

Book Reviews

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Aircraft Propulsion

Saeed Farokhi, Second Edition, Wiley, New York, May 2014, 1048 pp., \$94.95 (hardcover).

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THE literature in the field of propulsion is rich with several outstanding books, including the first edition of this text. The unique feature of this second edition is that it covers updated materials: namely, innovative propulsion concepts, modern aircraft gas-turbine engines, and uninhabited aerial vehicle (UAV) propulsion systems.

The book consists of 12 chapters, with each containing a variety of solved examples as well as homework problems. Chapter 1 provides a concise review of the development of airbreathing jet engines and modern propulsion concepts. Chapters 2–3 provide some of the basic and advanced gas dynamics concepts, covering all of the basics needed for propulsion analysis. The heart of the text is in Chapter 4, which is focused on the thermodynamics analysis of a gas-turbine engine (ramjet, turbojet, turbofan, turboprop) cycle. Chapter 5 is a new addition in this second edition and is devoted to an UAV's propulsion. Chapters 6–10 are focused on propulsion components, such as inlets and nozzles, combustors, and different types of compressors and turbines. The last two chapters are devoted to aircraft-engine matching at design and offdesign conditions, as well as to chemical rockets and hypersonic propulsion, respectively. These chapters are complemented with 12 appendices, which include standard atmosphere data, a broad set of gas dynamics tables, cascade

data, and quizzes. The coverage is comprehensive; perhaps, the only thing missing is a chapter on supersonic scramjet propulsion. Scramjet engines are of significant current interest and are covered in most advanced courses in propulsion.

I have been using the first edition of this text in a graduate-level course, and I will definitely adopt the second edition. I am particularly pleased with the author's straightforward description of the various topics, making some of the most difficult concepts digestible with relative ease. Unlike the first edition, which was published only in hardcover, the second edition is available in all formats (hardcover, softcover, electronic text, and electronic book). Supplementary materials, including the source files of illustrations and an *Instructor's Solution Manual*, are also available.

In summary, I feel this second edition provides a nice and timely revision of the original text. I highly recommend it for a graduate-level course in propulsion, as well as for a comprehensive reference for practicing engineers in the field.

Ehsan Roohi
Ferdowsi University of Mashhad, Mashhad, Iran