wide range of industrial activities, and may work in any industry. This means that breadth of knowledge required by such professionals is so wide that previous books addressing plant engineering have either been limited to only certain subjects or cursory in their treatment of topics. The Plant Engineering Handbook offers comprehensive coverage of an enormous range of subjects which are of vital interest to the plant engineer and anyone connected with industrial operations or maintenance. This handbook is packed with indispensable information, from defining just what a Plant Engineer actually does, through selection of a suitable site for a factory and provision of basic facilities (including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes) to issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. One of the major features of this volume is its comprehensive treatment of the maintenance management function; in addition to chapters which outline the operation of the various

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plant equipment there is specialist advice on how to get the most out of that equipment and its operators. This will enable the reader to reap the rewards of more efficient operations, more effective employee contributions and in turn more profitable performance from the plant and the business to which it contributes. The Editor, Keith Mobley and the team of expert contributors, have practiced at the highest levels in leading corporations across the USA, Europe and the rest of the world. Produced in association with Plant Engineering magazine, this book will be a source of information for plant engineers in any industry worldwide. \* A Flagship reference work for the Plant Engineering series \* Provides comprehensive coverage on an enormous range of subjects vital to plant and industrial engineer \* Includes an international perspective including dual units and regulations

This book provides a reference to analysis techniques of common cooling water system problems and a historical perspective on solutions to chronic cooling water system problems, such as corrosion and biofouling. It covers best design practices for cooling water systems that are required to support the operation of all electric power plants. Plant engineers will gain better understanding of the practical issues associated with their cooling water systems and new designs or modifications of their systems should consider the actual challenges to the systems. The book is intended for graduate students and practicing engineers working in both nuclear and fossil power plants and industrial facilities that use large amounts of cooling water.

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Stay Up to Date on the Latest Issues in Maintenance Engineering The most comprehensive resource of its kind, Maintenance Engineering Handbook has long been a staple for engineers, managers, and technicians seeking current advice on everything from tools and techniques to planning and scheduling. This brand-new edition brings you up to date on the most pertinent aspects of identifying and repairing faulty equipment; such dated subjects as sanitation and housekeeping have been removed. Maintenance Engineering Handbook has been advising plant and facility professionals for more than 50 years. Whether you're new to the profession or a practiced veteran, this updated edition is an absolute necessity. New and updated sections include: Belt Drives, provided by the Gates Corporation Repair and Maintenance Cost Estimation Ventilation Fans and Exhaust Systems 10 New Chapters on Maintenance of Mechanical Equipment Inside:

- Organization and Management of the Maintenance Function
- Maintenance Practices
- Engineering and Analysis Tools
- Maintenance of Facilities and Equipment
- Maintenance of Mechanical Equipment
- Maintenance of Electrical Equipment
- Instrumentation and Reliability Tools
- Lubrication
- Maintenance Welding
- Chemical Corrosion Control and Cleaning

Rules of Thumb for Maintenance and Reliability Engineers will give the engineer the “have to have” information. It will help instill knowledge on a daily basis, to do his or her job and to maintain and assure reliable equipment to help reduce costs. This book will be an easy reference for engineers and managers needing immediate solutions to

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everyday problems. Most civil, mechanical, and electrical engineers will face issues relating to maintenance and reliability, at some point in their jobs. This will become their “go to” book. Not an oversized handbook or a theoretical treatise, but a handy collection of graphs, charts, calculations, tables, curves, and explanations, basic “rules of thumb” that any engineer working with equipment will need for basic maintenance and reliability of that equipment. • Access to quick information which will help in day to day and long term engineering solutions in reliability and maintenance • Listing of short articles to help assist engineers in resolving problems they face • Written by two of the top experts in the country

R. Keith Mobley

Practical, hands-on expertise and technical data, covering essential issues in design, construction, operations and maintenance... The editors, a team of leaders in facilities and plant management, have selected key information with the most common applications in managing facilities operations. Coverage includes: Economics (budgeting/cost control, financial analysis, VE, etc.) Civil engineering and construction practices Maintenance (with detailed staffing guidance and job descriptions, CMMS, planning, scheduling, training, work orders, inventory, preventive/predictive maintenance) Energy efficiencies (optimizing energy use, including heating, cooling, lighting, and water) HVAC Mechanical engineering Instrumentation and controls Environmental, health and safety issues

The Chemical and Process Plant Commissioning Handbook, winner of the 2012 Basil Brennan Medal from the Institution of Chemical Engineers, is a guide to converting a newly constructed

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plant or equipment into a fully integrated and operational process unit. Good commissioning is based on a disciplined, systematic and proven methodology and approach that achieve results in the safest, most efficient, cost effective and timely manner. The book is supported by detailed, proven and effective commission templates, plus extensive commissioning scenarios that enable the reader to learn the context of good commissioning practice from an experienced commissioning manager. It focuses on the critical safety assessment and inspection regimes necessary to ensure that new plants are compliant with OSHA and environmental requirements. Martin Killcross has brought together the theory of textbooks and technical information obtained from sales literature, in order to provide engineers with what they need to know before initiating talks with vendors regarding equipment selection. Unique information from a respected, global commissioning manager: delivers the know-how to succeed for anyone commissioning new plant or equipment Comes with online commissioning process templates that make this title a working tool kit as well as a key reference Extensive examples of successful commissioning processes with step-by-step guidance enable readers to understand the function and performance of the wide range of tasks required in the commissioning process

No matter which industry a company is a part of, its profitability, like its products, is driven by the reliability and performance of its plant(s). The fundamentals for maintenance found in this volume are applicable to a multitude of industries: power, process, materials, manufacturing, transportation, communication, and many others. This book shows the engineer how to select, install, maintain, and troubleshoot critical plant machinery, equipment, and systems. NEW to this edition: New material includes a chapter on inspections, providing practical guidelines for

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effective visual inspections, the key to effective preventive maintenance. Also included in the revision will be multiple chapters on equipment, such as pumps, compressors, and fans. Provides practical knowledge about plant machinery, equipment, and systems for the new hire or the veteran engineer Covers a wide array of topics, from shaft alignment and bearings to rotor balancing and flexible intermediate drives Delivers must-have information to the engineer which he/she will use on a daily basis, in day-to-day activities, that will affect the reliability and profitability of the plant

Written specifically for the oil and gas industry, *Reliable Maintenance Planning, Estimating, and Scheduling* provides maintenance managers and engineers with the tools and techniques to create a manageable maintenance program that will save money and prevent costly facility shutdowns. The ABCs of work identification, planning, prioritization, scheduling, and execution are explained. The objective is to provide the capacity to identify, select and apply maintenance interventions that assure an effective maintenance management, while maximizing equipment performance, value creation and opportune and effective decision making. The book provides a pre- and post- self-assessment that will allow for measure competency improvement. *Maintenance Managers and Engineers* receive an expert guide for developing detailed actions including repairs, alterations, and preventative maintenance. The nuts and bolts of the planning, estimating, and scheduling process for oil and gas facilities *Step-by-step maintenance guide* will provide long-term, results-based operational services Case studies based on the oil and gas industry

*Root Cause Failure Analysis* provides the concepts needed to effectively perform industrial troubleshooting investigations. It describes the methodology to perform Root Cause Failure

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Analysis (RCFA), one of the hottest topics currently in maintenance engineering. It also includes detailed equipment design and troubleshooting guidelines, which are needed to perform RCFA on machinery found in most production facilities. This is the latest book in a new series published by Butterworth-Heinemann in association with PLANT ENGINEERING magazine. PLANT ENGINEERING fills a unique information need for the men and women who operate and maintain industrial plants. It bridges the information gap between engineering education and practical application. As technology advances at increasingly faster rates, this information service is becoming more and more important. Since its first issue in 1947, PLANT ENGINEERING has stood as the leading problem-solving information source for America's industrial plant engineers, and this book series will effectively contribute to that resource and reputation. Provides information essential to industrial troubleshooting investigations Describes the methods of root cause failure analysis, a hot topic in maintenance engineering Includes detailed equipment-design guidelines

To be able to compete successfully both at national and international levels, production systems and equipment must perform at levels not even thinkable a decade ago. Requirements for increased product quality, reduced throughput time and enhanced operating effectiveness within a rapidly changing customer demand environment continue to demand a high maintenance performance. In some cases, maintenance is required to increase operational effectiveness and revenues and customer satisfaction while reducing capital, operating and support costs. This may be the largest challenge facing production enterprises these days. For this, maintenance strategy is required to be aligned with the production logistics and also to keep updated with the current best practices. Maintenance has become a

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multidisciplinary activity and one may come across situations in which maintenance is the responsibility of people whose training is not engineering. This handbook aims to assist at different levels of understanding whether the manager is an engineer, a production manager, an experienced maintenance practitioner or a beginner. Topics selected to be included in this handbook cover a wide range of issues in the area of maintenance management and engineering to cater for all those interested in maintenance whether practitioners or researchers. This handbook is divided into 6 parts and contains 26 chapters covering a wide range of topics related to maintenance management and engineering.

Process Plant Machinery provides the mechanical, chemical or plant engineer with the information needed to choose equipment best suited for a particular process, to determine optimum efficiency, and to conduct basic troubleshooting and maintenance procedures.

Process Plant Machinery is a unique single-source reference for engineers, managers and technical personnel who need to acquire an understanding of the machinery used in modern process plants: prime movers and power transmission machines; pumping equipment; gas compression machinery; and mixing, conveying, and separation equipment. Starting with an overview of each class, the book quickly leads the reader through practical applications and size considerations into profusely illustrated component descriptions. Where necessary, standard theory is expertly explained in shortcut formulas and graphs. Maintainability and vulnerability concerns are dealt with as well. Fully updated with all new equipment available

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