WORK DESIGN AND ANALYSIS
IE 441
LABORATORY MANUAL

LAB – 4

TIME STUDY

INDUSTRIAL ENGINEERING DEPARTMENT
COLLEGE OF ENGINEERING
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LAB # 4 TIME STUDIES

Objectives:

The objective of this lab is to give you some practical experience in time study.

You will see a video of short cycle task, divide the task shown video into elements, collect pilot data, and then process that data to find standard time for the task.

Introduction:

Time study is used to determine the time required by a qualified and well-trained person working at a normal pace to do a specified task.

Time study is the technique for establishing an allowed time standard to perform a given task. This technique is based upon measurement of the work content of the prescribed method, with due allowance for fatigue, and for personal and unavoidable delays.

The result of time study is the time that a person suited to the job and fully trained in the specified method will need to perform the job if he works at a normal or standard speed. This is called standard time.

Methodology:

1. Familiarize yourself with the stopwatch (OR windows movie maker software).
2. Observe the task (i.e. IE441_Lab Video)
3. Divide all manual work into elements (Fundamental hand motion or Therbligs), and write down on your time study form.
4. Collect the pilot data. Make sure to make appropriate notation about any parts of the task that are not usual.

Data Analysis:

1. Determine mean time and standard deviation for each element.
2. Based on this pilot data, determine the number of cycles to observe for a full time study.
   a. How many cycles should you study for 95 percent confidence level and a precision of ± 5 %
   b. How many cycles should you study for 95 percent confidence level and a precision of ± 10 %
3. Assume that you conducted your actual time study, and average cycle time turned out to be the same as from the pilot study you have conducted….
4. Performance rating is a part of the time study process. What rating would you provide to supplement the time data you collected? (How much did the operator produce during the time you made your observations, relative to what you would expect from a "normal" operator?) [Show all your work]
5. In order to calculate the standard time for the task, allowances are typically added. What allowances do you think should be included for this particular task? (Briefly explain your response.)

6. Calculate the standard time for the task. (Show your all work in details)
7. What would the hourly production rate be for one operator? (Show your all work in details).

Format for Lab Report:

- Cover Page is Title page as your choice.
- Introduction (not more than 5 lines)
- Methodology
- Data Analysis
- Details about performance rating & allowance you had considered for time study
- Calculations
- Result & Conclusion