



Space Mission Engineering: The New SMAD

The New SMAD has landed!

The excellent, professional space mission engineering book, the “New SMAD” (ISBN 978-1-881-883-15-9, first printing 2011) carrying substantial weight (“first weigh then dare”) replaces the well known “Space Mission Engineering and Design (SMAD)” book published in 1999 serving the space community with over 65.000 copies in print.

The New SMAD reflects the breathtaking new developments during the last 20 years and the publishers developed a completely new book-style by using the readily available Internet capabilities to add more than one dimension compared to the conventional book. The book-WEB site – which can be accessed for free by every customer buying the book - provides among other services errata corrections and future updates, downloads of intelligent interactive tables (“Live Calc”) with integrated formulas to be adapted and used for your current project as well as references for more detailed bibliographies (“Get Ref”). So, the book and the Internet comes as a package sustaining the validity of the book much longer than the previously print-only version.

[Space Mission Engineering: The New SMAD](#)

According to my assessment the “New SMAD” covers all aspects of space mission engineering more competent and thoroughly than any other similar book I have seen before. It covers all aspects from “a little space history”, space mission design, spacecraft design and operations, launch vehicles, cost assessment and cost calculation techniques to space law.

The declared effort of the book is to revive the “faster, better cheaper” idea – long dead since Dan Goldin day’s. This approach can not be praised highly enough since it is the only way to be successful in the future.

This alone is worth to have the “New SMAD” on your bookshelf for reference.

The book was produced by recognized experts still working actively in the many special fields of spaceflight, thus providing the most current and up-to-date state-of the art in research and technology development.

To list the table of contents (152 topics on 1033 pages) would exceed the scope of this review, however the author of this book-review made a couple of random “spot-checks”: The “Get Ref” and “Live Calc” buttons work fine, however some live calculation buttons are still under construction. In addition the author tested the capabilities without his own keywords:

Interfaces/Interoperability - Interface management is well covered in the book (ICD, IRD) see “Formal Requirements Standards” e.g., the reference section in the book indicates the CCSDS and ECS committees and if “ECS” is entered as keyword on the “www.sme-smad.com” web page all the relevant documents are indicated with their direct link. Interoperability was a little harder to find but finally everything was found under in the chapter “ground network compatibility” (Index) and the table on page 692. The book-WEB site yields the appropriate linked documents using chapter 28 reference list.

Standardization - Completely covered in the book and the book-WEB site points you to additional linked documents when using the reference list of chapter 28 of the book.

Commercialization of human spaceflight - Other than being mentioned at some places in the book, the latest developments within NASA (ongoing COTS, CCDev, CRuSR activities) are not mentioned yet – could be an “update” suggestion.

Public Private Partnership - No to be found under this name, the book-WEB site yield no “hits” either. One could debate whether this should be the topic of such a design- and operations oriented book.

As summary, the author of this article was very impressed with the profoundness of the provided information and the expansion of topics in the Internet. Using electronic means like search and direct linking helps to stay “on top” of the ever growing volume of information and not to get lost in too much detail in a most efficient way.

I highly recommend the book to all “space-engaged” engineers, managers, accountants and space lobbyists and of course as a reference book for all students planning to make a career in the space business.

For more information please refer to the [Microcosm Astronautics Books](#) publishing WEB site.

