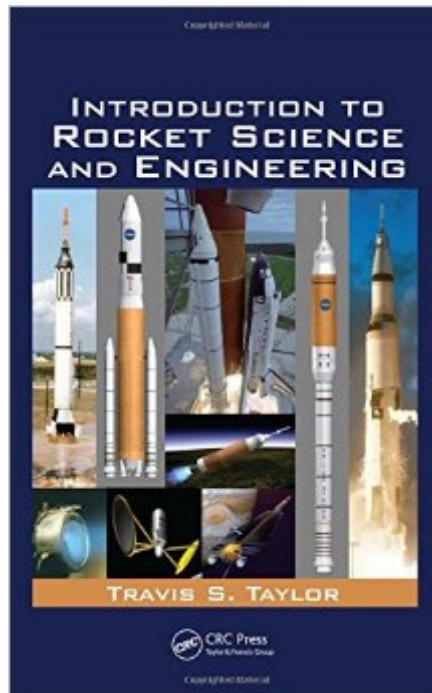


The book was found

Introduction To Rocket Science And Engineering



Synopsis

An overall view of the vast spectrum of knowledge needed by practicing rocket scientists and engineers, *Introduction to Rocket Science and Engineering* presents the history and basics of rocket theory, design, experimentation, testing, and applications. It covers an array of fields, from advanced mathematics, chemistry, and physics to logistics, systems engineering, and politics. The text begins with a discussion on the discovery and development of rockets as well as the basic principles governing rockets and rocket science. It explains why rockets are needed from economic, philosophical, and strategic standpoints and looks at why the physics of the universe forces us to use rockets to complete certain activities. Exploring how rockets work, the author covers the concepts of thrust, momentum, impulse, and the rocket equation, along with the rocket engine, its components, and the physics involved in the generation of the propulsive force. He also presents several different types of rocket engines and discusses the testing of rocket components, subsystems, systems, and complete products. The final chapter stresses the importance of rocket scientists and engineers to think of the unusual, unlikely, and unthinkable when dealing with the complexities of rocketry. Taking students through the process of becoming a rocket scientist or engineer, this text supplies a hands-on understanding of the many facets of rocketry. It provides the ideal foundation for students to continue on their journey in rocket science and engineering.

Book Information

Hardcover: 324 pages

Publisher: CRC Press (February 24, 2009)

Language: English

ISBN-10: 1420075284

ISBN-13: 978-1420075281

Product Dimensions: 6.1 x 0.8 x 9.2 inches

Shipping Weight: 1.2 pounds (View shipping rates and policies)

Average Customer Review: 4.4 out of 5 stars [See all reviews](#) (13 customer reviews)

Best Sellers Rank: #189,979 in Books (See Top 100 in Books) #84 in [Books > Textbooks > Engineering > Aeronautical Engineering](#) #94 in [Books > Engineering & Transportation > Engineering > Aerospace > Astronautics & Space Flight](#) #120 in [Books > Business & Money > Industries > Agriculture](#)

Customer Reviews

This book is an overview. There is no way you can go into depth on the material needed in 300

pages. This is no popular science book either. You need to be familiar with astronomy, physics (mechanics in particular), advanced math through calculus and differential equations, and even some chemistry to get the most from this book. It does try to balance some pretty good explanations with some examples, and there are exercises at the end of each chapter. Don't expect to be an expert at the end of the book. In fact, I'd say believing that you've been bombarded with enough material that you feel somewhat lost would be a good sign. The point of the book is to give you a feel for the kinds of calculations and sciences that are involved in rocket design so that you can decide if studying these topics in depth is for you. The book does show the author's love of the subject as he discusses motivations and even the kind of "dreamer" that the budding rocket scientist should be. You shouldn't be the type that looks at every problem and sees only limitations.

Recommended for the upper level undergraduate physicist or engineer. The table of contents for this book is hard to come by so I show that next.

1. What Are Rockets?
 - The History of Rockets
 - Rockets of the Modern Era
 - Rocket Anatomy and Nomenclature
 - Why Are Rockets Needed?
 - Missions and Payloads
 - Trajectories
 - Orbits
 - Orbit Changes and Maneuvers
 - Ballistic Missile Trajectories
2. How Do Rockets Work?
 - Thrust
 - Specific Impulse
 - Weight Flow Rate
 - Tsiolkovsky's Rocket Equation
 - Staging
 - Rocket Dynamics, Guidance, and Control
3. How Do Rocket Engines Work?
 - The Basic Rocket Engine
 - Thermodynamic Expansion and the Rocket Nozzle
 - Exit Velocity
 - Rocket Engine Area Ratio and Lengths
 - Rocket Engine Design Example
 - Are All Rockets the Same?
 - Solid Rocket Engines
 - Liquid Propellant Rocket Engines
 - Hybrid Rocket Engines
 - Electric Rocket Engines
 - Nuclear Rocket Engines
 - Solar Rocket Engines
 - Photon-Based Engines
4. How Do We Test Rockets?
 - The Systems Engineering Process and Rocket Development
 - Measuring Thrust
 - Pressure Vessel Tests
 - Shake 'n Bake Tests
 - Drop and Landing Tests
 - Environment Tests
 - Destructive Tests
 - Modeling and Simulation
 - Roll-Out Test
 - Flight Tests
5. Are We Thinking Like Rocket Scientists and Engineers?
 - Weather Cocking
 - Fuel Sloshing
 - Propellant Vorticity
 - Tornadoes and Overpasses
 - Flying Foam Debris
 - Monocoque
 - The Space Mission Analysis and Design Process
 - Back to the Moon

Suggested Reading for Rocket Scientists and Engineers
Index

I have recently bought this book in order to learn some basics about rockets, expecting a far more simple text. After reading the whole book, I cannot say I have missed part of my pretty precious spare's time. This is, indeed, one of the most concise and pretty accurate applied's science book I have ever read, and I have read a few now. Don't be afraid of the book's thickness, as someone else stated before, it treats tons of different fields involved in rocket's design and operation. You should be used to basics physics, and general engineering knowledge to get the point the book tries

to reach. Simple in concept and expected to be more a student's text book than a hard science's book, if you have technical knowledge and have little idea about rockets, this book covers almost everything to design one. There are, of course, tons of other issues not covered in this book, like pump's cavitation, special equipment for cryo requirements, and so on, but, again, I should state that the latest isn't possible without the previous. I have enjoyed a lot this book, and I am just a "freak" who enjoys technology in general, including hard science books. Considering that, I highly recommend that book, and it is worth the money it cost. Remember one thing, and it is the book's title. As it states, it is an introduction, so expect basics on topic. This way, book fully satisfied the title, and surpasses it by far.

The topic was well presented. The author does a great job of making rocket science easy to understand. The chapters were organized in a logical and easy to follow manner. This book is excellent for someone who just wants to get an understanding of rocket science while at the same time providing equations and calculations for university classroom study. Well done!

Fantastic work! You just need to make sure you have your math up to date. You need a minimum of Calc 2 and some differential equations to fully follow the mathematical aspect of it. Well put together, if you already have a rocket science background, you can still learn a lot from the way the author presents the material. If you don't have a rocket science background, you will definitely have a solid foundation, on the subject, that you can share with your kids or students. Get this book, you will be able to teach your kids, or your grandkids a lot when you take them to a science museum or exhibit that has rockets or space gadgets. A true joy ride.

A really good introduction. Would recommend as a first read to anyone who wants to learn more about rockets. It covers many essential topics. There are some prerequisites in math, but the good thing is that there is always a bottom line explaining what's behind. It's a great book that opens up to more detailed read if needed.

Great book clearly written by someone who knows the ins and outs of everything rocket science. It's a nice watered down minimal derivation style book that gets to the point quickly. Also a nice springboard into other subjects depending on your specific interests.

Great book. Has got the goods technically, and makes it interesting.

So cheap for a brand new awesome book!

[Download to continue reading...](#)

Burn Chambers for Rocket Mass Heaters: A short introduction to 4 types of burns chambers for rocket mass heaters Introduction to Rocket Science and Engineering Rocket Science for Babies Rocket Science: 50 Flying, Floating, Flipping, Spinning Gadgets Kids Create Themselves Engineering Fundamentals: An Introduction to Engineering Introduction to Chemical Engineering Thermodynamics (The Mcgraw-Hill Chemical Engineering Series) Civil Engineering and the Science of Structures (Engineering in Action) Rocket Fuel: Power-Packed Food for Sports and Adventure The Rocket Mass Heater Builder's Guide: Complete Step-by-Step Construction, Maintenance and Troubleshooting Aerothermodynamics of Gas Turbine and Rocket Propulsion (AIAA Education Series) Leave The Grind Behind: Rocket fuel to live life on your terms. Make more money, build your legacy, and quit your job. MILLIONAIRE MINDSET: HABITS AND SIMPLE IDEAS FOR SUCCESS YOU CAN START NOW: EASY PROVEN METHODS TO ROCKET YOU INTO WEALTH FASTER (REVISED) Rocket Boys: The Coalwood Series, Book 1 Rocket Writes a Story How Rocket Learned to Read Drop It, Rocket! (Step Into Reading, Step 1) Bizzy Bear: Space Rocket This Rocket Space Song Rocket Ride Build the Rocket (Build It)

[Dmca](#)