

GSAW2009 Tutorial G:

Key Issues in Human Systems Integration: Addressing Human Error and Automation in the Development and Operation of Large-Scale Technological Systems

Length: Half Day

Overview:

Human error has been cited as a factor in many large-scale technological accidents (aviation, nuclear power, petrochemical plants). Perhaps the most well-known accidents are Three Mile Island, Bhopal, and Chernobyl. However, further investigation of these accidents has revealed that many of these incidents are caused by a combination of factors whose roots can be found by a lack of human factors (micro- and macro-ergonomics) considerations. These human factors considerations, the causes of human error and commonality of problems across these industries lead toward the conclusion that system accidents are caused by the way the system components engineered and human, fit together and interact. Analysis of engineered systems must often deal with the possibility of human error leading to adverse conditions. This tutorial will provide an overview of human systems integration and human error. Recent developments focused on the application of human error assessment taxonomies and implementation of automation will be explored. Case studies will be presented that describe the impact of failing to address human error in the acquisition and design of systems will be provided. Strategies to address automation in the complex systems of today and tomorrow will be discussed.

Instructors: Suzanne Dawes and Lee Harkless, The Aerospace Corporation; Janeen Sharma, Northrop Grumman

Biography:

Suzanne Dawes is a Senior Project Leader at The Aerospace Corporation with over 25 years of experience in human factors engineering, system safety and systems engineering. Prior to joining Aerospace in 1999, Ms. Dawes worked as a human factors engineer in a variety of industries including Xerox (consumer product design, medical system design), Rancho Seco Nuclear Power Plant (control room design, accident/root cause analysis) and at Northrop Grumman on the B-2 program responsible for cockpit design, workload assessment, test and evaluation. Since joining Aerospace in 1999, she has supported numerous Air Force space programs. She is current a Senior Project Leader within the Human Systems Integration area in the Systems Engineering Division responsible for supporting the acquisition and development of space systems in the area of human systems integration. She has a B.A in Mathematics- Administrative Science from Colby College, an M.S. in Industrial Engineering and Operations Research (with an emphasis in Human Factors Engineering and Operations Research) from the University of Massachusetts, Amherst and a Ph.D. from the University of Southern California in Industrial and Systems Engineering with emphasis in Systems Architecting and Human Factors Engineering.

Who Should Attend:

Individuals who intend to enhance their understanding in the areas of human error, automaton and their role in assessment of human performance in complex systems will benefit from this workshop. Intended participants include (1) systems engineers responsible for acquiring and developing systems (2) human factors engineers responsible for acquiring or developing systems and (3) program managers responsible for the acquisition, development or operation of systems.