Vibro-Acoustics: Fundamentals and Applications
Dhanesh N. Manik
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This is an excellent book and a highly valuable addition to the field of vibro-acoustics. The book is highly suitable not only as a textbook for students in acoustics and vibrations but also as a text for noise control engineers. This will clarify the modeling of sound radiation by vibrating structural components and systems, which is very important for noise control by design. The book uses both modal and wave approaches. With ten chapters, each is very well structured.

Chapter one describes in detail the basics of single degree of freedom system. This chapter also includes description of various vibration transducers. The *second chapter* describes both multi-degree of freedom systems and longitudinal vibration of bars with various boundary conditions. The basics of airborne sound propagation are described in chapter three which also discusses transducers for sound measurement.

Chapter four describes fundamentals of random vibration and discusses random processes and response of a single degree of freedom system due to an arbitrary excitation. The flexural vibration of beams is dealt in chapter five. The wave approach and modal density are also discussed in this chapter. *Chapter six* deals with flexural vibration of plates and shells, which are important sources of sound radiation. This chapter includes transmission loss due to barriers. The basic sound sources such as monopoles, dipoles and quadrupoles are described in chapter *seven*.

Chapter eight describes acoustics of rooms. Various room environments such as anechoic, reverberant and diffused are discussed in this chapter. Chapter nine describes the important topic of sound–structure interactions. This chapter nicely describes the various concepts such as radiation ratios for various sources, acoustically slow and fast modes from finite plates. *Chapter ten* treats another important topic, namely, statistical energy analysis. The chapter includes several applications in vibro-acoustic system modeling such as aircraft cabin, piano sound production, etc. The chapter also presents statistical energy analysis equations from continuous systems. Discussions of applications such as plate–shell vibratory system, non-resonant transmission between rooms, etc. are included in this chapter.

Each chapter has a nice overview at the beginning and a nice conclusion at the end, which help the readers. Figures and tables are very clear. Each chapter has a good set of sample problems worked out in details emphasizing concepts. Also, a good set of assignment problems is included at the end of each chapter. However, it would have been helpful to students if the answers were provided for the assignment problems. In summary, this comprehensive book is a highly welcome addition to the field of vibro-acoustics. The book is recommended for the libraries of all acousticians.

M.G. Prasad
Stevens Institute of Technology
Hoboken, NJ, USA
mprasad@stevens.edu