

TECHNOLOGY 442 – Work Simplification and Measurement

2006-07 Catalog Data: TECH 442 Work Simplification and Measurement (3 Credits)

Catalog Description: Techniques for standardizing and improving methods. Procedures for measuring work and developing time standards in production and service activities.

Prerequisites: None

Co-requisites: None

Textbook:

- Meyers, F. E., & Stewart, J.R. (2001). Motion and Time Study. N. Y.: Prentice Hall.

Reference Materials:

- Sullivan, et all (2002) Hyde's MODAPTS ANZMA

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Course Meetings: Monday and Wednesday 1230-145

Course Objectives:

Upon completion of the course, the student-analyst, will:

- 1 Analyze the operations through charting present and proposed processes and report findings.
- 2 Analyze the tasks involved in an operation involving multi-man and multi-machine conditions.
- 3 Create and record the data required for a time study, including elemental times, ratings, and allowances.
- 4 Combine time studies statistically into standard data.
- 5 Utilize Predetermined Time Standards (MODAPTS) to evaluate standard data, including understanding the principles of PDTS systems.
- 6 Verify standard data with work sampling.
- 7 Write, index, and maintain the documents commonly found in a Methods and Standards group
- 8

- 9 Integrate the techniques of traditional approaches with current ergonomic issues.
- 10 Discuss the disadvantages and advantages of incentive systems.

Evaluation:

EXAM 1	10%
EXAM 2	10%
FINAL	20%
INDIVIDUAL PROBLEMS	30%
PAPER 1	10%
PAPER 2	15%
ATTENDANCE	15%

Class Policies:

Homework Assignments

Readings to be completed prior to class session.

Case Studies during which students construct, assess and critique analyses of a problem requiring appropriate tools from the class studies. At summary of findings and class report is made by each group of three or four these case studies may involve analysis of a described event or reconstruction of a process through assessment of the product. Due one week after assignment

Assignments requiring the student to use the appropriate calculation techniques to provide numerical answers. Tabular format and charts are required. Due one week after class session

Internet Activities requiring the student to utilize www, ftp, university newsgroups, internet newsgroups, manufacturing chat rooms, email, and computer lab facilities. Printouts are collected.

Research topics requiring the student to research one methods improvement topic and one historical topic. Short reports are collected.

Special Requirements:

Students will utilize Blackboard for communication.

Course Outline

Date	Week	Assignment Topic	Preparation (Meyers)
Jan 24	1	Relevance of methods to today's needs Levels of work Product process chart Flow process chart History	Chapter1 Chapter17 Chapter5 Chapter2
Jan 24	2	Working conditions Work physiology Macro considerations	Outside Text
METHODS IMPROVEMENT AND PROCESS CHART			
Jan 31	3	The machine relationship and process chart Gang process cycles PROJECT PAPER DUE	Chapter6
Feb 7	4	Machine relationship chart project Line balancing Description of electronics assembly	
Feb 14	5	Principles of motion economy Micro-motion Study	Chapter7
Feb 21	6	Video Techniques TAPE STUDY OF OPERATION PROJECT NIOSH, anthropology and human factors	
MOTION ECONOMY PRINCIPLES			
Feb 28	7	Project outline due METHODS PRESENTATION EXAM 1, Methods improvements	
Mar 7	8	Work sampling work sampling statistics WORK SAMPLING Simulation & indirect	Chapter11 Chapter15, 16

		standards	
Mar 28	9	Time study introduction Time study elements Problems in elemental measuring Rating techniques Rating films	Chapter3, 4, 9
Apr 4	10	TIME STUDY PROJECT Rating films Allowances and standard time Assembly line balancing TIME STUDY EXAM 2	Chapter12 Chapter14
Apr 11	11	Standard data PDTS PDTS Project	Chapter10 Chapter8
Apr 18	12	MODAPTS	Online
Apr 25	13	MODAPTS	Online
Apr 25	14	MODAPTS Project paper	Online
May 2	15	Incentives Work measurement and quality	Chapter13
May 8	16	Final Exam and Conclusions	