Air conditioning system has been introduced in past several decades in order to serve comfort condition to the humans. Air conditioner is defined as control air movement, temperature, humidity and cleanliness in a needed space. Meanwhile chilled water is to control the movement of water, air, fluid flow and temperature from chiller plant room. There are several types of system where hot air can be removed from a system in the process of refrigeration and air conditioning. Basic air-conditioning systems and chilled water covers four main components including compressor, condenser, throttling valve and evaporator. The process of heat removal can be done by heat transfer directly or indirectly. Since the system been introduced, performance of the system will be the main issues and until now there are many researches still ongoing in order to get the best performance of air conditioning system. Faculty of Mechanical engineering (FKM) in Pekan has started its operation in July 2009 and almost building in the faculty is occupied with air conditioning system. The type of air conditioning system in the faculty is central unit air conditioning system. The performance of the air conditioning system in the faculty becomes an interesting part to be studied to those who are in that field. An informal interview was conducted with officials from the Jabatan Pembangunan dan Pengurusan Harta (JPPH) that is responsible for monitoring this air conditioning system. The problem that arises in the central air conditioning system in the FKM are influences JPPH to cooperate in order to help an individual for analyzing the performance of air conditioning system.
system. The objective of this project is to review the working system and analyze the performance of air conditioners and chilled water system for daily use. In addition, evaluation and review of cooling load is also taken into account for two rooms, specifically name by Computer Lab and Excellent Centre. The heat gain analysis is compulsory conducted in order to estimate performance of central unit air conditioning system. The heat gain for the Computer Lab and Excellent Centre is calculated to be 23.297kW and 39.952kW respectively. Different condition of date were taken and been analyzed which is performances of the system using single chiller running alternately and two chiller running simultaneously. The result shows that when the system is being operated with single chiller simultaneously, the total available cooling capacity can be ranging between 770kW to 810kW. Whereas for two chiller operations, the total available cooling capacity by the chiller is 1246.77kW. The room total load capacity with single chiller in operation alternately, the value load capacity for Computer Lab is ranging from 18.072kW to 20.482kW and for Excellent Centre is 26.746kW to 27.981kW. While for two chiller operations simultaneously, the room total load capacity for Computer Lab is 25.301kW and for Excellent Centre is 42.168kW. It can be conclude that air conditioning system running with single chiller operation is not enough to absorb the heat gain in the particular room in the present of study. Therefore, the system with 2 chiller operation is the best to meet the needs and more systematic guide for the consumer at Faculty of Mechanical Engineering (FKM) in Pekan. Study also emphasizes the relationship between temperature, pressure, flow rate, the amount of cooling and performance of work for each component and total components involved.

Popular Science gives our readers the information and tools to improve their technology and
their world. The core belief that Popular Science and our readers share: The future is going to be better, and science and technology are the driving forces that will help make it better. English abstracts from Kholodil'naia tekhnika. Includes English-Spanish glossary and index.

* A broad range of disciplines--energy conservation and air quality issues, construction and design, and the manufacture of temperature-sensitive products and materials--is covered in this comprehensive handbook * Provide essential, up-to-date HVAC data, codes, standards, and guidelines, all conveniently located in one volume * A definitive reference source on the design, selection and operation of A/C and refrigeration systems

Easy to read yet technically precise, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition is the text of choice for many of the country’s best diesel technology programs! Detailing the foundations of truck heating, air conditioning, engine cooling, and truck-trailer refrigeration, the book integrates modern technical terms with photos that clearly demonstrate typical, on-the-job tasks in logical sequence. Coverage includes an entire section on thermodynamics, as well as solid instruction on safety, equipment, components, troubleshooting, performance testing, maintenance, and even the history of HVAC/R in the diesel trucking industry. Enhanced with photos, drawings, and self-testing questions in each chapter, MODERN DIESEL TECHNOLOGY: HEATING, VENTILATION, AIR CONDITIONING, AND REFRIGERATION, 2nd Edition delivers the technical accuracy and depth of HVAC/R information you need for a rewarding career as a diesel technician. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.
Hailed on its initial publication as a real-world, practical handbook, the second edition of Handbook of Water and Wastewater Treatment Plant Operations continues to make the same basic point: water and wastewater operators must have a basic skill set that is both wide and deep. They must be generalists, well-rounded in the sciences, cyber operations, math operations, mechanics, technical concepts, and common sense. With coverage that spans the breadth and depth of the field, the handbook explores the latest principles and technologies and provides information necessary to prepare for licensure exams. Expanded from beginning to end, this second edition provides a no-holds-barred look at current management issues and includes the latest security information for protecting public assets. It presents in-depth coverage of management aspects and security needs and a new chapter covering the basics of blueprint reading. The chapter on water and wastewater mathematics has tripled in size and now contains an additional 200 problems and 350 math system operational problems with solutions. The manual examines numerous real-world operating scenarios, such as the intake of raw sewage and the treatment of water via residual management, and each scenario includes a comprehensive problem-solving practice set. The text follows a non-traditional paradigm based on real-world experience and proven parameters. Clearly written and user friendly, this revision of a bestseller builds on the remarkable success of the first edition. This book is a thorough compilation of water science, treatment information, process control procedures, problem-solving techniques, safety and health information, and administrative and technological trends.

Using a minimum of mathematics, this book explores the fundamental concepts
of air conditioning and their application to systems—explaining all concepts in a clear, practical manner, and focusing on problems and examples typically encountered on the job. This book contains the most recent and industry-wide accepted information on load calculations, design data, equipment information, and use of the Internet. Specific chapter topics cover the scope and uses of air conditioning; physical principles; heating loads; furnaces and boilers; hydronic piping systems and terminal units; cooling load calculations; psychrometrics; fluid flow in piping and ducts; piping, valves, ducts, and insulation; fans and air distribution devices; centrifugal pumps, expansion tanks, and venting; air conditioning systems and equipment; refrigeration systems and equipment; automatic controls; energy utilization and conservation; instrumentation, testing, and balancing; and planning and designing the HVAC system; and solar heating and cooling systems. For consulting engineers, mechanical contractors, HVAC engineers, designers, project managers, and facilities managers. Popular Mechanics inspires, instructs and influences readers to help them master the modern world. Whether it’s practical DIY home-improvement tips, gadgets and digital technology, information on the newest cars or the latest breakthroughs in science -- PM is the ultimate guide to our high-tech lifestyle. A common sense guide to maintaining and repairing all types of cooling and
refrigeration units. Principles of Tropical Air Conditioning is written with the humid tropics in mind. It is intended to meet the syllabus of the Higher National Diploma (HND) or equivalent professional examinations in Building Services Engineering. It is also designed to cover the air conditioning course content of the new Bachelor of Engineering (B. Eng) degree approved by the National Universities Commission. It is specifically focused in providing design data for tropical air conditioning system design and provides illustrative examples that can give young practitioners enough information to evaluate air conditioning and refrigeration cooling loads and equipment selection with minimum supervision. In addition, Principles of Tropical Air Conditioning serves as quick reference source containing useful design data and parameters often required by the practicing engineer. The definitive text/reference for students, researchers and practicing engineers. This book provides comprehensive coverage on refrigeration systems and applications, ranging from the fundamental principles of thermodynamics to food cooling applications for a wide range of sectoral utilizations. Energy and exergy analyses as well as performance assessments through energy and exergy efficiencies and energetic and exergetic coefficients of performance are explored,
and numerous analysis techniques, models, correlations and procedures are introduced with examples and case studies. There are specific sections allocated to environmental impact assessment and sustainable development studies. Also featured are discussions of important recent developments in the field, including those stemming from the author’s pioneering research. Refrigeration is a uniquely positioned multi-disciplinary field encompassing mechanical, chemical, industrial and food engineering, as well as chemistry. Its wide-ranging applications mean that the industry plays a key role in national and international economies. And it continues to be an area of active research, much of it focusing on making the technology as environmentally friendly and sustainable as possible without compromising cost efficiency and effectiveness. This substantially updated and revised edition of the classic text/reference now features two new chapters devoted to renewable-energy-based integrated refrigeration systems and environmental impact/sustainability assessment. All examples and chapter-end problems have been updated as have conversion factors and the thermophysical properties of an array of materials. Provides a solid foundation in the fundamental principles and the practical applications of refrigeration technologies Examines fundamental aspects of thermodynamics, refrigerants, as well as energy and exergy analyses and energy and exergy
based performance assessment criteria and approaches Introduces environmental impact assessment methods and sustainability evaluation of refrigeration systems and applications Covers basic and advanced (and hence integrated) refrigeration cycles and systems, as well as a range of novel applications Discusses crucial industrial, technical and operational problems, as well as new performance improvement techniques and tools for better design and analysis Features clear explanations, numerous chapter-end problems and worked-out examples Refrigeration Systems and Applications, Third Edition is an indispensable working resource for researchers and practitioners in the areas of Refrigeration and Air Conditioning. It is also an ideal textbook for graduate and senior undergraduate students in mechanical, chemical, biochemical, industrial and food engineering disciplines.

Automotive Air-conditioning and Climate Control Systems is a complete text and reference on the theoretical, practical and legislative aspects of vehicle climate control systems for automotive engineering students and service professionals. It provides the reader with a thorough up-to-date knowledge of current A/C systems, refrigerants and the new possible replacement systems like CO2, and includes unrivalled coverage of electronic and electrical control. Filling the gap in the automotive engineering and servicing market for students and those training
on the job, this book will help both newcomers and those with more experience of air-conditioning systems maintenance engineering to keep up with the latest developments and legislation. Detailed coverage of European and US vehicle HVAC systems Thorough explanation of current and future systems including CO2 Meets relevant C&G, IMI, and HND vocational and professional qualifications IMI recommended reading material Includes practical cases studies and examples from design and manufacturing companies including Ford, Vauxhall, Toyota, VW, Visteon, Sanden and others, accompanied by over 300 detailed illustrations and photographs

Covering both the theoretical and practical aspects of refrigeration and air-conditioning.

Inside an air conditioning system is a chemical refrigerant which is a chemical compound that easily changes states from liquid to vapor and back again. A common trade name for refrigerant which you may be familiar with is Freon. In addition to refrigerant, an air conditioning system requires a minimum of four components, the compressor, condenser, metering device, and evaporator.

1) The Compressor

The compressor is the heart of the system. Just like your heart pumps blood through your body at a specific flow rate and pressure, the compressor pumps the refrigerant through the air conditioning system at a designed flow rate and pressure. When the refrigerant enters the compressor it is in a vapor state. It enters the compressor because it is literally being sucked into it. That is why the side of the compressor
where refrigerant enters is called the suction side or low pressure side. As its’ name suggests the compressor compresses the vapor as it is being pumped through it. When a vapor is compressed both the pressure and temperature of that vapor increases. The vapor leaving the compressor is very hot. You will get burnt if you were to touch the copper refrigerant lines coming off of the compressor. In the above diagram the high pressure vapor refrigerant is represented by red dots.

2) The Condenser
The high temperature refrigerant passes into a condenser coil. As the vapor refrigerant travels through the coil, air from a fan passes over the coil to cool the vapor refrigerant. As the vapor cools it condenses and becomes a liquid, this is referred to as a “change of state”. This “change of state” from vapor to liquid is essential. You may be somewhat familiar with a typical home system where the condensing unit sits outside. When operating you can place your hand over this unit and feel the warm air being blown out. Inside this condensing unit high temperature vapor refrigerant is entering into it, as the heat energy in the vapor is removed by blowing air across the condenser coil, the vapor changes to a liquid. You will soon see that the heat being blown from the condensing unit is the heat that used to be in your home. In the above diagram the liquid is represented by solid red.

3) The Metering Device
The metering device controls the flow of the liquid refrigerant to the next component which is the evaporator. This is a dividing point between the high pressure and low pressure sides of the system. As this high pressure liquid is passing through the metering device and into the evaporator the pressure drops.

4) The Evaporator
After leaving the metering device the refrigerant immediately enters a coil called the evaporator. This coil or evaporator has a fan blowing across it. As the refrigerant enters the coil at a lower pressure it begins to bubble and boil and “change state” back to a vapor. During this process of changing state,
energy in the form of heat is being removed from the air passing over the coil and is being absorbed by the refrigerant. The heat that was in the air is transferred into the refrigerant. Since heat was removed from the air blowing over the evaporator coil, the air leaving the evaporator coil is cold. You see that an air conditioner makes cold air by having the heat that is in the air absorbed into the refrigerant.

Now that heat from your computer room, office area etc. is in the refrigerant what do we do with it? The heated refrigerant is sucked into the compressor and pumped back to the condenser coil. Here in the condenser the heat that was earlier absorbed by the refrigerant in the evaporator section from the space we are cooling is released and removed. The process of the refrigerant “changing states” from vapor to liquid (releasing heat through the condenser) and from vapor to liquid (absorbing heat in the evaporator) is how an air conditioner works.

The classic, bestselling reference on architecture now revised and expanded! An essential one-volume reference of architectural topics using Francis D.K. Ching's signature presentation. It is the only dictionary that provides concise, accurate definitions illustrated with finely detailed, hand-rendered drawings. From Arch to Wood, every concept, technology, material and detail important to architects and designers are presented in Ching's unique style. Combining text and drawing, each term is given a minimum double-page spread on large format trim size, so that the term can be comprehensively explored, graphically showing relations between concepts and sub-terms. A comprehensive index permits the reader to locate any important word in the text. This long-awaited revision brings the latest concepts and technology of 21st century architecture, design and construction to this classic reference work. It is sure to be by the side of and used by any serious architect or designer, students of architecture, interior designers, and...
those in construction.

Handbook of Water and Wastewater Treatment Plant Operations the first thorough resource manual developed exclusively for water and wastewater plant operators has been updated and expanded. An industry standard now in its third edition, this book addresses management issues and security needs, contains coverage on pharmaceuticals and personal care products (PPCPs), and includes regulatory changes. The author explains the material in layman’s terms, providing real-world operating scenarios with problem-solving practice sets for each scenario. This provides readers with the ability to incorporate math with both theory and practical application. The book contains additional emphasis on operator safety, new chapters on energy conservation and sustainability, and basic science for operators. What’s New in the Third Edition: Prepares operators for licensure exams Provides additional math problems and solutions to better prepare users for certification exams Updates all chapters to reflect the developments in the field Enables users to properly operate water and wastewater plants and suggests troubleshooting procedures for returning a plant to optimum operation levels A complete compilation of water science, treatment information, process control procedures, problem-solving techniques, safety and health information, and administrative and technological trends, this text serves as a resource for professionals working in water and wastewater operations and operators preparing for wastewater licensure exams. It can also be used as a supplemental textbook for undergraduate and graduate students studying environmental science, water science, and environmental engineering. This Ebook is dedicated to those who are eager to learn the HVACR Trade and Refrigerant Charging/Troubleshooting Practices. In this book, you will find Step by Step Procedures for
preparing an air conditioning and heat pump system for refrigerant, reading the manifold gauge set, measuring the refrigerant's charge level, and troubleshooting problems with the system's refrigerant flow. This book differs from others as it gives key insights into each procedure along with tool use from a technician's perspective, in language that the technician can understand. This book explains the refrigeration cycle of air conditioners and heat pumps, refrigerant properties, heat transfer, the components included in the system, the roles of each component, airflow requirements, and common problems. Procedures Included: Pump Down, Vacuum and Standing Vacuum Test, Recovery and Recovery Bottle Use, Refrigerant Manifold Gauge Set and Hose Connections, Service Valve Positions and Port Access, Preparation of the System for Refrigerant, Refrigerant Charging and Recovery on an Active System, Troubleshooting the Refrigerant Charge and System Operation

Equip your students with the knowledge and skills they need to maintain and troubleshoot today's complex heating, air conditioning, and refrigeration systems. REFRIGERATION & AIR CONDITIONING TECHNOLOGY, Ninth Edition, is a time-honored best-seller offering the hands-on guidance, practical applications, and solid foundation your students need to understand modern HVAC service and repair, its environmental challenges, and their solutions. Focused on sustainable technology and emphasizing new technologies and green awareness, the Ninth Edition features the latest advances in the HVAC/R industry, including updated content throughout the text and more than 400 new and revised figures and images. Drawing on decades of industry experience, the authors also cover the all-important soft skills and customer relations issues that today's professionals need to master for career success. Memorable real-world examples, hundreds of vibrant photos, and unique Service Call features
bring key concepts to life and help students develop the knowledge and skills to succeed in today's dynamic industry. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.
Refrigeration, Air Conditioning and Heat Pumps, Fifth Edition, provides a comprehensive introduction to the principles and practice of refrigeration. Clear and comprehensive, it is suitable for both trainee and professional HVAC engineers, with a straightforward approach that also helps inexperienced readers gain a comprehensive introduction to the fundamentals of the technology. With its concise style and broad scope, the book covers most of the equipment and applications professionals will encounter. The simplicity of the descriptions helps users understand, specify, commission, use, and maintain these systems. It is a must-have text for anyone who needs thorough, foundational information on refrigeration and air conditioning, but without textbook pedagogy. It includes detailed technicalities or product-specific information. New material to this edition includes the latest developments in refrigerants and lubricants, together with updated information on compressors, heat exchangers, liquid chillers, electronic expansion valves, controls, and cold storage. In addition, efficiency, environmental impact, split systems, retail refrigeration (supermarket systems and cold rooms), industrial systems, fans, air infiltration, and noise are also included. Full theoretical and practical treatment of current issues and trends in refrigeration and air conditioning technology meets the needs of industry practitioners and system designers who need a rigorous, but accessible reference to the latest developments in refrigeration and AC that is supported by coverage at a level not found in typical course textbooks. New edition features updated content on refrigerants, microchannel technology, noise, condensers, data
centers, and electronic control

This book provides a first course in Refrigeration and Air Conditioning. The subject matter has been developed in a logical and coherent manner with neat illustrations and a fairly large number of solved examples and unsolved problems. The text, developed from the author’s teaching experience of many years, is suitable for the senior-level undergraduate and first-year postgraduate students of mechanical engineering, automobile engineering as well as chemical engineering. The text commences with an introduction to the fundamentals of thermodynamics and a brief treatment of the various methods of refrigeration. Then follows the detailed discussion and analysis of air refrigeration systems, vapour compression and vapour absorption refrigeration systems with special emphasis on developing sound physical concepts and gaining problem solving skills. Refrigerants are exhaustively dealt with in a separate chapter. The remainder chapters of the book deal with psychrometry and various processes required for the analysis of air conditioning systems. Technical descriptions of compressors, evaporators, condensers, expansion devices and ducts are provided along with design practices for cooling and heating load calculations. Finally, a brief review of the basic principles and applications of cryogenic gases and air liquefaction systems are given.

Refrigeration and Air Conditioning Technology, 6th Edition, a time-honored best seller, has been updated and revised to provide superior hands-on information needed to successfully maintain and troubleshoot today's complex heating, air conditioning, and refrigeration systems. The new sixth edition contains units updated to include advances or changes in technology, procedures, and or equipment. Over 250 new images have

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been added to emphasize the practical application approach to the book. It fosters a solid foundation and understanding of environmental problems and their solutions, and displays a depth and detail of theory, diagnostics, and repair procedures that make this a fitting book for basic HVAC-R education as well as upgrading and certification training for technicians in the field. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

An air conditioning system consists of components and equipment arranged in sequential order to control and maintain an indoor environment. The goal is to provide a healthy and comfortable climate with acceptable air quality while being energy efficient and cost effective. Air Conditioning and Refrigeration Engineering covers all types of systems from institutional and commercial to residential. The book supplies the basics of design, from selecting the optimum system and equipment to preparing the drawings and specifications. It discusses the four phases of preparing a project: gathering information, developing alternatives, evaluating alternatives, and selling the best solution. In addition, the author breaks down the responsibilities of the engineer, design documents, computer aided design, and government codes and standards. Air Conditioning and Refrigeration Engineering provides you with an easy reference to all aspects of the topic. This resource addresses the most current areas of interest, such as computer-aided design and drafting, desiccant air conditioning and energy conservation. It is a thorough and convenient guide to air conditioning and refrigeration
engineering.
Audel Air Conditioning Home and Commercial
John Wiley & Sons
A complete guide to automotive air conditioner installation, service and repair.
A Complete, Up-to-Date Guide to AC and Refrigeration Fully revisited to cover the
latest techniques, tools, refrigerants, and equipment, Air Conditioning and Refrigeration,
Second Edition, provides a thorough introduction to the basic principles and practices of
the AC and refrigeration industry. Step-by-step instructions, along with more than 800
photographs and illustrations, demonstrate efficient, cost-effective, and current methods
for choosing, installing, maintaining, troubleshooting, servicing, and repairing today's
cooling and climate control systems. Whether you're a do-it-yourselfer, a professional
technician, or a student, you'll find the task-simplifying details you need for any project.
Learn all about: Tools, instruments, and specialized equipment Development of
refrigeration Voltage, current, and resistance Solenoids and valves Electric motors
Refrigerants Refrigeration compressors Condensers, chillers, and cooling towers Water-
cooling problems Evaporators Refrigerant flow control Servicing and safety Freezers
Temperature, psychrometrics, and air control Comfort air conditioning Commercial air-
conditioning systems Various types of air conditioners and heat pumps Estimating load
and insulating pipes Electrical power for air conditioners Air-conditioning and
refrigeration careers New refrigerants Electrical and electronic symbols used in
schematics
Mechanic Refrigeration and Air Conditioner is a simple e-Book for ITI & Engineering Course Mechanic Refrigeration and Air Conditioner. It contains objective questions with underlined & bold correct answers MCQ covering all topics including all about personal safety and machinery safety, manipulating tools, instruments and equipments in refrigeration workshop, fitting and sheet metal works related to repair refrigeration and air conditioning equipments, electrical area to measure current, voltage, resistance and able to connect star and delta connections, gas welding machines for brazing in refrigeration systems, gas charging, diagnosis & remedial measures in Refrigerator (Direct cool), Frost free refrigerator and Inverter technology Refrigerator, different compressor, DOL, Star Delta start

Keep HVAC and refrigeration equipment running at peak performance In this practical resource, a veteran service and repair professional with decades of hands-on experience walks you through the preventive maintenance process for residential and commercial HVAC and refrigeration systems. You’ll learn how to inspect, adjust, clean, and test your products to ensure that they run efficiently and have a long service life. Ideal for experienced service technicians, entry-level technicians, business owners, maintenance engineers, and do-it-yourself homeowners, this highly visual manual is filled with detailed instructions and clear photos and diagrams. Useful icons throughout the book indicate the degree of difficulty for each procedure. Save money and time, improve indoor air quality, and get maximum use from HVAC and refrigeration
machines with help from this step-by-step guide. HVAC and Refrigeration Preventive Maintenance covers: Safety practices Tools needed for installation, repair and preventive maintenance Indoor air quality (IAQ) Test and balance Principles of air conditioning and refrigeration Basic electricity and electronics Gas Oil Room air conditioners Residential air conditioning and heating Residential refrigeration appliances Commercial air conditioning and heating Water towers Self-contained commercial refrigerators and freezers Commercial ice machines Troubleshooting Where to get help

This guide will keep you cool Like its earlier editions, this fully updated guidebook is packed with practical information on installing, servicing, maintaining, and trouble-shooting air-conditioning systems. Whether you're an AC professional, an independent repair technician, or a cost-conscious homeowner, everything you need is here. Clearly organized and loaded with diagrams and illustrations, it's a vital addition to your toolbox. * Find concise, accurate information on installing and maintaining both residential and commercial systems * Understand the physics of air conditioning and filtration * Make accurate temperature measurements using various methods and devices * Work with room air conditioners, water cooling systems, and autoair conditioning * Learn about refrigerants, compressors, condensers, evaporators, and AC motors * Service, troubleshoot, and repair both old and new AC units

This comprehensive, hands-on manual covers all of the procedures necessary to fine-tune HVAC/R systems for optimum operating efficiency. Easy-to-follow guidelines and worksheets guide readers through each step of the process, giving them the tools they need to assure that
equipment can operate at peak efficiency as designed by the manufacturer. The full spectrum of systems and equipment are covered, including electric heating, gas heating, oil burners, air conditioning systems, heat pumps, and refrigeration equipment. A wealth of helpful diagrams, illustrations, estimating tools, and worksheets are also provided. Multiple tear-out copies of each worksheet are provided for use on the job.

The Multicolr Edition Has Been thoroughly revised and brought up-to-date. Multicolor pictures have been added to enhance the content value and to give the students and idea of what he will be dealing in reality, and to bridge the gap between theory and Practice.

The text begins by reviewing, in a simple and precise manner, the physical principles of three pillars of Refrigeration and Air Conditioning, namely thermodynamics, heat transfer, and fluid mechanics. Following an overview of the history of refrigeration, subsequent chapters provide exhaustive coverage of the principles, applications and design of several types of refrigeration systems and their associated components such as compressors, condensers, evaporators, and expansion devices. Refrigerants too, are studied elaboratively in an exclusive chapter. The second part of the book, beginning with the historical background of air conditioning in Chapter 15, discusses the subject of psychrometrics being at the heart of understanding the design and implementation of air conditioning processes and systems, which are subsequently dealt with in Chapters 16 to 23. It also explains the design practices followed for cooling and heating load calculations. Each chapter contains several worked-out examples that clarify the material discussed and illustrate the use of basic principles in engineering applications. Each chapter also ends with a set of few review questions to serve as revision of the material learned.

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