

2009-2010 Graduate Seminar Series

The Department of
Mechanical Engineering – Engineering Mechanics

Proudly Presents

Professor John Hill
Michigan Technological University



Dr. John Hill graduated with a BS in Mechanical Engineering from Michigan Tech in 1999. Upon graduation he worked for 4 years as a crash engineer at General Motors. He then went on to obtain a PhD in Industrial Engineering and an MBA from the University of Iowa. Most recently he was Engineering Manager for R&D at Eaton Corporation's Clutch Division. Dr Hill is currently an Assistant Professor in Mechanical Engineering at Michigan Tech University. His publications are in such journals as The Journal of Safety Research and Accident Analysis and Prevention.

Thursday, Sept. 24, 2009 3:00 – 4:00 p.m. Room 112, ME-EM Bldg.

A Systems Engineering Approach to Human Factors Research

Human Factors is a discipline concerned with the understanding of interactions among humans and other elements of a system. A great deal of this research is focused on how system design affects the ability of the user to complete a task. From a systems engineering perspective, an equally critical question is one of how a user's behavior affects system performance. While there is a strong relationship between the two, optimizing to the user experience may result in sub-optimal system performance due to inefficiencies in risk assessment and mitigation strategies. In these cases, it is necessary to view the human as an element, whose performance can be manipulated for the optimization of the system as a whole. In this seminar, results from a driving study will be shown to demonstrate how basic changes in driving environments affect driver physiology. This study also reveals how drivers were able to compensate for potentially high stress driving conditions. The results demonstrate the ability to measure the outcomes of driver behavior even in low risk driving environments. Finally, driving and other systems will be presented in order of increasing complexity to demonstrate the value of a systems approach in predicting output when presented with increasing involvement of the user.