

# SYSTEMS DESIGN ENGINEERING

## Ecological Interface Design

**SYDE 740 - *Topic 1***

**Winter**

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Design of computer interfaces for simple to complex problems. Forms of visual display, auditory display and soft controls. Context, integration and navigation. Techniques for interface design. Ecological interface design. Applications and examples. Course will include a small group assignment which will involve design, prototyping and evaluation of an interface.

Prerequisite: SYDE 543 or permission of instructor.

**SYDE 740 Topic 1:** When held with SYDE 542, students in SYDE 740 *Topic 1* are expected to demonstrate a deeper understanding of course concepts. Preparation of a research paper for submittal to an appropriate conference is required.

### **Tentative Topic List:**

- The Human-Computer Interface
  - Human Characteristics (assumed review)
  - Human Factors in the Interface Design Process
  - Display of Information
    - Visual Display
    - Auditory Display
    - Alarms and Warnings
  - Controls
    - Forms and Uses of Soft Controls
  - Interface Integration
    - Control-Display Integration
    - Navigation
    - Visual Momentum
  - Design Techniques
    - Functional Decomposition
    - Prototyping and Simulation (assumed review)
    - Evaluation (assumed review)
  - Examples and Cases of Good and Bad Designs
    - The Alarm Problem
    - The Polar Star Display (configural display)
    - The Massed Data Display (data fusion display)
    - The Rankine Cycle Display (use of context)
    - Graphical Displays and Trends (perceptual display of rate and acceleration)
    - Duress (ecological displays)
    - ABB Displays (large scale interface design)
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