IE 327: Introduction to Work Design Course Syllabus

Course Description: Work design and measurement, applied to manufacturing and service industries, so as to improve worker performance, health, safety, and maintain productivity.

Prerequisite: IE 302 - Engineering Economy (may be taken concurrently with IE 327)


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Topic Outline
- Introduction, History
- Ethics, Pinto
- Job Analysis
- Musculo Principles
- Manual Work, Low back
- NIOSH lifting
- CTD Risk, Tools
- Workplace
- Illumination
- Noise
- Heat stress
- Info Processing
- Decision Making
- Pass back
- Coding of Information
- Visual Displays
- Auditory Displays, Speech
- HCI in Office Environment
- Implement Method
- Time Study
- Rating
- Allowances
- Standard data and Costing
- Wage Incentives
- Training, Learning Curves
- Learning Curves
- Macroergonomics
- PA Industry, Review
Homework Assignments

Homework: Homework assignments will consist of selected problems (similar to exam problems). Homework is to be done and submitted individually. Everybody is responsible for this material on exams.

Late homework or reports will not be accepted, unless certified medical proof is given. If you are unable to submit your completed homework through ANGEL, you may also submit your homework directly through email to axf@psu.edu.

Case Study Topics

- Intro, Groups, #1 - Gilbane Gold Ethics
- Job Analysis & Flow Process
- Biomech Analyses of Lifting
- CTD and Screwdriver Design
- Sensory/Environmental Analyses
- ATM Design - Info processing
- Visual Inspection - Signal Detection
- Ultrasound Transducer Design
- CPOE, Productivity, Delays, Errors
- Introduction to Time Study
- Elements and Rating
- Time Study Test
- Learning Curves

Note:
All case studies require either a full report (5%) or only the filling out of a form (2%) to be handed in at the end of the lab. The full reports will be due as indicated in the course schedule in ANGEL. The time study test will be an in-lab test performed individually with the value of one full report (i.e. 5%)

Grading Policy

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>25%</td>
</tr>
<tr>
<td>Case Studies</td>
<td>40%</td>
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<tr>
<td>(6 Reports @ 5% + 5 Forms @ 2%)</td>
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<tr>
<td>Homework</td>
<td>10%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Cheating Policy (straight from the Penn State Principles):
Cheating, defined as any attempt to represent another person's (or lab group's) work as your own, will not be tolerated in this course. Prosecution will be carried out to the fullest extent. If cheating is suspected or observed, please report it to me -- this will be kept in the strictest confidence.