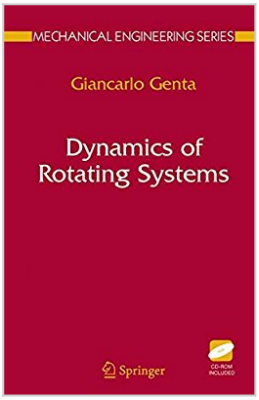

Dynamics of Rotating Systems (Mechanical Engineering Series)

By Giancarlo Genta

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Provides an up-to-date review of rotor dynamics, dealing with basic topics as well as a number of specialized topics usually available only in journal articles

Unlike other books on rotordynamics, this treats the entire machine as a system, with the rotor as just one component

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Dynamics of Rotating Systems (Mechanical Engineering Series) By Giancarlo Genta Bibliography

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Editorial Review

Review

From the reviews:

"This comprehensive book deals with the theory of dynamics of rotating systems. … The author attempts to model the dynamic behaviour of all rotating bodies, including not only shafts and turbine motors but also rotating blades and flexible spinning spacecraft. … Without hesitation, this book is recommended to researchers and engineers whose work involves modelling and analysis of rotating systems. The book is definitely a valuable text for graduate students studying rotor dynamics and for those pursuing their own novel approaches." (International Journal of Acoustics and Vibration, Vol. 10 (4), 2005)

From the Back Cover

Dynamics of Rotating Systems goes beyond what is usually referred to as rotordynamics. The aim is to deal with the dynamic behavior of systems having in common the feature of rotating. This definition includes systems like transmission shafts, turbine rotors and gyroscopes, which are studied by rotordynamics, but also systems such as rotating blades (i.e. helicopter rotors) or flexible spinning spacecraft. While rotordynamics deals usually only with the lateral behavior of rotors, here some mention is made also to torsional and axial vibration or to cases in which it is impossible to distinguish between them.
This book is structured in two parts: the first introduces classical or basic rotordynamics. The basic assumptions are linearity, steady state operation, and at least some degree of axial symmetry. The second part discusses advanced rotordynamics. More detailed models are covered for rotors departing from the classic configurations studied in rotordynamics. The contents of the second part are more research topics than consolidated applications.
Dynamics of Rotating Systems is the result of the author’s almost thirty years of work in the field of rotordynamics. This includes research, teaching, writing computer codes and consulting. It is the outcome of an interdisciplinary research team led by the author, which operated, and still operates, in the Mechanics Department and in the Interdepartmental Mechatronics Laboratory of Politecnico di Torino.
About the author:
Giancarlo Genta is a professor in the Mechanics Department at Politecnico di Torino, in Turin, Italy. He is a corresponding member of the International Academy of Astronautics and the Academy of Sciences in Turin. He is the author of more than 250 scientific papers published on journals or presented to conferences, of several research books and of a popular science book on space exploration.

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Giancarlo Genta is a professor in the Mechanics Department at Politecnico di Torino, in Turin, Italy. He is the Director of the Italian THIRSTS Studies Center, and is also affiliated with the Commission for the exploration of the space interstellare of the International Academy of Astronautica and the Academy of Sciences in Turin.

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