THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Behind Human Error: Safety and Complex Systems

ISE 5710

Credit Hours:
3.00 - 3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

Course Components:
Lecture

Course Description:
Covers how complex systems fail and the human contribution to success and failure by studying actual disasters in diverse fields.

Prerequisites and Co-requisites:
Prereq: Sr or Grad standing, or permission of instructor.

Course Goals / Objectives:
- Analyze the multiple contributors to actual disasters
- Analyze typical misconceptions and fallacies about `error? prevalent among stakeholders
- Understand the key factors that influence the quality of human performance
- Understand the characteristics of high reliability organizations
- Understand how new technology changes the risks of failure

Course Topics:

- INTRODUCTION The problem with “human error” Basic premises
- HOW COMPLEX SYSTEMS FAIL Linear and latent failure models Complexity, control and sociological models Adapting, Learning and Resilience
- COGNITIVE FACTORS Bringing knowledge to bear in context Mindset Goal conflicts
- HOW DESIGN OF TECHNOLOGY CAN INDUCE ERROR Clumsy use of technology How computer-based artifacts shape cognition and collaboration Mode error in supervisory control How practitioners adapt to clumsy technology
- REACTIONS TO FAILURE Hindsight bias Error as information Balancing accountability and learning
- INTEGRATION How to go behind the label human error

Designation:
Elective