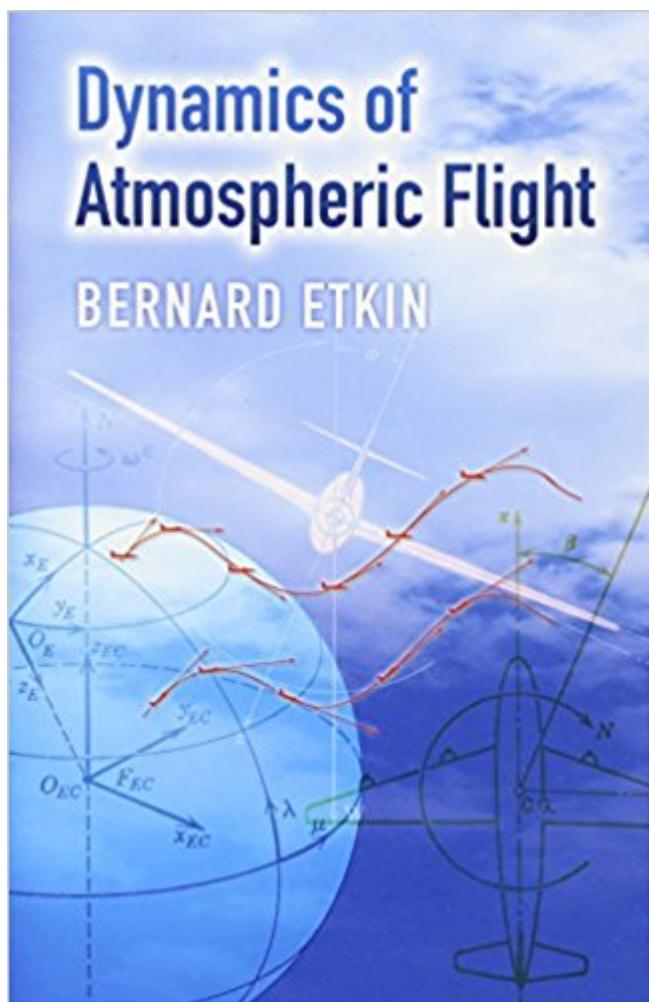


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Dynamics Of Atmospheric Flight (Dover Books On Aeronautical Engineering)



Synopsis

Geared toward upper-level undergrads, graduate students, and practicing engineers, this comprehensive treatment of the dynamics of atmospheric flight focuses especially on the stability and control of airplanes. An extensive set of numerical examples covers STOL airplanes, subsonic jet transports, hypersonic flight, stability augmentation, and wind and density gradients. The equations of motion receive a very full treatment, including the effects of the curvature and rotation of the Earth and distortion motion. Complete chapters are given to human pilots and handling qualities and to flight in turbulence, with numerical examples for a jet transport. Small-perturbation equations for longitudinal and lateral motion appear in convenient matrix forms, both in time-domain and Laplace transforms, dimensional and nondimensional.

Book Information

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Customer Reviews

I bought this book expecting it to focus on suborbital flight, hypersonics, and reentry dynamics. I did not realize that the author intended the word "atmospheric" to mean subsonic flight at low altitudes. Glancing at the book, it seems good for what it is, but only rehashes the (widely known and widely reproduced) theory of aircraft dynamics in subsonic flows and classical autopilot architecture. There are much better books for this standard material, my personal favorite being Blakelock's "Automatic Control of Aircraft and Missiles".

One of the Aerospace Engineering classic texts. Written by Bernard Etkin who is well known in the field of stability and control. This book starts from the fundamentals of mathematics and control systems theory and vectors etc... I love the way of putting the equations of motion in many forms with this input/output form, which is only found within Etkin books (it is like a trade mark). Covering of modeling of forces and moments is the best and puts it in a simple way although this isn't an easy subject at all. Same thing for static stability. The thing that could be done much better is the topics of dynamic stability and solution of equations of motion.. I think it could be much better to expand it, this book is really poor in explaining the physics of dynamic motion. I couldn't find a detailed explanation of lateral modes... Also it lacks examples and could use a better index. Even after saying all that I can say for studying Flight Dynamics this is the first text you should read or obtain, the price is very low when considering similar texts, so according to price this is the best and I recommend it if you don't want to buy books that cost 100\$.

Very inexpensive and technically sound. This book is definitely dated though and some concepts receive more modern treatment in other texts.

I taught a course for several years at the University of Maryland using this book. It is the best book on aircraft static and dynamic stability. Other books on this subject skip over static stability and go on to dynamic stability and feedback controls. Etkin does cover dynamic stability pretty well, but when he gets into any type of feedback control such as yaw mode suppression, this book shows its age. Even in dynamic stability work, the non-dimensionalizing of the equations (non-dimensional time particularly) is adds nothing. If this section were up to date, then it would be a bit more useful. Nevertheless, the static stability coverage is excellent: there are no other books on the market which do this area as well. It would be more useful if feedback controls were left to a second volume and maybe helicopter static stability covered as well.

The new edition by Etkin/Reid is probably suitable for undergraduate study and introductory flight mechanics but the 72 Etkin, edition is probably the most useful on the long run for graduate students and practising engineers as it is quite comprehensive. It is unfortunate that this edition is out of print and is quite difficult to procure. This book is even more useful with Steven & Lewis's, Aircraft Control and Simulation.

Yes it is like the bible, because it gives every information in such a way that you find your own way

to learn.... it would be better and easy to read if the pages were bigger. that's it....

Definitive stability and control textbook. WAY over the average aircraft homebuilder's head, but if you really want to know why it flies the way it does, you need to understand this stuff.

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