THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Introduction to Cognitive Systems Engineering

ISE 5700

Credit Hours:
3.00 - 3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate

Course Components:
Lecture

Course Description:
Human-centered design of consumer products, web sites and complex sociotechnical systems. Topics include human-computer interaction and the design of decision support and distributed work systems.

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

Course Goals / Objectives:
- Assess, study, and model cognitive work systems that involve tasks such as decision making, diagnosis, process control, information retrieval and adaptive planning
- Apply human-centered design principles to the evaluation and design of products and complex systems
- Evaluate design distributed work systems

Course Topics:
- Case study to illustrate basic concepts in human-computer interaction and cognitive systems engineering.
- Human-Centered Design of Consumer Products: affordances, visualization and interface design techniques, design-induced error
- Human-Centered Design of Distributed Work Systems: teamwork, group dynamics and organizational factors, computer supported collaborative work (CSCW), communication, coordination, cooperation and collaboration
- Design Methods: user analysis and the development of use cases, scenario-based design, critical incident methods, field studies and ethnographic methods, storyboarding, prototyping
- Design of Decision Support Systems:available technologies, roles and responsibilities, making brittle technologies useful
- Design of Resilient Systems: cognitive factors, technological factors, organizational factors, strategies for increasing system resilience
- Case Studies from Domains: air traffic management, medicine and healthcare, military command and control, information retrieval and analysis, manufacturing

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Designation:
Elective