

**ISE 441/541 Human Factors Engineering, Winter 2018**

**Instructor:** Gianluca Allegretto

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**Office:** OU INC MoDesto

**Prerequisite:** major standing

**Class Time/Location:**

M/W, 5:30-7:17pm

**Final Exam Time/Location:**

TBD

**Office Hours:**

by appointment

**Course Description:**

This course focuses on the design and analysis of products and systems considering the human body's sensory and cognitive limitations, including: the study of stresses and human errors, the perceptual systems; the selection, design and arrangement of controls and displays; and the principles of human-computer interaction

**Course Objectives:** In order to satisfactorily complete this course, a student is expected to demonstrate competency concerning their understanding of the following (see *Program Outcomes a-k* at the end of the syllabus).

- Define the fundamental neurological and physiological structures necessary for human sensing and cognition (a).
- Calculate the appropriate levels of illumination, noise, temperature, vibration and radiation for designing a safe work environment (a,b,c,e,k).
- Describe safety issues associated with shiftwork and recommend administrative controls to minimize risks (a,c,e).
- Demonstrate understanding of the human information processing model, human perception and memory (a,c,k).
- Define human limitations and capabilities and how they impact the design of controls, displays, and related devices (a,b,c,e,k).
- Identify and define design considerations for users of varying abilities (c,g,j,k).

**Text:**

*The Design of Everyday Things: Revised and Expanded Edition.* Norman, D. Basic Books, Perseus Books Group, 2013. (ISBN 978-0-456-05065-9).

Other content will be provided by the instructor via class notes

**Course Format:**

The course will include lectures, short readings, homework assignments and class discussion. I encourage you to work with your colleagues on assignments but each student must turn in their own unique work.

**Website:** The course Moodle website contains information regarding handouts, homework assignments, course materials, presentations, notes, etc.

**Grading:** The final course grade will be a weighted average of:

Class Participation 5%

Homework/Presentation 25%

Exam 1 20%

Project 20%

Exam 2 (Final) 30%

**Grading Scale:**

A: 96-100 points = 4.0 grade C: 70-79 points = 2.0-2.9 grade

A: 90-95 points = 3.6-3.9 grade D: 60-69 points = 1.0-2.9 grade

B: 80-89 points = 3.0-3.5 grade F: 59 points and below = 0.0 grade

**Policies and Procedures**

***This syllabus may be changed at the discretion of the instructor.***

1. Academic conduct policy: All members of the academic community at Oakland University are expected to practice and uphold standards of academic integrity and honesty. Academic integrity means representing oneself and one's work honestly. Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned. Following are some examples of academic dishonesty: Cheating on examinations. This includes using materials such as books and/or notes when not authorized by the instructor, copying from someone else's paper, helping someone else copy work, substituting another's work as one's own, theft of exam copies, or other forms of misconduct on exams.
  - a. Plagiarizing the work of others. Plagiarism is using someone else's work or ideas without giving that person credit; by doing this students are, in effect, claiming credit for someone else's thinking. Whether students have read or heard the information used, they must document the source of information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce information from the source word-for-word within quotation marks) and paraphrases (which digest the source of information and produce it in the student's own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense or select from another person's work, the ideas are still the other person's, and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or using information from the World Wide Web or Internet without attribution and handing it in as one's own work is plagiarism.
  - b. Cheating on lab reports by falsifying data or submitting data not based on the student's own work.
  - c. Falsifying records or providing misinformation regarding one's credentials.
  - d. Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs, including modifying computer files created by others and representing that work as one's own.

2. **Add/Drops:** The university policy will be explicitly followed. It is the student's responsibility to be aware of deadline dates for dropping courses.

3. **Special Considerations:** Students with disabilities who may require special considerations should make an appointment with campus Disability Support Services, 106 North Foundation Hall, phone 248 370-3266. Students should also bring their needs to the attention of the instructor as soon as possible. For academic help, such as study and reading skills, contact the Academic Skills/Tutoring Center, 103 North Foundation Hall, phone 248 370-4215.

4. **Attendance:** Attendance at classes is expected and will be reflected in your participation mark. Please be prepared for class. If you are unable to attend for special circumstances contact the instructor. It is your responsibility to acquire the material and information missed if absent – find a partner and exchange phone numbers in order for you to get any missed notes or assignments.

5. **Late Submissions:** Late assignments will be marked accordingly. Please discuss personal circumstances with the instructor if necessary.

6. **Missed Exams:** Missed exams will not be accepted. If you have an extenuating circumstance that prevents you from attending an exam, contact the instructor IN ADVANCE. Typically, a doctor's, a dean's, or the department head's letter must be on file before you have to miss the exam.

7. **Cell phones:** As a courtesy to the instructor and fellow students please turn off all cell phones prior to class.

8. We are here to learn and share from each other. Networking and collaboration is a key ingredient to successful in engineering. Let's enjoy and learn from one another!

**Program Outcomes:** These are a set of skills that assure the achievement of the program educational objectives. Before graduating, SECS students will demonstrate their skills in the following key areas:

- a) an ability to apply knowledge of mathematics, science, and engineering;
- b) an ability to design and conduct experiments, as well as to analyze and interpret data;
- c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- d) an ability to function on multi-disciplinary teams;
- e) an ability to identify, formulate, and solve engineering problems;
- f) an understanding of professional and ethical responsibility;
- g) an ability to communicate effectively;
- h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- i) a recognition of the need for, and an ability to engage in life-long learning;
- j) a knowledge of contemporary issues;
- k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.