SeMINAR TITLE

“Implementing Hands-On Simulations to Explore Lean and Supply Chain Principles in Different Academic Settings”

SeMINAR SPEAKER

Sharon Johnson
Worcester Polytechnic Institute

ABSTRACT

Lean thinking has transformed the way processes are designed and managed, significantly improving lead times, quality, and cost for many organizations. Undergraduate students in industrial and other engineering programs often encounter lean ideas in a fragmented and theoretical way, with particular tactics taught in existing courses, rather than from a holistic and applied perspective. We are using a hands-on approach to teaching lean principles based on the Time Wise™ physical simulations in which participants assemble clocks using a multi-stage process to get hands-on practice applying lean principles. The use of three simulations is being explored; (1) high volume, low variety, (2) high variety, low volume, and (3) supply chain. We describe this teaching approach and explore its value in different academic settings, including industrial engineering and business programs. We present results from three settings: two different introductory Industrial Engineering courses at different schools and one Introduction to Engineering course at a third school. We describe and contrast the experiences at each school, including how materials were included in the courses, the support needed, and faculty preparation and observations. In addition, we present some of our assessment tools, and provide a preliminary analysis of student learning across these settings. Our assessment addresses the extent to which students are able to apply lean principles and use data to support decision-making.

BIOGRAPHIC PROFILE

Sharon A. Johnson is Director of the Industrial Engineering Program and an Associate Professor of Operations and Industrial Engineering in the Department of Management at Worcester Polytechnic Institute. She teaches courses in process and operations management, and facility layout and design. Dr. Johnson received her Ph.D. from Cornell University in Operations Research and Industrial Engineering in 1989. Dr. Johnson’s research interests include lean process design and modeling, health care delivery processes, enterprise systems, and curriculum development and student learning. Currently, she is working on a project funded by the National Science Foundation to explore hands-on approaches for teaching lean process design. Her work has appeared in Operations Research, the Business Process Management Journal, the Case Research Journal and Water Resources Research. She is a member of IIE, INFORMS, POMS, and ASEE.

For further information, contact the Department of Mechanical & Industrial Engineering, 334 Snell Engineering Center, Northeastern University, 360 Huntington Avenue, Boston, MA, 02115. Tel: (617) 373 2186; (Fax) 617 373 2921.