ISE 4310/IHE 6310 – Ergonomics

Course Description
Introduction to the application of ergonomic principles in industrial environment. Includes ergonomic planning & implementation, the work environment, occupational biomechanics/CTDs, NIOSH work factors, and workstation & equipment design. This course will be complemented with case studies of actual manufacturing operations.

Offered both face-to-face and online
Undergraduate/Graduate level – 3 credit hours

Graduate students are expected to raise the level of class discussion through sharing of their professional experiences and/or reading beyond that of the undergraduate students and will be responsible for additional questions demonstrating their mastery on both Midterm and Final Exams.

Course Learning Objectives
Students enrolled in this course will learn:
Practical knowledge, application, and evaluation of ergonomics in industrial environment. Couse will provide students opportunity to gain and demonstrate proficiency in industrial ergonomics to prepare them for future employment opportunities.

Course Learning Outcomes
Upon successful completion of this course, students can:
Apply practical knowledge, application, and evaluation of ergonomics in industrial environment. Couse will provide students opportunity to gain and demonstrate proficiency in industrial ergonomics to prepare them for future employment opportunities.

Tentative Weekly Schedule

Week 1	Course Introduction & Grading Criteria
	Introduction to Industrial Ergonomics
Week 2	Work Physiology & Muscular Fatigue
	Occupational Biomechanics
Week 3	Cumulative Trauma Disorders (CTD)
	In-Class Group Case Study #1
Week 4	Manual Material Handling (MMH)
	Manual Material Handling (MMH) - Cont.
Week 5	In-Class Group Case Study #2
	Information Ergonomics
Week 6	Engineering Anthropometry
	Midterm exam (Lectures 1 thru 9)

Week 7	Ergonomic Design of Workstations
	Ergonomic Job Analysis & Design
Week 8	Work environment
	In-Class Individual Case Study #3
Week 9	Hand-tool Application & Design
	Team Project in Ergonomics Lab
Week 10	Team Project in Ergonomics Lab
	Human/Process Error Analysis & Six Sigma
Week 11	In-Class Individual Case Study #4
	Ergonomic Analysis of Shift-Work
Week 12	Ergonomic Lab Presentations
Week 13	Ergonomic Analysis of Aging Workforce
	Development of an Ergonomics Program
Week 14	General Discussion
Week 15	Final Exam