

2011-2012 Graduate Seminar Series

The Department of Mechanical Engineering – Engineering Mechanics

Proudly Presents

S. Jack Hu, Ph.D.

**J. Reid and Polly Anderson Professor of Manufacturing Technology
Professor of Mechanical Engineering and
Industrial and Operations Engineering
The University of Michigan**



S. Jack Hu is Professor of Mechanical Engineering and the J. Reid and Polly Anderson Professor of Manufacturing Technology at the University of Michigan. He also holds a joint appointment as Professor of Industrial and Operations Engineering and co-directs the General Motors Collaborative Research Laboratory in Advanced Vehicle Manufacturing. Dr. Hu currently serves as the Associate Dean for Academic Affairs in the College of Engineering at Michigan. Before this appointment, he served as Associate Dean for Research and Graduate Education. From 2002 to 2006, he was the Director of Program in Manufacturing (PIM) and Executive Director of Michigan Interdisciplinary and Professional Engineering.

Dr. Hu's teaching and research interests include manufacturing systems design and operations, assembly, forming, and quality. He has graduated 37 Ph.D. students and a number of master students. He has published more than 200 papers in professional journals and conferences. He has also taught short courses in Lean Manufacturing and Statistical Process Design and Control to a number of companies around the world. He was elected a fellow of ASME in 2003 and currently serves as the Editor in Chief for Journal of Manufacturing Systems.

Thursday, Nov. 10, 2011 4:00 – 5:00 p.m. Room 112, ME-EM Bldg.

Product Assembly: Quality, Productivity and Customization

Assembly is the capstone process for product realization where component parts and subassemblies are integrated together to form the final products. As product variety increases due to the shift from mass production to mass customization, assembly systems must be designed and operated to handle such high variety while maintaining performance in quality and productivity. In this presentation we will first review the state of the art research in the areas of assembly system design, planning and operations in the presence of product variety. Methods for assembly sequence generation, system configuration design and assembly line balancing are presented and summarized. Operational complexity in assembly systems are then discussed in the context of product variety. Finally we conjecture a future manufacturing paradigm of personalized products and production and discuss the assembly challenge for such a paradigm.