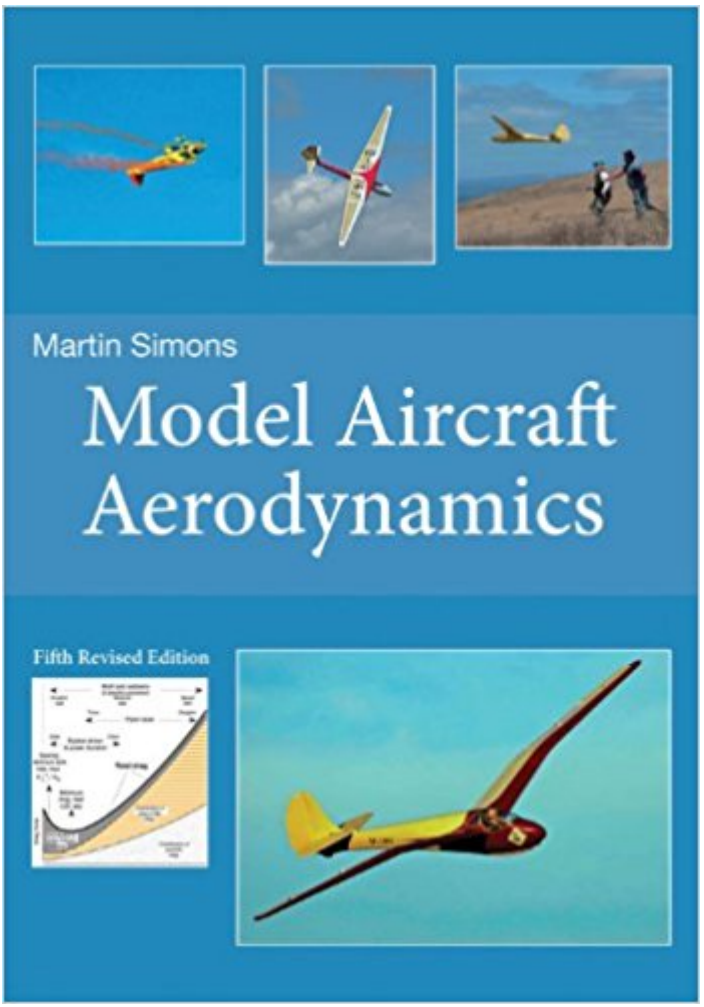
Model Aircraft Aerodynamics



Synopsis

This is the latest edition - fully revised and updated - of the standard textbook on aerodynamic theory, as applied to model flight. Everything is explained in a concise and practical form for those enthusiasts who appreciate that a better understanding of model behaviour is the sure path to greater success and enjoyment, whether just for fun or in competition. The revisions for this new edition reflect the significant developments in model aircraft during the last few years, and include brand new data: - The chapter on aerofoils has been rewritten to take account of the vast amount of testing carried out recently in the USA by the University of Illinois. - A brand new chapter explains the latest research into the flight of birds and insects and how it is applied to small drones and model-sized surveillance aircraft. - Older wind tunnel test reports all replaced with the latest trials and measurements.

Book Information

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Customer Reviews

Martin Simons' interest in aviation goes back more than sixty years. He remains actively involved in designing, building and flying model aircraft and full-scale sailplanes. Born in England in 1930, he now lives in Australia where for twenty-five years he was a senior lecturer in education at the University of Adelaide. He has published numerous articles and several books on model flying and was the editor of Australian Gliding magazine for ten years. --This text refers to an alternate Paperback edition.

This book will teach you everything you need to know to get started designing model aircraft (from an aerodynamic perspective). A working knowledge of math is required, and to get the most out of the contents you will need to have a good understanding of airplanes (and hopefully some design ideas in mind). Most importantly, this book will help you UNDERSTAND many of the calculations and design trades done in model airplanes (and why you might want to choose one design feature or another). Coupling this book with some of the computer based tools available (many of them free) will put you well on your way to model aircraft design.

Covers fundamentals of model aircraft design and engineering in a way that ferrets out the subtle and significant considerations for building a small scale aircraft. Martin Simons long experience with small scale aircraft shows the value and limits of advanced math applied to aircraft. Yet, the book use of math is practical and does not require advanced math. This book is one of the most useful relevant books I have read in this area. It is a how-to cookbook to improve most aspects of model aircraft construction and can be used for ARF (almost ready to Fly) kit planes and really tweak them for high performance flying. You will not regret getting this book!Someone liked my copy so much I had to re-order, the newer version is definitely an improvement.

This book contains a lot of information about wing design, theory and applied aerodynamics. It’s not for the feint of heart, or someone who is intimidated by math. Though the author does a good job of minimizing equations and complex physics. One of my complaints is that a lot of the illustrations are on different pages than the text that references them. I realize this is hard to get around, but I found it annoying when trying to understand a concept in the text I had to bounce back and forth to an illustration on another page. If you are a serious glider pilot or someone who likes to design RC airframes, this book should be on your shelf.

Very comprehensive and well laid out book. There are sixteen chapters, discussing aerodynamic theory in detail, plus four appendices with sample calculations, wind tunnel test results, airfoil design, and multiple pages of reference sources...

An Excellent starter book if your really interested in digging into aerodynamics for model aircraft. I’m halfway through my second read now. There’s a ton of info in this book to absorb, but I think it’s fair to say that while this is great for model design don’t expect that this one book will be the end of the journey, it’s more like an excellent scenic tour (with a ton of details and info). I am lovin it.

Even though its focus is models, this book is a great inexpensive companion to the far more costly textbooks on full-scale airplane design. A lot of its discussion is applicable to aircraft of any scale. About 1/3 of the book is devoted to airfoils, including discussions of section shape, camber, turbulent flow, laminar flow and the impact of Reynolds number. Like the other reviewer I particular like the appendixes which cover almost 130 pages of this book. The appendixes contain most of the math in the book, including the mathematical formulas for computing lift coefficient, camber, drag, static margin, etc. Mostly, though, they contain wind tunnel test results and profile shapes for many airfoils, not just the NACA ones, but also Eppler, Wortmann and Selig profiles and a few others that I had never heard of. The NACA profiles are easy to find (like in 'Theory of Wing Sections') but its nice to see such an extensive list of the harder-to-find profiles as well.

Don't judge this book by it's lightweight looking cover like I once did. This book is a CLASSIC filled with 100's of pages of important information for understanding aerodynamics in general and improving your model aircraft. Simons has a gift for conveying all of this knowledge without resorting to mind-numbing mathematics, instead relying on vector graphics and charts so that all can follow along. I am now reading the book for a second time highlighting important bits as I go! It's a great value for anyone wanting to design or just learn more about their R/C hobby. There are even chapters on the dynamics of propellers and helicopters. Appendix 1 contains all the salient calculations necessary to design a plane from scratch. Appendix 2 has some experimental data on airfoils. Appendix 3 has hundreds of airfoils and laminar bodies from many different sources. Publishers: please add more polar data to appendix 2 and replace that cheesy cover with something more appropriate in the next edition.

This a "Must to have" book! not only for airplane modelers, the low Reynolds researchers will encounter this book interesting. With a simple and clear language, the author explains step by step the law motions in Chapter 1, "Fundamentals", then the factors affecting the Lift and Drag plus Scale effect and the Boundary layer are taked in the subsequent chapters. In the chapters 8 & 9, respectively, the author explain a very important topic, The turbulent & laminar flow aerofoils; this excellent book is completed with the chapters 14, "propellers" and the chapter 15, "The Helicopter rotor".Is an author's goal to include the Appendix 1, "Example of calculations", and Appendix 2, "wind tunnel test results". Also, the Appendix 3 bring the Aerofoil ordinates, and Appendix 4, some References.

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