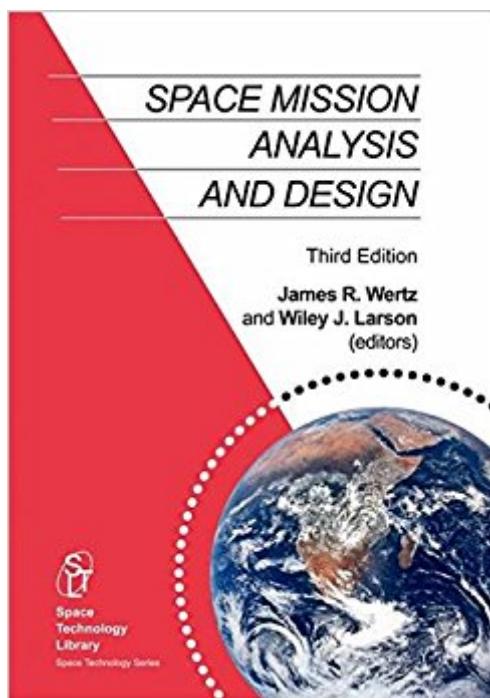


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# Space Mission Analysis And Design (Space Technology Library)



## **Synopsis**

This famous and practical handbook for Space Mission Engineering draws on leading aerospace experts to carry readers through mission design, from orbit selection to ground ops. SMAD III updates the technology, provides greater emphasis on small spacecraft design and the cost-reduction process, and includes more detail on multi-satellite manufacturing, space computers, payload design and autonomous systems.

## **Book Information**

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## **Customer Reviews**

But as a reference volume for system engineers and satellite designers it would appear to be an invaluable collection of data. The Aeronautical Journal --This text refers to the Paperback edition.

While it could be more detailed or better organized, this book is an anthology of useful information, reference data, and procedures. Just about anything an aerospace engineer could want to do is outlined in this book. Planning a mission to Mars? This book will give you an outline of most of the steps involved. Planning a satellite? This book will remind you of all the subsystem and mission architecture to consider, then give you scatterplots of previous mission parameters. This is a fun book just to flip through when I need to remind myself why I'm doing all this.

I've read a couple of chapters already and it is not a bad read. There is a great deal of information that is relevant now even though technology has gone far beyond what we had in the 90's. This volume walks you through the mission design process for a single case, so it is extra clear how everything fits together even if you are not an aerospace engineer.

I fear this book has outlived its usefulness in the modern age of cubesats and microprobes. But it is thorough and interesting and fulfills on its promise to take the reader from a white sheet of paper to a working plan for a mission. Would recommend to anyone going into the field

I have a significant library of technical books for electronics and communications and I am writing one currently myself. But this book is one of the best for guidance in many different subjects in the Space Mission Analysis and Design. Buy it if you are in this field. Money well spent.

The go to reference for any student (or even professional) working with rockets or space craft.

Amazing book. Very easy reading and looks like a handbook.

Well, here I am again reviewing this fantastic book. Two years after its purchase, I finally came to an end and finished the whole stuff. As I usually do with this type of books, I read them from the very beginning till the end. During my reading I found out that a new version of SMAD is out, although its rating seems not to be as good as I expected at first. In any case, this book's 3rd revision deserves every penny you could spend on it. Almost all the most important parts when designing space missions are here, from technical point of view to administrative / political / whatever other environments in space missions you can find. Probably the only one miss I have found in this book is its practically absence of outer space technology and planning. There are some hints about Voyager program, and some other gravity assisted programs, but in general little information on systems beyond GEO orbits. This obviously includes third extraterrestrial object landing, which is also not available. Taking in mind that its roughly 1000 sheets sometimes becomes boring, in general this book covers the whole basis about "old way of space faring proceeding". New commercial approaches, new available IT technology, small satellite configuration and, in general, new perspectives on "Of the shelf" technology makes this book a little outdated. However, and in any case, it is very nice to understand the beginning of everything. I have used extensively this book in order to plan a mission to Moon, and it helped me a lot doing some harsh proceedings, especially

when dealing with Astrodynamics, near Earth problems and picky behaviour while managing some fly by operation. From my experience at job (not space related (yet)), approximations when budgeting are quite good, although from an "outsider" perspective it could become hardly comprehensive. Such approximations in budgets, considering the very small amount of stochastic events are, at best, daunting tasks. It will become too aggressive to pre-design something really realistic based upon the satellite data available inside this book. Even as of today, natural satellite taylored design makes this approach quite dangerous, although it may work at the very beginning. Another topic to be considered in the book, and worderfully skipped, regards with the crewed missions. There is no much more data available about STS operations. It seems authors decided to follow the "Orion" approach, focussing primary on satellites standard launch. Any comment about STS operations at shuttle's bay is skipped, making only references on Shuttle ballast and regulations to be fulfilled prior launching something in this (today dead) vehicle. To sum up, a perfect book for an student or a space engineer when dealing very basic space REGULAR missions. Calculations on Astrodynamics are easily followed and partly clear (some units and some data is not explained enough, so someone not used to that should figure out in which unit it is supposed to be the relevant data there: as for example trying to pass from covered angle in one day satellite orbiting to number of complete orbits around Earth a day). For other specific areas, like space structures, thermal balancing,Â Rocket Propulsion Elements, communications, other more specialized books are recommended.

This book is considered as the bible of the Space Engineering and after reading it I understand why. It covers everything with a good level of detail and gives a lot of practical information that can be very useful. Personally I am an engineer wanting to enter the space industry and the book helped me to better understand the domain where I want to work. The reason why I give it 4 stars is that the title of the book starts with the word "Space" but I would rather start it with "Satellite" because it is strongly oriented to satellite system. I expected to have at least a chapter on interplanetary exploration systems but there's nothing. So no discussion, for example, on orbit transfers from Earth to Moon or on autonomous computer systems necessary for, let's say, Mars exploration. Otherwise, the book is excellent. A word of caution for those interested on the book: It is no science divulgation book. It is a technical book and I'd say you need at least two years of Engineering studies to understand the concepts that are inside and maybe a bit of Engineering professional experience to properly appreciate the value of the tables that are included.

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