# DESCRIPTION

Mechanics courses tend to provide engineering students with a precise, mathematical, but less than engaging experience. Students often view the traditional approach as a mysterious body of facts and tricks that allow idealized cases to be solved. When confronted with more realistic systems, they are often at a loss as to how to proceed. To address this issue, this text empowers students to tackle meaningful problems at an early stage in their studies.

*Engineering Mechanics: Dynamics, First Edition* balances rigor with user friendliness. The style is personalized, giving students the sense that they are having a one-on-one discussion with the authors. This minimizes the air of mystery that a more austere presentation can engender, and aids immensely in the students’ ability to retain and apply the material. The authors do not skimp on rigor but at the same time work tirelessly to make the material accessible and, as far as possible, fun to learn.

## ABOUT THE AUTHOR

**Benson H. Tongue**, Ph.D. is a Professor of Mechanical Engineering at University of California-Berkeley. He received his Ph.D. from Princeton University in 1988, and currently teaches graduate and undergraduate courses in dynamics, vibrations, and control theory. His research concentrates on the modeling and analysis of nonlinear dynamical systems and the control of both...
structural and acoustic systems. This work involves experimental, theoretical, and numerical analysis and has been directed toward helicopters, computer disk drives, robotic manipulators, and general structural systems. Most recently, he has been involved in a multidisciplinary study of automated highways and has directed research aimed at understanding the nonlinear behavior of vehicles traveling in platoons and in devising controllers that optimize the platoon's behavior in the face of non-nominal operating conditions. His most recent research has involved in the active control of loudspeakers and biomechanical analysis of human fall dynamics.

Dr. Tongue is the author of Principles of Vibration, a senior/first-year graduate-level textbook. He has served as Associate Technical Editor of the ASME Journal of Vibration and Acoustics and is currently a member of the ASME Committee on Dynamics of Structures and Systems. He is the recipient of the NSF Presidential Young Investigator Award, the Sigma Xi Junior Faculty award, and the Pi Tau Sigma Excellence in Teaching award. He serves as a reviewer for numerous journals and funding agencies and is the author of more than sixty publications.

Daniel T. Kawano, is an Assistant Professor of Mechanical Engineering at Rose-Hulman Institute of Technology in Terre Haute, Indiana. He received his B.S. degree in Mechanical Engineering from California Polytechnic State University, San Luis Obispo in 2006. He obtained his M.S. (2008) and Ph.D. (2011) degrees in Mechanical Engineering, with a focus in dynamical systems, from the University of California, Berkeley. Daniel currently teaches primarily undergraduate courses in vibration, programming, dynamics, and system dynamics. His research and academic interests include modeling, analysis, simulation, and testing of dynamical systems; design of dynamic structures; linear vibratory theory and its applications; numerical solution of differential and differential-algebraic equations; and pedagogy in engineering education. Daniel serves as the faculty advisor for Rose-Hulman's Formula SAE competition team, Rose Grand Prix Engineering. In his spare time, Daniel enjoys reading, listening to music, shooting sports, and spending time outdoors.

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