University of Southern California

DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING

## EPSTEIN INSTITUTE SEMINAR • ISE 650 SEMINAR

# *Assembly System Design and Operations for Product Variety*

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**ABSTRACT**

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. In this presentation we 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.

## TUESDAY, MARCH 29, 2011
## ELECTRICAL ENGINEERING BUILDING (EEB) ROOM 248
## 3:30 – 4:50 PM

**SPEAKER INFORMATION**

S. Jack Hu is currently Professor of Mechanical Engineering and the G. Lawton and Louise G. Johnson Professor of Engineering at the University of Michigan. He also holds a joint appointment as Professor of Industrial and Operations Engineering at Michigan. He co-directs the General Motors Collaborative Research Laboratory in Advanced Vehicle Manufacturing and serves as Associate Dean for Academic Affairs in the College of Engineering. Prior to his current appointment, he was Associate Dean for Research and Graduate Education. Dr. Hu conducts research and teaches courses in assembly, manufacturing systems, and statistical quality methods. He has published more than 100 papers in professional journals and 40 papers in conferences. Dr. Hu is the recipient of various awards, including the SME Outstanding Young Manufacturing Engineer Award, National Science Foundation CAREER Award, ASME Design Engineering Conference Best Paper Award, and the College of Engineering Research Excellence Award. He was elected a fellow of ASME in 2003.