



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Human Systems Integration

## ISE 5720

**Credit Hours:**

3.00 - 3.00

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**Course Levels:**

Undergraduate (1000-5000 level)

Graduate

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**Course Components:**

Lecture

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**Course Description:**

Concepts and methods for considering the human as part of the design and operation of any system, especially large scale systems and enterprises.

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**Prerequisites and Co-requisites:**

Prereq: Sr or Grad standing, or permission of instructor.

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**Course Goals / Objectives:**

- Learn basic principles and methods for human systems integration
  - Learn how to apply methods for human systems integration to system design projects
  - Learn how to measure and assess the performance of integrated human-machine systems
  - Understand how to consider human factors over a system's life cycle
  - Learn how to combine physical and cognitive human factors
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**Course Topics:**

- Introduction to Basic Human Systems Concepts Fitting people to systems Fitting systems to human purposes Growing Expertise HSI in systems life cycle
  - Human-centered design methods and measures computerization automation plans and procedures
  - Requirements engineering Prototyping User studies Usability brittle machines human error New systems or products Managing multiple constraints
  - Managing distributed collaborative systems Computer supported collaborative work Control architectures for distributed work
  - Life Cycle and Sustainability Projecting training over the life cycle Planning for adaptation Highly coupled systems
  - Managing Complexity Resilience Risk management Case: Software reuse and software dependability
  - Managing Technology Change Workload management Software Intensive Systems and Software Reuse
  - Interaction of Physical and Cognitive Human Factors Psychosocial factors in occupational health and safety
  - Leadership and Accountability Safety management Regulatory issues
  - Case Studies Health IT Robots in Disaster responses Unmanned aerial vehicles Safety Management Systems Science missions to Mars Cybersecurity
  - Integration Managing trade offs Integrative Exercise Review of fundamental principles
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**Designation:**

Elective