

such as the selection of electro-optical components, navigation systems, propulsion systems and the UAV survivability in the battlefield.

The choice of topics is peculiar for an introductory book, with the author focusing on subjects such as electronic connectors and neglecting completely disciplines such as aerodynamics and structural design. Many of the topics are presented in a descriptive way with very little technical knowledge provided to the reader, while on a few occasions, the author presents the subjects in more detail (for example, when describing the Kalman filtering).

Overall, the book is not well structured and topics are presented in a disorganised and inhomogeneous way, with multiple repetitions and important omissions. Some of the pictures appear more than once. There is often the lack of evidence or reference to reputable sources to support the author statements. In several occasions, the author cites 'Wikipedia articles' or 'studies performed by the author' as the main source of the presented information.

**Dr. Mario Ferraro**



## Introduction to Engineering: A Project-Based Experience in Engineering Methods

**M. L. Post et al.**

*American Institute of Aeronautics and Astronautics, Reston, VA, USA. 2017. Distributed by Transatlantic Publishers Group, 97 Greenham Road, London, N10 1LN, UK. xix; 317pp. + USB data card. Illustrated. £106. (20% discount available to RAeS members on request; email: [mark.chaloner@tpgltd.co.uk](mailto:mark.chaloner@tpgltd.co.uk) Tel: 020 8815 5994). ISBN 978-1-62410-459-6.*

This book, and the accompanying digital resources, comprises background and teaching materials for a basic design project intended to be part of an introductory module. Unusually, the book is intended as a companion and expansion of the digital files, which are stored on a memory stick and are the primary teaching tools.

The original project on which the book is based was created for students at the US Air Force Academy, where the authors are past or current academics. As such, it was intended

for large cohorts of both engineering and general students, and this is reflected in the structure of the project and the content of the learning materials. The project brief is perhaps misleading in that it refers to a hypersonic transport, whereas what students will actually design, build and test are model rockets, ultimately constructing a boost-glider, the design of which will incorporate features that are dictated by the demands of hypersonic aerodynamics.

Being aimed at non-specialists as well as dedicated engineering students, the topics discussed cover a very broad range in the general field of engineering design. Various chapters deal with matters ranging from the fundamentals of engineering as a whole to aircraft and rocket aerodynamics, stability and performance, plus digital logic for use with the launch control system. It is remarkable just how much basic material the authors have managed to pack into this book: it is broad rather than deep in terms of technical content, but there is more than enough to support students as they work on the project, and the audio-visual materials provided are excellent, including video clips covering everything from basic mechanics and aerodynamics to step-by-step guides to constructing and testing model rockets.

That is perhaps the greatest strength of the book and accompanying digital materials: while incorporating the entire project into, say, a first-year university engineering design module might be problematic due to the resources and time needed for the project as a whole, and particularly for the ultimate object of it, namely the test-flying of the boost-gliders, the contents of the teaching files, and especially the video clips, could be very useful in all sorts of subjects that are part

of an aerospace engineering course, both at introductory and higher levels.

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