

**IME 3050: Work Analysis  
Course Syllabus – Fall 2009**

**2003/2005 Catalog Data**

Methods engineering and measurement of human work systems. Techniques for operation analysis, work measurement, and work sampling. Predetermined basic motion-time systems and standard data development are introduced. NOT FOR ENGINEERING CREDIT.

**Prerequisites by Topic:**

1. Principles of objective presentation of factual material, logical organization, summarization, ethical practices, information gathering techniques, oral communications, and listening through practical applications. (IME 102)
2. Basic knowledge of spreadsheets, drafting software, presentation software, World Wide Web, and e-mail.
3. Basic knowledge of statistics; mean standard deviation, percentiles.

**Textbook:**

Niebel, Benjamin, and Freivalds, Andris (2003). Methods, Standards, and Work Design. McGraw Hill, Twelfth Edition.

**Course Instructors:**

Ms. Stephanie N. Means, Office: E-229 Parkview Campus, Phone: (269) 808-0988, FAX: (269) 276-3353, E-mail: Stephanie.means@wmich.edu Office Hours: **Monday 5-6pm, Tuesday 10:30-11:30am or by appointment.**

**Objectives:**

In accordance with the above stated course description, at the conclusion of the semester the students should have the ability to:

1. Analyze and evaluate the productivity of people and machines in manual and semi-automated environment. (a,b,e,f,j,k)
2. Design and redesign tasks and workstations to fit employees. (a,c,e,f,k)
3. Adequately apply standard work measurement techniques to various work environments. (a,b,e,f,j,k)

**Topics (Tentative):**

Wk 1 (9/7)	Introduction to Course, Historical Figures in Work Measurement
Wk 2 (9/14)	Problem Solving Process (Exploratory Tools)
Wk 3 (9/21)	Process Analysis (Recording & Analysis Tools)
Wk 4 (9/28)	Operation Analysis
Wk 5 (10/5)	Standard Written Practice & Time Study
<b>Wk 6 (10/12)</b>	<b>Time Study, EXAM I</b>
Wk 7 (10/19)	Micromotion, Film Analysis, Fundamental Hand Motion
Wk 8 (10/26)	Principles of Motion Economy
Wk 9 (11/2)	Principles of Motion Economy
Wk 10 (11/9)	Intro to Ergonomics
Wk 11 (11/16)	Ergonomics (Anthropometry)
<b>Wk 12 (11/23)</b>	<b>Predetermined Time Systems, EXAM II, Thanksgiving Recess</b>
Wk 13 (11/30)	Predetermined Time Systems,
Wk 14 (12/7)	PTS, Work Sampling
<b>Wk 15 (12/14)</b>	<b>Final Exam: Wednesday, Dec. 16<sup>th</sup> 8-10am</b>

**Evaluation:**

Exam 1, Exam 2, Final Exam	60%
Labs, Quiz & Homework	35%
Participation	5%

**Grading Scale (Tentative)**

A= 90-100, BA= 88-89.9, B= 80-87.9, CB= 78-79.9, C= 70-77.9, DC= 68-69.9, D= 60-67.9, E= Below 60

## Performance Criteria

The students should be able to:

### Objective 1

- 1.1 Accurately apply standard problem solving techniques to multiple types of work environments. (1,3,4,5)
- 1.2 Determine the appropriate type of chart to use to solve problems identified in objective 1.1 (1,3,4,5)
- 1.3 Accurately interpret data gathered from charts. (1,3,4,5)

### Objective 2

- 2.1 Collect reliable and reproducible data on humans and workstations. (2,3,4,5)
- 2.2 Accurately interpret the statistical meaning of data gathered on humans. (2,4,5)
- 2.3 Understand the ramifications (ethical and legal) of making appropriate recommendations in the workplace. (2,5)

### Objective 3

- 3.1 Accurately perform time studies on manual, semi-automated, and automated tasks. (4,5)
- 3.2 Accurately perform work-sampling studies on manual and semi-automated tasks. (4,5)
- 3.3 Accurately apply predetermined time study techniques to justify recommendations. (4,5)

## Computer Usage:

Use of PC based software (Word, Excel, Power Point) and the worldwide web is required throughout the course. All homework/class assignments will make use of these technologies in one form or another.

## Oral and Written Communications:

Effective communication (oral and written) is a requirement for success in this class. Projects will be presented on a regular basis. All homework is to be grammatically correct.

## Calculus Usage:

Calculus is not directly used in this course however may be used during elements of design in the course.

## Library Usage:

Reference material is on reserve at the library and is expected to be used to supplement the material discussed during class.

## Course Coordinator:

Dr. T.K. Fredericks, Department of Industrial and Manufacturing Engineering. Office: E-223 Parkview Campus, Phone: (269) 276-3360, FAX: (269) 276-3353, E-mail: [tycho.fredericks@wmich.edu](mailto:tycho.fredericks@wmich.edu).

## Class Policies:

1. All tests will be closed book, closed note type.
2. No make up tests will be given.
3. Late assignments and lab reports will not be accepted.
4. One test score can be dropped. The mean of the other two will be used in the calculation of the exam grade.
5. Failure to have a passing average on the exams/final will result in automatic failure in the class.

## Attendance:

Attendance will not be taken, however it is suggested that you attend all scheduled lectures since much of the material covered in class will supplement the text material. You are responsible for all of the assigned reading plus the information covered in lecture.

## Individual Work

All students are expected to do their *own work* on each exam, homework assignments, and lab project unless specifically instructed to work in-groups. Anyone that does not follow this policy will be given a zero for the assignment and will be recommended for dismissal from the course.