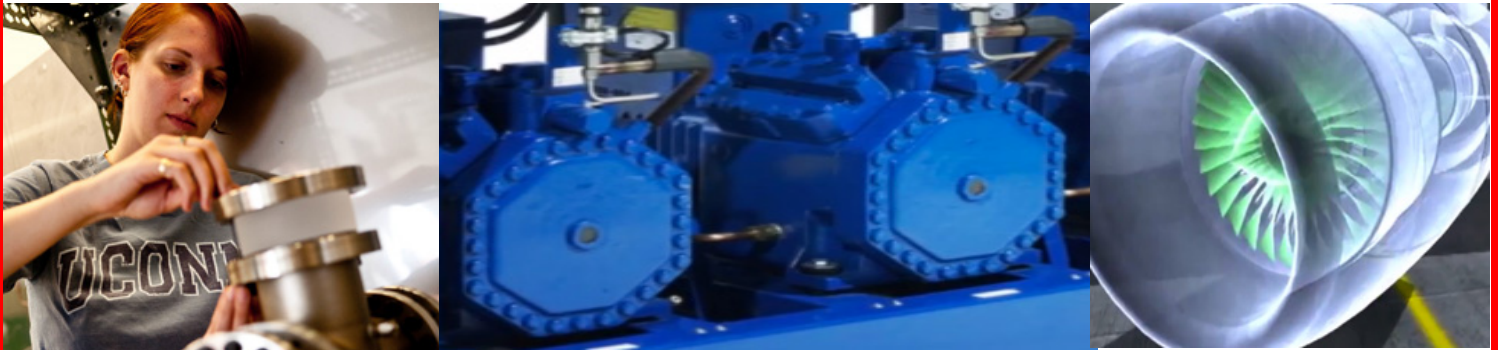


UTC Institute for Advanced Systems Engineering Distinguished Lecture Series



William B. Rouse, Ph.D.
Stevens Institute of Technology

Understanding and Managing the Complexity of Healthcare

Monday June 8, 2015 10:00 a.m. – 12:00 p.m. Storrs Campus, ITEB 336

Abstract: The overall nature of the healthcare system is considered. It is argued that this enterprise is best modeled as a complex adaptive system. The stakeholders in this enterprise and their interests and objectives are outlined. This provides the basis for discussion of five case studies. The first presents an analysis of the complexity of healthcare using information theoretic metrics. The second case study uses production-learning theory to determine how efficient the system would have to be to keep healthcare costs from rising faster than GDP. The third derives providers' optimal response to Medicare price controls. The fourth case study develops a multi-level model of the healthcare enterprise and uses this model to project the economic benefits of employer-based prevention and wellness programs. The fifth case study considers how providers in New York City have responded to the Affordable Care Act.

Speaker Bio: Bill Rouse is the Alexander Crombie Humphreys Chair within the School of Systems & Enterprises at Stevens Institute of Technology and Director of the Center for Complex Systems and Enterprises. He is also Professor Emeritus, and former Chair, of the School of Industrial and Systems Engineering at the Georgia Institute of Technology. His research focuses on understanding and managing complex public-private systems such as healthcare delivery, urban systems and national security, with emphasis on mathematical and computational modeling of these systems for the purpose of policy design and analysis. Rouse has written hundreds of articles and book chapters, and has authored many books, including most recently *Modeling and Visualization of Complex Systems and Enterprises* (Wiley, 2015), *Understanding and Managing the Complexity of Healthcare* (MIT Press, 2014), *Economic Systems Analysis and Assessment* (Wiley, 2011), *People and Organizations: Explorations of Human-Centered Design* (Wiley, 2007), *Essential Challenges of Strategic Management* (Wiley, 2001) and the award-winning *Don't Jump to Solutions* (Jossey-Bass, 1998). He has edited or co-edited numerous books including *Engineering the System of Healthcare Delivery* (IOS Press, 2010), *The Economics of Human Systems Integration* (Wiley, 2010), *Enterprise Transformation: Understanding and Enabling Fundamental Change* (Wiley, 2006), *Organizational Simulation: From Modeling & Simulation to Games & Entertainment* (Wiley, 2005), the best-selling *Handbook of Systems Engineering and Management* (Wiley, 1999, 2009), and the eight-volume series *Human/Technology Interaction in Complex Systems* (Elsevier). Among many advisory roles, he has served as Chair of the Committee on Human Factors of the National Research Council, a member of the U.S. Air Force Scientific Advisory Board, and a member of the DoD Senior Advisory Group on Modeling and Simulation. He has been designated a lifetime National Associate of the National Research Council and National Academies. Rouse is a member of the National Academy of Engineering and has been elected a fellow of four professional societies -- Institute of Electrical and Electronics Engineers (IEEE), the International Council on Systems Engineering (INCOSE), the Institute for Operations Research and Management Science (INFORMS), and the Human Factors and Ergonomics Society (HFES). Rouse received his B.S. from the University of Rhode Island, and his S.M. and Ph.D. from the Massachusetts Institute of Technology.