Wayne State University
Department of Industrial & Manufacturing Engineering
IE 7125 Human Factors Engineering

**Catalog Description:** Current methods and topics in engineering research on human capabilities and limitations as a system component. Advanced analysis, modeling and design of human-centered systems. (4 cr.)

**Prereqs:** Graduate status. Background in engineering statistics (BE 2100 or equivalent).

**To register:** [http://classschedule.wayne.edu/sections_new.cfm?subj=I%20E&course=7125](http://classschedule.wayne.edu/sections_new.cfm?subj=I%20E&course=7125)

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<th>Semester:</th>
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<tr>
<td>Section 001</td>
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<td>On Campus:</td>
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| Section 200 | tbd |
| Distance Ed: | tbd |

**Instructor:** Dr. Darin Ellis  
**Office:** Room 2145  
**Phone:** (313) 577-3296  
**Email:** rdellis@wayne.edu

**ISBN:** 0-13-183736-2

**Supplemental:** The Design of Everyday Things (Reprint Edition 2002) by Don Norman,  
**ISBN 978-0465067107**

**Other required:** This course requires extensive use of Blackboard, so you will need access to a reliable computer, printer and scanner with a high-speed internet connection.

**Course Terminal Objective**

Upon successful completion of this course, the student will be able to apply principles of human factors engineering to the analysis and design of products and human work environments.

**Course Learning Objectives**

*Upon successful completion of this course, the learner will be able to:*

<table>
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<tr>
<th>Objective</th>
<th>Description</th>
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<tr>
<td>IE 7125.01</td>
<td>Demonstrate understanding of basic laws of human performance</td>
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<tr>
<td>IE 7125.02</td>
<td>Apply principles of HFE to design and analysis of products and workstations</td>
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<td>IE 7125.03</td>
<td>Conduct independent applied research in the area of HFE</td>
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<td>IE 7125.04</td>
<td>Communicate R&amp;D results in the field of HFE effectively</td>
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**Course Withdrawal:**

Course withdrawal is permitted according to College and University Policy.

**Attendance & Participation:**

Lecture attendance, where applicable, is an important mechanism for achieving course objectives. Students are expected to attend all class meetings (including meetings in person or via Blackboard) and will be held responsible for material presented and verbal announcements made during class.

Participation is also evaluated with respect to online activities such as blog and forum posts, discussions & chat sessions, etc. This is particularly important for web-only sections of this course.
ASSESSMENT AND GRADING

Examinations
There will be one exam based on textbook material. The exam format will be essay and problem solving.

Projects
There is one major project in this course. Project topics must be proposed by the student and approved in advance in writing by the instructor. Projects must be submitted entirely in electronic form (.doc or PDF) using to-be supplied format guidelines. The project will be broken down into phases. Requirements will be posted on Blackboard. Projects will be conducted on an individual basis and will require a thorough academic literature review.

Lab Exercise Reports
There will be several individual lab reports where students will gain hands-on experience in conducting experiments and making observations of phenomena relevant to human factors engineering. Each lab exercise will have specific objectives and report formats.

Participation
This class will require a significant time commitment in terms of interactive participation. This will be measured primarily from participation in Blackboard discussion board topics and/or class discussions.

Grading

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<th>Item</th>
<th>Points</th>
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<tr>
<td>Exam</td>
<td>30</td>
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<tr>
<td>Participation</td>
<td>30</td>
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<tr>
<td>Design/Analysis Project</td>
<td>30</td>
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<tr>
<td>Lab exercise reports</td>
<td>10</td>
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ETHICS AND CHEATING

Academic Integrity is demanded in this course and cheating will be prosecuted according to University & College policy (see section 10 of the Student Code of Conduct, [http://www.doso.wayne.edu/judicial/index.htm](http://www.doso.wayne.edu/judicial/index.htm)). Cheating includes but is not limited to GIVING or RECEIVING unauthorized help on an examination. Cheating includes the use of unauthorized material during an examination or submitting material on the lab reports or course projects which is not the result of the student’s own effort. Cheating also includes plagiarism – avoid even grey areas of plagiarism. See [http://www.otl.wayne.edu/cheating.html](http://www.otl.wayne.edu/cheating.html)

TOPIC LIST (roughly by week)
1. Introduction to Human Factors.
2. Research Methods.
5. Auditory, Tactile, and Vestibular System.
8. Displays.
9. Controls.
10. Engineering Anthropometry and Workspace Design.
12. Safety, Accidents, and Human Error.
13. Human-Computer Interaction.
14 & 15. Applications & Case Studies.