Jet Engine Theory

Some Problems in the Theory and Assessment of Turbo-jet EnginesThe Air Force and the Great Engine WarCombustion Chambers for Jet Propulsion EnginesThe Kerbal Player's GuideBird StrikeThe Theory and Design of Gas Turbines and Jet EnginesThe Development of Jet and Turbine Aero EnginesSteam-engine Theory and PracticeFundamentals of Aircraft and Rocket PropulsionAircraft PowerplantsGas Turbine Engines for Model AircraftGas TurbinesGerman Jet Engine and Gas Turbine Development, 1930-45U.S. Government Research ReportsFrank WhittleElectric Propulsion DevelopmentIntroduction to the Theory of Flow MachinesTheory of Aerospace PropulsionElements of Gas Turbine PropulsionGas Turbine EngineeringInnovation in AeronauticsSuper Jumbo JetsAirplane Flying Handbook (FAA-H-8083-3A)Jet PropulsionJet EnginesJet EnginesCommunity College of the Air Force General CatalogGas Turbine DiagnosticsProgress in Gas Turbine PerformanceGas Turbine Propulsion SystemsThe History of North American Small Gas Turbine Aircraft EnginesAircraft PropulsionScientific and Technical Aerospace ReportsCommercial Aircraft Propulsion and Energy Systems ResearchAircraft Powerplants, Ninth EditionFundamentals of Heat EnginesGas Turbine Engineering HandbookFundamentals of Gas TurbinesAircraft: Gas Turbine Engine TechnologyJet Propulsion Engines

Some Problems in the Theory and Assessment of Turbo-jet Engines

Now in its third edition, Jet Propulsion offers a self-contained introduction to the aerodynamic and thermodynamic design of modern civil and military jet engine design. Through two-engine design projects for a large passenger and a new fighter aircraft, the text explains modern engine design. Individual sections cover aircraft requirements, aerodynamics, principles of gas turbines and jet engines, elementary compressible fluid mechanics, bypass ratio selection, scaling and dimensional analysis, turbine and compressor design and characteristics, design optimization, and off-design performance. The civil aircraft, which formed the core of Part I in the previous editions, has now been in service for several years as the Airbus A380. Attention in the aircraft industry has now shifted to two-engine aircraft with a greater emphasis on reduction of fuel burn, so the model created for Part I in this edition is the new efficient aircraft, a twin aimed at high efficiency.

The Air Force and the Great Engine War

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 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

Combustion Chambers for Jet Propulsion Engines

Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. The most comprehensive guide to aircraft powerplants—fully updated for the latest advances This authoritative textbook contains all the information you need to learn to master the operation and maintenance of aircraft engines and achieve FAA Powerplant certification. The book offers clear explanations of all engine components, mechanics, and technologies. This ninth edition has been thoroughly revised to include the most current and critical topics. Brand-new sections explain the latest engine models, diesel engines, alternative fuels, pressure ratios, and reciprocating and turbofan engines. Hundreds of detailed diagrams and photos illustrate each topic. Aircraft Powerplants, Ninth Edition covers: •Aircraft powerplant classification and progress •Reciprocating-engine construction and nomenclature •Internal-combustion engine theory and performance •Lubricants and lubricating systems •Induction systems, superchargers, and turbochargers •Cooling and exhaust systems •Basic fuel systems and carburetors •Fuel injection systems •Reciprocating-engine ignition and starting systems •Operation, inspection, maintenance, and troubleshooting of reciprocating engines •Reciprocating engine overhaul practices •Principal parts, construction, types, and nomenclature of gas-turbine engines •Gas-turbine engine theory and jet propulsion principles •Turbine-engine lubricants and lubricating systems •Ignition and starting systems of gas-turbine engines •Turbofan, turboprop, and turboshaft engines •Gas-turbine operation, inspection, troubleshooting, maintenance, and overhaul •Propeller theory, nomenclature, and operation •Turbopropellers and control systems •Propeller installation, inspection, and maintenance •Engine indicating, warning, and control systems

The Kerbal Player's Guide

Bird Strike

The Theory and Design of Gas Turbines and Jet Engines

This book is intended for those who wish to broaden their knowledge of jet engine technology and associated subjects. It covers turbojet, turboprop and turbofan designs and is applicable to civilian and military usage. It commences with an overview of the main design types and fundamentals and then looks at air intakes, compresors, turbines and exhaust systems in great detail.

The Development of Jet and Turbine Aero Engines

This text provides an introduction to gas turbine engines and jet propulsion for aerospace or mechanical engineers. The text is divided into four parts: introduction to aircraft propulsion; basic concepts and one-dimensional/gas dynamics; parametric (design point) and performance (off-design) analysis of air breathing propulsion systems; and analysis and design of major gas turbine engine components (fans, compressors, turbines, inlets, nozzles, main burners, and afterburners). Design concepts are introduced early (aircraft performance in introductory chapter) and integrated throughout. Written with extensive student input on the design of the book, the book builds upon definitions and gradually develops the thermodynamics, gas dynamics, and gas turbine engine principles.

Steam-engine Theory and Practice

Fundamentals of Aircraft and Rocket Propulsion

Innovation in aerospace design and engineering is essential to meet the many challenges facing this sector. Innovation in aeronautics explores both a range of innovative ideas and how the process of innovation itself can be effectively managed. After an introduction to innovation in aeronautics, part one reviews developments including biologically-inspired technologies, morphing aerodynamic concepts, jet engine design drivers, and developments underpinned by digital technologies. The environment and human factors in innovation are also explored as are trends in supersonic passenger air travel. Part two goes on to examine change and the processes and management involved in innovative technology development. Challenges faced in aeronautical production are the focus of part three, which reviews topics such as intellectual property and patents, risk mitigation and the use of lean engineering. Finally, part four examines key issues in

what makes for successful innovation in this sector. With its distinguished editors and international team of expert contributors, Innovation in aeronautics is an essential guide for all those involved in the design and engineering of aerospace structures and systems. Explores a range of innovative aerospace design ideas Discusses how the process of innovation itself can be effectively managed Reviews developments including biologically-inspired technologies, morphing aerodynamic concepts, jet engine design drivers and developments underpinned by digital technologies

Aircraft Powerplants

The primary human activities that release carbon dioxide (CO2) into the atmosphere are the combustion of fossil fuels (coal, natural gas, and oil) to generate electricity, the provision of energy for transportation, and as a consequence of some industrial processes. Although aviation CO2 emissions only make up approximately 2.0 to 2.5 percent of total global annual CO2 emissions, research to reduce CO2 emissions is urgent because (1) such reductions may be legislated even as commercial air travel grows, (2) because it takes new technology a long time to propagate into and through the aviation fleet, and (3) because of the ongoing impact of global CO2 emissions. Commercial Aircraft Propulsion and Energy Systems Research develops a national research agenda for reducing CO2 emissions from commercial aviation. This report focuses on propulsion and energy technologies for reducing carbon emissions from large, commercial aircraftâ€" single-aisle and twin-aisle aircraft that carry 100 or more passengersâ€"because such aircraft account for more than 90 percent of global emissions from commercial aircraft. Moreover, while smaller aircraft also emit CO2, they make only a minor contribution to global emissions, and many technologies that reduce CO2 emissions for large aircraft also apply to smaller aircraft. As commercial aviation continues to grow in terms of revenue-passenger miles and cargo ton miles, CO2 emissions are expected to increase. To reduce the contribution of aviation to climate change, it is essential to improve the effectiveness of ongoing efforts to reduce emissions and initiate research into new approaches.

Gas Turbine Engines for Model Aircraft

Gas Turbines

There has been a remarkable difference in the research and development regarding gas turbine technology for transportation and power generation. The former remains substantially florid and unaltered with respect to the past as the superiority of air-breathing engines compared to other technologies is by far immense. On the other hand, the world of gas turbines (GTs) for power generation is indeed characterized by completely different scenarios in so far as new challenges are coming up in the latest energy trends, where both a reduction in the use of carbon-based fuels and the raising up of

renewables are becoming more and more important factors. While being considered a key technology for base-load operations for many years, modern stationary gas turbines are in fact facing the challenge to balance electricity from variable renewables with that from flexible conventional power plants. The book intends in fact to provide an updated picture as well as a perspective view of some of the abovementioned issues that characterize GT technology in the two different applications: aircraft propulsion and stationary power generation. Therefore, the target audience for it involves design, analyst, materials and maintenance engineers. Also manufacturers, researchers and scientists will benefit from the timely and accurate information provided in this volume. The book is organized into three main sections including 10 chapters overall: (i) Gas Turbine and Component Performance, (ii) Gas Turbine Combustion and (iii) Fault Detection in Systems and Materials.

German Jet Engine and Gas Turbine Development, 1930-45

U.S. Government Research Reports

Presents the fundamentals of the gas turbine engine, including cycles, components, component matching, and environmental considerations.

Frank Whittle

Beskriver teorien bag og den gennerelle indretning af gasturbine- og jetmotorer. Egnet til undervisningsbrug.

Electric Propulsion Development

Major changes in gas turbine design, especially in the design and complexity of engine control systems, have led to the need for an up to date, systems-oriented treatment of gas turbine propulsion. Pulling together all of the systems and subsystems associated with gas turbine engines in aircraft and marine applications, Gas Turbine Propulsion Systems discusses the latest developments in the field. Chapters include aircraft engine systems functional overview, marine propulsion systems, fuel control and power management systems, engine lubrication and scavenging systems, nacelle and ancillary systems, engine certification, unique engine systems and future developments in gas turbine propulsion systems. The authors also present examples of specific engines and applications. Written from a wholly practical perspective by two authors with long careers in the gas turbine & fuel systems industries, Gas Turbine Propulsion Systems provides an excellent resource for project and program managers in the gas turbine engine community, the aircraft OEM community,

and tier 1 equipment suppliers in Europe and the United States. It also offers a useful reference for students and researchers in aerospace engineering.

Introduction to the Theory of Flow Machines

Tells the true story of Frank Whittle inventing the jet engine and revolutionizing avaiation.

Theory of Aerospace Propulsion

New edition of the successful textbook updated to include new material on UAVs, design guidelines in aircraft engine component systems and additional end of chapter problems Aircraft Propulsion, Second Edition follows the successful first edition textbook with comprehensive treatment of the subjects in airbreathing propulsion, from the basic principles to more advanced treatments in engine components and system integration. This new edition has been extensively updated to include a number of new and important topics. A chapter is now included on General Aviation and Uninhabited Aerial Vehicle (UAV) Propulsion Systems that includes a discussion on electric and hybrid propulsion. Propeller theory is added to the presentation of turboprop engines. A new section in cycle analysis treats Ultra-High Bypass (UHB) and Geared Turbofan engines. New material on drop-in biofuels and design for sustainability is added to refl ect the FAA’s 2025 Vision. In addition, the design guidelines in aircraft engine components are expanded to make the book user friendly for engine designers. Extensive review material and derivations are included to help the reader navigate through the subject with ease. Key features: General Aviation and UAV Propulsion Systems are presented in a new chapter Discusses Ultra-High Bypass and Geared Turbofan engines Presents alternative drop-in jet fuels Expands on engine components' design guidelines The end-of-chapter problem sets have been increased by nearly 50% and solutions are available on a companion website Presents a new section on engine performance testing and instrumentation Includes a new 10-Minute Quiz appendix (with 45 quizzes) that can be used as a continuous assessment and improvement tool in teaching/learning propulsion principles and concepts Includes a new appendix on Rules of Thumb and Trends in aircraft propulsion Aircraft Propulsion, Second Edition is a must-have textbook for graduate and undergraduate students, and is also an excellent source of information for researchers and practitioners in the aerospace and power industry.

Elements of Gas Turbine Propulsion

This book provides a comprehensive basics-to-advanced course in an aero-thermal science vital to the design of engines for either type of craft. The text classifies engines powering aircraft and single/multi-stage rockets, and derives performance parameters for both from basic aerodynamics and thermodynamics laws. Each type of engine is analyzed for optimum

performance goals, and mission-appropriate engines selection is explained. Fundamentals of Aircraft and Rocket Propulsion provides information about and analyses of: thermodynamic cycles of shaft engines (piston, turboprop, turboshaft and propfan); jet engines (pulsejet, pulse detonation engine, ramjet, scramjet, turbojet and turbofan); chemical and non-chemical rocket engines; conceptual design of modular rocket engines (combustor, nozzle and turbopumps); and conceptual design of different modules of aero-engines in their design and off-design state. Aimed at graduate and final-year undergraduate students, this textbook provides a thorough grounding in the history and classification of both aircraft and rocket engines, important design features of all the engines detailed, and particular consideration of special aircraft such as unmanned aerial and short/vertical takeoff and landing aircraft. End-of-chapter exercises make this a valuable student resource, and the provision of a downloadable solutions manual will be of further benefit for course instructors.

Gas Turbine Engineering

Combustion Chambers for Jet Propulsion Engines focuses on the design of combustion chambers for turbo-jet and ramjet engines, including reheat systems. This compilation, which is a training manual for the combustion chamber course held in the Moscow Aeronautical Institute, provides a general presentation of the basic elements of the process of operation, characteristics, and design of combustion chambers. This manual is divided into two parts. Part One discusses the elements of chemical kinetics and the theory of combustion of a homogeneous mixture in gas streams. The second part is devoted to the thermodynamics of the combustion chamber; aerodynamic and thermal losses; construction of the combustion chamber; and description of the operating process. The problem concerning the effect of losses in combustion chambers on the characteristics of jet propulsion engines is also elaborated in this text. This publication is valuable to aeronautical and combustion engineering students.

Innovation in Aeronautics

Widely used for power generation, gas turbine engines are susceptible to faults due to the harsh working environment. Most engine problems are preceded by a sharp change in measurement deviations compared to a baseline engine, but the trend data of these deviations over time are contaminated with noise and non-Gaussian outliers. Gas Turbine Diagnostics: Signal Processing and Fault Isolation presents signal processing algorithms to improve fault diagnosis in gas turbine engines, particularly jet engines. The algorithms focus on removing noise and outliers while keeping the key signal features that may indicate a fault. The book brings together recent methods in data filtering, trend shift detection, and fault isolation, including several novel approaches proposed by the author. Each method is demonstrated through numerical simulations that can be easily performed by the reader. Coverage includes: Filters for gas turbines with slow data availability Hybrid filters for engines equipped with faster data monitoring systems Nonlinear myriad filters for cases where monitoring of

transient data can lead to better fault detection Innovative nonlinear filters for data cleaning developed using optimization methods An edge detector based on gradient and Laplacian calculations A process of automating fault isolation using a bank of Kalman filters, fuzzy logic systems, neural networks, and genetic fuzzy systems when an engine model is available An example of vibration-based diagnostics for turbine blades to complement the performance-based methods Using simple examples, the book describes new research tools to more effectively isolate faults in gas turbine engines. These algorithms may also be useful for condition and health monitoring in other systems where sharp changes in measurement data indicate the onset of a fault.

Super Jumbo Jets

This book will give students an understanding of the history of flight right up to the technology and scientific discoveries that allow us to fly planes as large as today's super jumbo jets. How are airplanes designed so they can operate safely? What is the future of flight? All of these questions and more will be answered as students take a look at super jumbo jets, inside and out!

Airplane Flying Handbook (FAA-H-8083-3A)

Jet Propulsion

Volume XII of the High Speed Aerodynamics and Jet Propulsion series. Partial Contents: Historical development of jet propulsion; basic principles of jet propulsion; analyses of the various types of jet propulsion engines including the turbojet, the turboprop, the ramjet, and intermittent jets, as well as solid and liquid propellant rocket engines and the ramrocket. Another section deals with jet driven rotors. The final sections discuss the use of atomic energy in jet propulsion and the future prospects of jet propulsion. Originally published in 1959. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

Jet Engines

Readers of this book will be able to: utilize the fundamental principles of fluid mechanics and thermodynamics to analyze

aircraft engines, understand the common gas turbine aircraft propulsion systems and be able to determine the applicability of each, perform system studies of aircraft engine systems for specified flight conditions, perform preliminary aerothermal design of turbomachinery components, and conceive, analyze, and optimize competing preliminary designs for conventional and unconventional missions. Early coverage of cycle analysis provides a systems perspective, and offers context for the chapters on turbomachinery and components Broader coverage than found in most other books - including coverage of propellers, nuclear rockets, and space propulsion - allows analysis and design of more types of propulsion systems In depth, quantitative treatments of the components of jet propulsion engines provides the tools for evaluation and component matching for optimal system performance Worked examples and end of chapter exercises provide practice for analysis, preliminary design, and systems integration

Jet Engines

Bird strikes are one of the most dangerous threats to civil and military flight safety: between 1960 and 2014, they were responsible for the destruction of approximately 150 civil aircraft and the deaths of 271 people. Bird Strike presents a summary of the damage imposed on the aviation industries by their avian counterparts. This book first presents and analyzes the statistics obtained from bird strike databases and offers various methods for minimizing the overall probability of bird-strike events. The next chapters explore how to analyze the ability of aero-engine critical structures to withstand bird-strike events by implementing reliable experimental, theoretical, and numerical methods. Finally, the book investigates the impact of bird strikes on different components of aircrafts, such as the metal fuselage, composite fuselage, engines, wings, and tail, and proposes two new bird models, with explanations of their use. Provides up-to-date information for aviation staff and researchers working on aircraft safety Offers comprehensive investigations on all the statistical, theoretical, experimental, and numerical aspects of bird strike Includes studies carried out on bird strike and provides the reader with the important findings of each paper

Community College of the Air Force General Catalog

Covering basic theory, components, installation, maintenance, manufacturing, regulation and industry developments, Gas Turbines: A Handbook of Air, Sea and Land Applications is a broad-based introductory reference designed to give you the knowledge needed to succeed in the gas turbine industry, land, sea and air applications. Providing the big picture view that other detailed, data-focused resources lack, this book has a strong focus on the information needed to effectively decision-make and plan gas turbine system use for particular applications, taking into consideration not only operational requirements but long-term life-cycle costs in upkeep, repair and future use. With concise, easily digestible overviews of all important theoretical bases and a practical focus throughout, Gas Turbines is an ideal handbook for those new to the field

or in the early stages of their career, as well as more experienced engineers looking for a reliable, one-stop reference that covers the breadth of the field. Covers installation, maintenance, manufacturer's specifications, performance criteria and future trends, offering a rounded view of the area that takes in technical detail as well as well as industry economics and outlook Updated with the latest industry developments, including new emission and efficiency regulations and their impact on gas turbine technology Over 300 pages of new/revised content, including new sections on microturbines, non-conventional fuel sources for microturbines, emissions, major developments in aircraft engines, use of coal gas and superheated steam, and new case histories throughout highlighting component improvements in all systems and sub-systems.

Gas Turbine Diagnostics

Introduction to the Theory of Flow Machines details the fundamental processes and the relations that have a significant influence in the operating mechanism of flow machines. The book first covers the general consideration in flow machines, such as pressure, stress, and cavitation. In the second chapter, the text deals with ducts; this chapter discusses the general remarks, types of flow, and mixing process. Next, the book tackles the types of cascades, along with its concerns. The closing chapter covers the flow machine and its components, such as turbine, wheels, engines, and propellers. The text will be of great use to mechanical engineers and technicians.

Progress in Gas Turbine Performance

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

Gas Turbine Propulsion Systems

Broaden your knowledge of jet engine technology and its associated subjects. This is a technically comprehensive study of the components that constitute a gas turbine aero-engine and examines each part's design and function in practice. Concentrates on turbojet, turboprop and turbofan designs, and is applicable to civilian and military usage. Contains an overview of the main design types and fundamentals, and looks at air intakes, compressors, turbines and exhaust systems in great detail.

The History of North American Small Gas Turbine Aircraft Engines

Progress in Astronautics and Aeronautics, Volume 9: Electric Propulsion Development covers the proceedings of the Second Electric Propulsion Conference of the American Rocker Society, held in Berkeley, California on March 14-16, 1962. The conference focuses on the existing problems in electric propulsion and their possible solutions. This book is organized into four sections encompassing 35 chapters. The first section deals with the thermodynamics of arcs; the problems of heat and momentum transfer; the chemical processes within arcs; the arc system materials; and the arc jet design problems. The second section considers the problems of ion systems, the various ion sources, and the neutralization of ion beams. This section also looks into the basic ionization processes, the production and charging of heavy particles, the corrosive properties of cesium, and the ion-optical designs. The third section describes various plasma systems, including helical transmission lines, pulsed pinch accelerators, coaxial systems, and j x B accelerators. The theoretical analyses of these systems are briefly examined. The fourth section includes papers on flight testing of electric propulsion models, on vertical rocket probes, and on satellites, This section also discusses some advanced concepts in electric propulsion, such as air scooping during ascent through the atmosphere, systems design and optimization, and planetary and interplanetary missions. This book is of great value to physicists, space engineers and designers, as well as researchers in the fields of astronautics and aeronautics.

Aircraft Propulsion

Scientific and Technical Aerospace Reports

Summarizes the analysis and design of today’s gas heat engine cycles This book offers readers comprehensive coverage of heat engine cycles. From ideal (theoretical) cycles to practical cycles and real cycles, it gradually increases in degree of complexity so that newcomers can learn and advance at a logical pace, and so instructors can tailor their courses toward each class level. To facilitate the transition from one type of cycle to another, it offers readers additional material covering fundamental engineering science principles in mechanics, fluid mechanics, thermodynamics, and thermochemistry. Fundamentals of Heat Engines: Reciprocating and Gas Turbine Internal-Combustion Engines begins with a review of some fundamental principles of engineering science, before covering a wide range of topics on thermochemistry. It next discusses theoretical aspects of the reciprocating piston engine, starting with simple air-standard cycles, followed by theoretical cycles of forced induction engines, and ending with more realistic cycles that can be used to predict engine performance as a first approximation. Lastly, the book looks at gas turbines and covers cycles with gradually increasing complexity to end with realistic engine design-point and off-design calculations methods. Covers two main heat engines in one single reference Teaches heat engine fundamentals as well as advanced topics Includes comprehensive thermodynamic and thermochemistry data Offers customizable content to suit beginner or advanced undergraduate courses and entry-level

postgraduate studies in automotive, mechanical, and aerospace degrees Provides representative problems at the end of most chapters, along with a detailed example of piston-engine design-point calculations Features case studies of design-point calculations of gas turbine engines in two chapters Fundamentals of Heat Engines can be adopted for mechanical, aerospace, and automotive engineering courses at different levels and will also benefit engineering professionals in those fields and beyond.

Commercial Aircraft Propulsion and Energy Systems Research

This new edition features expanded coverage of turbine engine theory and nomenclature. It also includes additional current models of turbofan, turboprop and turboshaft engines. The updated material on aircraft systems includes the latest information on control, indicating and warning systems.

Aircraft Powerplants, Ninth Edition

Fundamentals of Heat Engines

Using language understandable to those without an engineering background and avoiding complex mathematical formulae, Bill Gunston explains the differences between gas-turbine, jet, rocket, ramjet and helicopter turbo shaft aero engines and traces their histories from the early days through to today’s complex and powerful units as used in the latest wide-bodied airliners and high performance military jets.

Gas Turbine Engineering Handbook

This landmark joint publication between the National Air and Space Museum and the American Institute of Aeronautics and Astronautics chronicles the evolution of the small gas turbine engine through its comprehensive study of a major aerospace industry. Drawing on in-depth interviews with pioneers, current project engineers, and company managers, engineering papers published by the manufacturers, and the tremendous document and artifact collections at the National Air and Space Museum, the book captures and memorializes small engine development from its earliest stage. Leyes and Fleming leap back nearly 50 years for a first look at small gas turbine engine development and the seven major corporations that dared to produce, market, and distribute the products that contributed to major improvements and uses of a wide spectrum of aircraft. In non-technical language, the book illustrates the broad-reaching influence of small turbinesfrom commercial and executive aircraft to helicopters and missiles deployed in recent military engagements. Detailed corporate histories and

photographs paint a clear historical picture of turbine development up to the present. See for yourself why The History of North American Small Gas Turbine Aircraft Engines is the most definitive reference book in its field. The publication of The History of North American Small Gas Turbine Aircraft Engines represents an important milestone for the National Air and Space Museum (NASM) and the American Institute of Aeronautics and Astronautics (AIAA). For the first time, there is an authoritative study of small gas turbine engines, arguably one of the most significant spheres of aeronautical technology in the second half o

Fundamentals of Gas Turbines

Examines the 1984 "war" that pitted Pratt and Whitney against GE in head-to-head competition for multi billion dollar defense contracts to provide high performance engines for front line fighter aircraft. The circumstances surrounding the lengthy battle led to the Air Force decision to split future engine sales between the two. Attempts to cut through emotional opinions of the "combatants," to report reality, and to identify lessons learned. Helps the reader to understand the government-to-contractor personality issues; to understand management styles, business expectations and communication skills of key participants.

Aircraft: Gas Turbine Engine Technology

The pioneering days of jet propulsion in Hitler's Germany led to some of the most advanced engine designs of the era, many features of which are still incorporated in current power-plants. During this period much was achieved, including the flight of the world's first turbojet-powered aircraft, pulsejet and ramjet-powered missiles and other first-time applications of the gas turbine. Also, the latter years of World War II saw the introduction into production and service of the first jet aircraft and missiles, despite a background of material shortages, Allied bombing and the peculiarities of the Nazi regime. This book commences with an introduction to the research and early ideas of German inventors before 1934. The main thrust of the book concerns the development work for aviation and covers turbojet, turboprop, ducted fan and hybrid types of engine. Much of the text is concerned with the design of the aircraft that were to be powered by the new engines. Also included are chapters on pure gas turbines designed to power the Panther tank and other military land vehicles, naval applications for fast patrol and torpedo boats and finally the industrial application of the new inventions. 138 photos & 99 line drawings

Jet Propulsion Engines

Kerbal Space Program (KSP) is a critically acclaimed, bestselling space flight simulator game. It’s making waves everywhere from mainstream media to the actual space flight industry, but it has a bit of a learning curve. In this book, five KSP

nerds—including an astrophysicist—teach you everything you need to know to get a nation of tiny green people into space. KSP is incredibly realistic. When running your space program, you'll have to consider delta-V budgets, orbital mechanics, Hohmann transfers, and more. This book is perfect for video game players, simulation game players, Minecrafters, and amateur astronomers. Design, launch, and fly interplanetary rockets Capture an asteroid and fly it into a parking orbit Travel to distant planets and plant a flag Build a moon rover, and jump off a crater ridge Rescue a crew-mate trapped in deep space