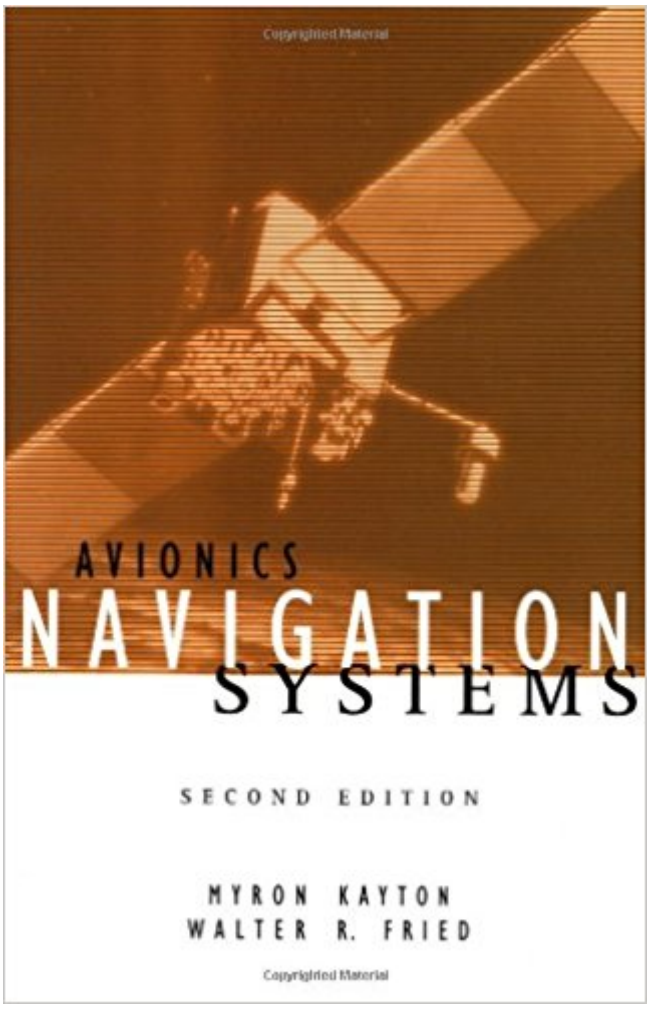
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Avionics Navigation Systems



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Synopsis

An indispensable resource for all those who design, build, manage, and operate electronic navigation systems Avionics Navigation Systems, Second Edition, is a complete guide to the art and science of modern electronic navigation, focusing on aircraft. It covers electronic navigation systems in civil and military aircraft, helicopters, unmanned aerial vehicles, and manned spacecraft. It has been thoroughly updated and expanded to include all of the major advances that have occurred since the publication of the classic first edition. It covers the entire field from basic navigation principles, equations, and state-of-the-art hardware to emerging technologies. Each chapter is devoted to a different system or technology and provides detailed information about its functions, design characteristics, equipment configurations, performance limitations, and directions for the future. You'll find everything you need to know about: * Traditional ground-based radio navigation * Satellite systems: GPS, GLONASS, and their augmentations * New inertial systems, including optical rate sensors, micromechanical accelerometers, and high-accuracy stellar-inertial navigators Instrument Landing System and its successors * Integrated communication-navigation systems used on battlefields * Airborne mapping, Doppler, and multimode radars * Terrain matching * Special needs of military aircraft * And much more

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Customer Reviews

A unified treatment of the principles and practices of modern navigation sensors and systems. This updated edition follows the format of its predecessor describing the basic functions and principles,

design characteristics and equipment configurations, performance limitations, and sources of error. Coverage includes ground-based radio-navigation system aids; integrated communication-navigation systems; inertial and stellar-inertial navigation systems; air-data sensors and algorithms that derive airspeed, angles of attack and sideslip, and barometric altitude; attitude and heading sensors and displays; Doppler radars, radar altimeters, and mapping radars; and terrain map-matching.

An indispensable resource for all those who design, build, manage, and operate electronic navigation systems Avionics Navigation Systems, Second Edition, is a complete guide to the art and science of modern electronic navigation, focusing on aircraft. It covers electronic navigation systems in civil and military aircraft, helicopters, unmanned aerial vehicles, and manned spacecraft. It has been thoroughly updated and expanded to include all of the major advances that have occurred since the publication of the classic first edition. It covers the entire field from basic navigation principles, equations, and state-of-the-art hardware to emerging technologies. Each chapter is devoted to a different system or technology and provides detailed information about its functions, design characteristics, equipment configurations, performance limitations, and directions for the future. You'll find everything you need to know about: Traditional ground-based radio navigation Satellite systems: GPS, GLONASS, and their augmentations New inertial systems, including optical rate sensors, micromechanical accelerometers, and high-accuracy stellar-inertial navigators Instrument Landing System and its successors Integrated communication-navigation systems used on battlefields Airborne mapping, Doppler, and multimode radars Terrain matching Special needs of military aircraft And much more

This text was pretty outdated so it had some references like "someday all planes will be equipped with GPS." My husband took a class that required this textbook so we've had a good chuckle at that comment. He says he'd give the text a 1-2 stars.

I used the first edition in some research and the university library years ago. The second edition is even more comprehensive. I'm glad to add this to my own library.

This book was obviously intended for the experienced navigator or system designer. It certainly reviews all of the traditional and modern navigation systems. However, in trying to explain every minute detail, the basic workings of the technology are never explained.The average reader will

have a very difficult time in just trying to understand how a GPS or VOR or DME system works. A search on the web will present much better explanations.This is, by far, not a quick read, it is burdened by volumes of mathematics that are of little practical use, and the chapters, written by different authors, are often disjoint.Simple, key explanations are mentioned (if at all) after pages of technical confusion. It is as if the author could spend several pages explaining to the average desert nomad how to build a snowman in every minute detail -- how to grow the carrot for the nose, how to pick out the best black rocks for the eyes, how to make the body round to "n" degrees of precision -- but he forgets to mention (until page 89) that, oh by the way, you need to have cold weather and snow to make one.

Engineers and pilots alike will appreciate this book if they skim the math and read it as a survey text, as all possible functional behavior is described for GPS, GLONASS, Inertial systems, VOR, DME, ILS, and more. The intro to the math involved is good, as it walks the line between satisfying a mathematician’s love of state space and spherical trig, while not losing the average reader. As an Avionics Systems Engineer tasked with avionics integration, I found the right level of detail when the book describes electronic hardware, software requirements, and system error sources. As a "cover-to-cover" exercise, the reader is advised that this book asks for a high level of commitment. Read a chapter or two at a time (with trash novels in between), the reader’s curiosity will sustain him /her for the duration of this well written book.

This book contians all the information that anyone could ever need. It also has the best index I have ever seen, making finding the smallest section easy. It does not really cover the basics of each system, but provided you have a basic knowledge then it will build on that. It is up to the reader to decide how much depth they want to go into, this book will take them as far as they could possibly need to go.

This book covers many important navigation systems including GPS. However, I felt like there were some details missing in the first few chapters. Simple things that I was not aware of prior to this book, such as heading 90 degrees due west, were not easy for me to understand. I had never been exposed to this type of lingo. Hence, I would not recommend this book for an undergraduate course.

This book was obviously intended for the experienced navigator or system designer. It certainly reviews all of the traditional and modern navigation systems. However, in trying to explain every

minute detail, the basic workings of the technology are never explained.The average reader will have a very difficult time in just trying to understand how a GPS or VOR or DME system works. A search on the web will present much better explanations.This is, by far, not a quick read, it is burdened by volumes of mathematics that are of little practical use, and the chapters, written by different authors, are often disjoint.Simple, key explanations are mentioned (if at all) after pages of technical confusion. It is as if the author could spend several pages explaining to the average desert nomad how to build a snowman in every minute detail -- how to grow the carrot for the nose, how to pick out the best black rocks for the eyes, how to make the body round to "n" degrees of precision -- but he forgets to mention (until page 89) that, oh by the way, you need to have cold weather and snow to make one.

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