University of Wisconsin - Madison  
College of Engineering [EGR]  
Last Offered: 2015-2016 Spring [1164]  
Direct Link to this Syllabus :  

1.  I SY E 349, Introduction to Human Factors  
2.  Credits : 3  
   Contact Hours : 3.3  
   Set Phasers on Stun: And Other True Tales of Design, Technology, and Human Error;  
   Casey, S; 1st edition; 1998  

a.  Other Supplemental Materials : None  

• Specific Course Information :  

a.  Brief description of the content of the course (Course Catalog Description) : This course conveys the importance of considering human capabilities and limits in system design and operation. This includes understanding human characteristics from the cognitive, physical, and psychosocial perspectives. Implications of these characteristics are explored through understanding the needs of people, designing to support these needs, and evaluating systems to ensure they serve the intended purpose. Case studies are used to identify the human role in accidents and to identify design improvements. Application domains include consumer product design, human-computer interaction, workplace safety, and complex systems such as healthcare delivery.  

b.  Pre-requisites or Co-requisites : Introduction to probability or statistics (Statistics 224, 309, 311, 371, Psych 210, Psych 280, Soc 360, Gen Bus 303, or comparable course) or concurrent registration. Concurrent registration in ISyE 348 is required for ISyE majors.  

c.  This is a Required course.  

• Specific Goals for the Course :  

a.  Course Outcomes :
1. To understand how people fit into technological systems, recognize the limits of human perceptual-motor capabilities, recognize the limits of human cognitive functioning and why people make errors, be able to assess workstation and task design for ergonomic deficiencies, be able to define safety hazards and general approaches for their control, recognize the human indicators of fatigue and stress, appreciate the importance of organization and job design factors for performance and satisfaction, be able to define the ethical application of human factors in designing products and processes, able to write reports that describe human performance.

- **ABET Student Learning Outcomes:**

  (a) Ability to apply mathematics, science and engineering principles.
  (b) Ability to design and conduct experiments, analyze and interpret data.
  (c) Ability to design a system, component, or process to meet desired needs.
  (e) Ability to identify, formulate and solve engineering problems.
  (f) Understanding of professional and ethical responsibility.
  (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context.
  (i) Recognition of the need for and an ability to engage in life-long learning.
  (k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

- **Brief List of Topics to be Covered:**

  History of human factors and ergonomics, macro and cognitive ergonomics, physical ergonomics, macroergonomics, and engineering ethics.