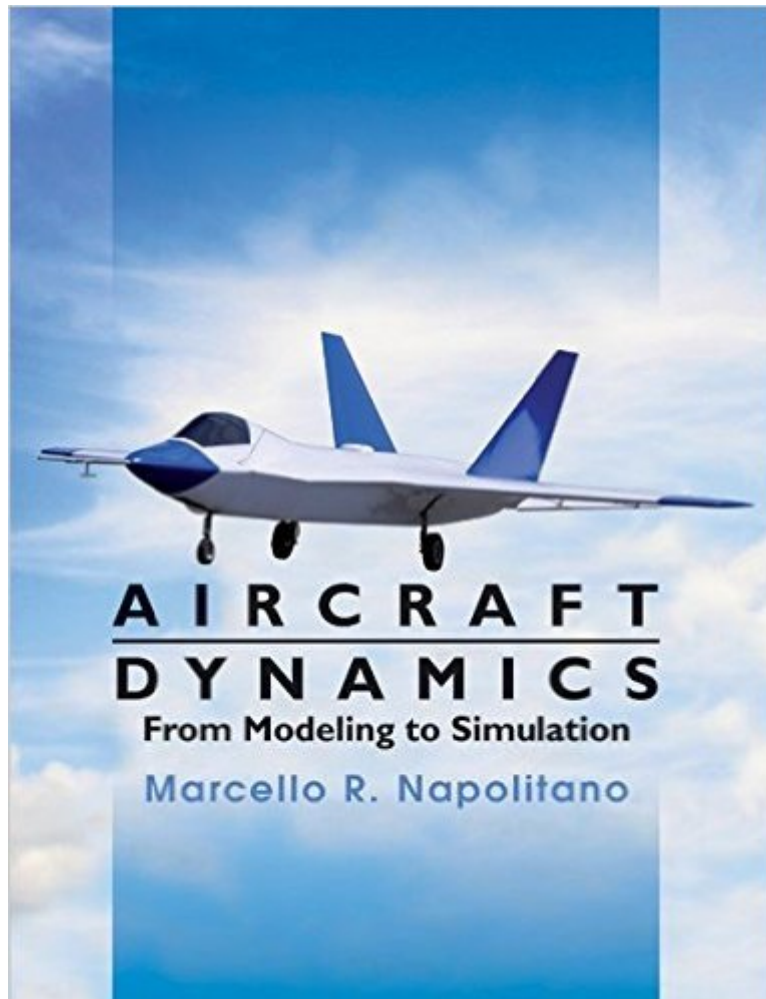


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# Aircraft Dynamics: From Modeling To Simulation



## Synopsis

Napolitano's Aircraft Dynamics is designed to help readers extrapolate from low level formulas, equations, and details to high level comprehensive views of the main concepts. The text also helps readers with fundamental skills of learning the "basic modeling" of the aircraft aerodynamics and dynamics. The main objective is to organize the topics in "modular blocks" each of them leading to the understanding of the inner mechanisms of the aircraft aerodynamics and dynamics, eventually leading to the development of simple flight simulations schemes.

## Book Information

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## Customer Reviews

The author did a great job keeping together both the theoretical and the practical aspects of flight/aerodynamic modelling. Well known formulations from classical textbooks on flight dynamics are revisited in this book and made clear with the aid of a number of nicely formatted graphs. The theory is supported with many worked out examples based on detailed aircraft drawing and data tables. A unique feature of this book is that it contains data of so many different airplanes, ranging from military jets, to commercial turbofans, to general aviation propeller aircraft. The simulation is covered by introducing a well tested Matlab/Simulink library downloadable from the Matlab File Exchange website. The basic concepts of flight dynamics are presented and discussed with the aid of this simulation tool. The book has an unusual large layout that facilitates the reader in navigating through the many drawings, plots, and tables.

This book is a very useful guidelines to perform aircraft simulation both for beginner and advanced user. The aircraft dynamics theoretical formulation is reported in an easy and clear way and, even more important, very well related with the modeling process. The most relevant features of this book are the huge amount of aircraft data reported inside and the several sample applications built on purpose using matlab/simulink software environment. These features make the text very suitable for both teaching and as a reference in the design and implementation process of flight simulators.

This book is a very useful reference point, for both researchers and designers interested in aircraft modeling and simulation. It allows all the aerodynamic derivatives necessary for the definition of the dynamics of aircraft to be defined and therefore helps one understand on which parameters it is necessary to intervene in order to adapt the response characteristics to the specific requirements. In the book, the theoretical aspect is well balanced with the practical and applicative one.

Napolitano's book discusses effectively the key concepts of the flight dynamics and explains in detail how to carry out aircraft flight dynamics simulations. Theoretical aspects (aircraft equations of motion, modeling of aerodynamic and propulsive actions, solution of aircraft dynamics) are supported with a lot of examples and expressed using simple language. Practical aspects are discussed with the aid of applications of Matlab and Simulink tools. I consider the book a great textbook for a flight dynamics course.

This book explains how to perform aircraft flight dynamic simulations, including how to derive the aircraft mathematical model. Theoretical concepts are explained using everyday vocabulary and language. Author presents step by step equation derivations, sample problem solutions and application of matlab and simulink tools. Would make an excellent textbook for a flight dynamics course. Easier to understand than other flight dynamics books.

I have used this book in studying and research purposes. Excellent step by step and student problem sections. Highly recommended for flight dynamics introduction

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