IE223L Workstudy and Methods Engineering

Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Program: BS Industrial Engineering

## Lab 02: Stop – watch time study of simple assembly operations through scientific method principle of Taylor.

## Apparatus:

1. Ball point
2. Stop watch
3. Table and chair

## Principle

There is one best way to do a job and that this way should be discovered and put into operation.

## Theory:

## Time Study

A work measurement technique consisting of careful time measurement of the task with a time measuring instrument, adjusted for any observed variance from normal effort or pace and to allow adequate time for such items as foreign elements, unavoidable or machine delays, rest to overcome fatigue, and personal needs.

Time study is a direct and continuous observation of a task, using a time keeping device (e.g., decimal minute stopwatch, computer-assisted electronic stopwatch, and videotape camera) to record the time taken to accomplish a task and it is often used when:

* There are repetitive work cycles of short to long duration,
* Wide variety of dissimilar work is performed, or
* Process control elements constitute a part of the cycle.

## Standards

Standards are the end result of time study or work measurement that is done through stopwatch or any other time measuring technique.

## Standard time

In industrial engineering, the standard time is the time required by an average skilled operator, working at a normal pace, to perform a specified task using a prescribed method. It includes appropriate allowances to allow the person to recover from fatigue and, where necessary, an additional allowance to cover contingent elements which may occur but have not been observed.

The standard time can be determined using the following techniques:

* Time study,
* Predetermined motion time system aka PMTS or PTS,
* Standard data system,
* Work sampling.

The Standard Time is the product of three factors:

* Observed time: The time measured to complete the task.
* Performance rating factor: the pace the person is working at. 90% is working slower than normal, 110% is working faster than normal, 100% is normal. This factor is calculated by an experienced worker who is trained to observe and determine the rating.
* The standard time can then be calculated by using Personal, Fatigue, and Delay (PFD) allowance.

Standard Time = (Observed Time) (Rating Factor) (1+PFD Allowance)

Methods engineering **is** the analysis and design of work methods and systems, including the tooling, equipment, technologies, workplace layout, plant layout, and the work environment. Methods engineering is the systematic close scrutiny of all direct and indirect operations to find improvements that make work easier to perform, in terms of worker health and safety, and also allow work to be done in less time with less investment per unit (e.g., greater profitability).

Other names for Methods Engineering:

* Work Study
* Work Simplification
* Methods Study
* Process Re-Engineering
* Business Process Re-Engineering

Methods Engineers use a systematic procedure to develop a work center, produce a product, or provide a service.

## Objective:

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## Procedure:

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## Observations

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| **Sr #** | **Operator** | **Time Noted for Random method** | **Time for standard method** | **Difference** |
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## Comments:

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