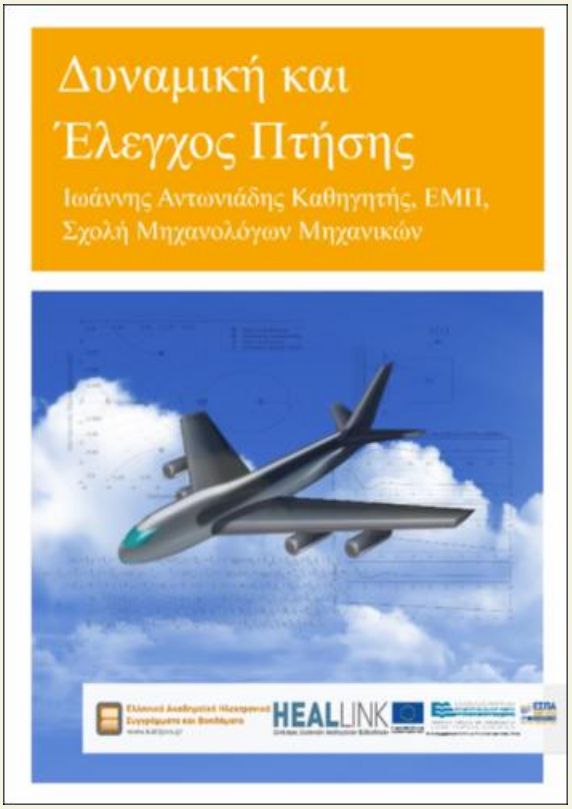

METADATA

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Abstract

The book is primarily addressed to students of the Aeronautical Mechanical Engineering courses of the Polytechnic Schools of the country, as well as to all those engineers, technicians and/or pilots, who are interested in acquiring a solid scientific basis in the subject of Flight Dynamics and Control. The book refers to the way in which it is possible for an aircraft to obtain satisfactory flying and handling qualities. For this reason special mention is given to the dynamic characteristics and to the stability and control characteristics which form the basis for the above analysis. The book addresses three main questions: 1) The configuration of the stability and control characteristics of the aircraft and how these affect the flight characteristics. 2) The acceptable flight characteristics, the way the corresponding requirements are defined, interpreted and applied through the regulations and the way these requirements define the flight envelope. 3) How unacceptable flight characteristics can be improved. The book initially contains the theory of the dynamic behavior of the aircraft. This includes developing and solving the full equations of motion, their simplified form for longitudinal and transverse dynamics, and studying the response of the aircraft to control rudders by defining the transfer functions. The way in which the pilot operates the aircraft is then analyzed as much as the way in which the human perceives the flight. The book further includes dynamic data applications of a variety of aircraft, as well as a brief overview of the main aircraft subsystems (instruments, controllers, actuators) used to control flight.

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