THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Cognitive Systems Engineering: Models and Methods

ISE 7720

Credit Hours:
3.00 - 3.00

Course Levels:
Graduate

Course Components:
Lecture

Course Description:
Covers models of human-machine cognitive systems and methods to study of human-machine cognitive systems in complex work settings.

Prerequisites and Co-requisites:
Prereq: Grad standing.

Course Goals / Objectives:
- Be able to analyze the multiple contributors to actual disasters
- Be able to analyze typical misconceptions and fallacies about `error? prevalent among stakeholders
- Understand the key factors that influence the quality of human performance
- Understand how new technology changes the risks of failure
- Understand the characteristics of high reliability organizations
- Able to recognize and avoid the hindsight bias in analysis of accidents

Course Topics:

- Introduction to Methods to Study Cognitive Systems in Context Field Observation techniques Knowledge elicitation techniques Protocol Analysis and Process Tracing techniques
- How to design problems/scenarios for scaled work simulation studies Cognitive Task/Work Analysis methods Methods to envision the impact of new technology
- Approaches for Modeling cognitive work systems Cognitive Simulations Artificial Intelligence models Multi-agent simulations and Adaptive system models
- Supervisory control models Intent inferencing Modeling the impact of technology change
- Integration: predicting errors or expertise, fragmentation or coordination, brittleness or resilience, clumsiness or affordance in cognitive work systems.

Designation:

Elective