Southern Illinois University

Motion & Time Study

IT 382/494a Syllabus
Fall 2009

Instructor: Mr. Tim Myers
Visiting Instructor
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I. COURSE NUMBER AND TITLE: :IT 382 / 494a Motion & Time Study

II. PREREQUISITE:

None: Students should be familiar with basic Algebra and Excel Spreadsheets

III. DESCRIPTION OF COURSE:

The course will be structured around classroom study as well as a project demonstrating proficiency in the application of principles and practices of motion and time, including process charts, operation charts, motion summary and time standards.

IV. TEXTBOOK:

Motion and Time Study for Lean Manufacturing by Fred E. Meyers, Fred E. E. Meyers, Publisher: Prentice Hall,
ISBN-13: 9780130316707

V. COURSE OBJECTIVES:

This objective of this course is to expose students to modern motion and time study techniques and to gain an understanding of how motion and time study is used in management of industrial operations and workstation design and development in a factory and office environment. It will explore time study techniques and their interrelationship with modern lean manufacturing principles, operations analysis and improving operations through the application of ergonomics, time standards, motion economy and design

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VI. INSTRUCTIONAL FORMAT:

This is a weekend format two classes (Saturday and Sunday) for three alternating weekends. There will be classroom discussion with 3 exams and

an applied project. The instructor will provide assistance and guidance as required.

VII. EVALUATION:

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Exam 1 Chapters I & V	(Afternoon, 1st Sunday)	20%
Exam 2 Chapters VI & X	(Afternoon, 2nd Sunday)	20%
Exam 3 Chapters XI & XV	(Afternoon, 3rd Sunday)	20%
Class Project	(Second Saturday)	10%
Applied Project	(3rd Sunday)	20%
Homework		10%

Textbook Material:
Exams will be multiple-choice with approximately 20-30 questions selected directly from the text. The topics will be covered during in class discussions. The exams will account for 60% of the student's grade.

Applied Project
An applied project demonstrating the application of the operation analysis and design tool set will account for 20% of the student's grade. In order to ensure that students have the necessary flexibility to complete their projects two options will be made available for students: Option 1 – Complete an individual project. Option 2 – Complete a project in a class group not to exceed 3-4 members.

Project Guidelines
The specific aspect of the project will be defined via an instructor handout. A basic overview is: The student will be required to conduct a time study and motion analysis, and apply the tools and principles learned throughout the course in the building of a utility knife and design and development of the workstation. Additionally, an in class presentation will be required as well as an individual paper.

Homework
Homework will consist of a presentation/paper (to be defined by the instructor) discussing in detail a technique/concept covered in class..

VIII. GRADING STANDARDS:

A:	90-100%
B:	80-89%
C:	70-79%
D:	60-69%
F:	<60%

IX. GRADING POLICY: Missed exams have a 20% penalty unless an appropriate, prior excuse is given to the instructor. The missed exam must be completed on the make-up date set by the instructor.

X. ACADEMIC CONDUCT: Cheating on examinations, submitting work of other students as your own, or plagiarism in any form will result in penalties ranging from an F on the assignment to expulsion from the university, depending on the seriousness of the offense.

XI. INSTRUCTOR AVAILABILITY:

The best way to communicate with the instructor is by e-mail. The instructor is also available by phone if necessary. Students are encouraged to discuss problems as they arise, before they become major problems. The instructor will also periodically make his self available prior to or after class if you would prefer to meet face-to-face. Please try to schedule these sessions in advance.
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MAJOR TOPICS:

Introduction to Motion and Time Study
Motion and Time Study for the Lean Environment
Approaches to Quality Measurement and Improvement
Planning and Scheduling the Production System
The Use of Motion Study Tools to Improve the Environment
Measures of Performance within the Lean Environment
History of Motion and Time Study
The Importance and Uses of Motion and Time Study
What Is a Motion Study?
The Importance and Uses of Motion Study
What Is a Time Standard?
The Importance and Uses of Time Study
Techniques of Time Study
Techniques of Methods Design: The Product Flow Macromotion
Flow Diagrams
Step-by-Step Procedure for Developing a Flow Diagram
The Operations Chart
Step-by-Step Procedures for Preparing an Operations Chart
Process Chart
Step-by-Step Description for Using the Process Chart
Flow Process Chart
Work Cell Load Chart
Route Sheet
Techniques of Micromotion Study: Operations Analysis
Operations Analysis Chart

Operator/Machine Chart
Gang Chart
Multimachine Chart
Left-Hand/Right-Hand Chart
SIMO Chart
Motion Study: The Work Station Design
Work Station Design
Principles of Motion Economy
Motion Patterns
Predetermined Time Standards (PTS) Systems
Introduction
Methods Time Measurement (MTM) Family
MODAPTS
Predetermined Time Standards System (PTSS)
Stopwatch Time Study
Tools of Stopwatch Time Study
Time Study Procedure and the Step-by-Step Form
Rating Leveling and Normalizing
100% Standards and Experiments
Time Study Rater Trainer Form
Allowances
Foreign Elements
Long Cycle Time Study
Vertical Time Study Form and Problem
Time Study Practices and Employee Relations
Standard Data and Its Uses in Balancing Work
Methods of Communicating Standard Data Time Standards
Work Cell, Assembly Line, and Plant Balancing
Work Sampling
Elemental Ratio Studies
Performance Sampling Studies
Time Standard Development Studies
Process Effectiveness Studies
Indirect Labor and Motion and Time Study
Developing Measures/or Indirect Labor
Material Handling
Quality Control
Manufacturing Plant and Industrial Engineering
Supervision

Maintenance and Tooling
Warehousing and Shipping
Receiving and Stores Department
Factory/Clerical
Performance Control Systems
The Functions of Any Control System
Expert Opinion Standards System
Backlog
Time Card System
Wage Payment Systems
Salaries: Hourly, Weekly, or Monthly
Incentive Systems and Commissions