

WORK DESIGN AND ANALYSIS
IE 441
LABORATORY MANUAL

LAB – 2

OPERATION ANALYSIS



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LAB # 2 OPERATION ANALYSIS

The Operator Process Chart (Operation Chart or Left-hand / Right-hand Chart) is used to record observations during a motion study. This operation chart and motion study are used to improve the balance of the workload between hands, eliminate or reduce inefficient movements, train new operators, and document and explain new methods.

The principal purpose of such a chart is to assist in finding a better way of performing the task this chart also has definite value in training operators. Operation chart is an essential tool for anyone concerned with the design of methods, tooling and equipment, material-handling facilities, work cell layout and human motion study. It can be used on all types of operations, but it is most applicable for short-cycle, high volume, and uniform-method jobs.

Objective:

The objective of Lab #2 is to give you some practical experience in observing and documenting a hand-intensive task, analyzing the task's value adding & non-value Adding motions.

How to do it: -

1. Familiarize yourself with motion analysis.
2. Observe the bolt and washer assembly task performed by the person in front of you in the lab.
3. Then draw a sketch of work place for current work method, indicating the contents of the bins and the location of tools and materials.
4. Then watch the operator and make a note of his or her motions, observing one hand at a time.
5. Record the motions or elements for the left-hand on the left-hand side of a sheet or paper, and then in a similar manner record the motions for the right-hand on the right-hand side of the sheet. (because it is hardly ever possible to get the motions of the two hands in proper relationship on the first draft, it is usually necessary to redraw the chart)
6. If you are watching the operation as it happens, you may want to repeat the analysis several times to ensure you have captured the normal chain of events.
7. Analyze the final chart, for non-value-adding activities such search, unnecessary movement, as storage, movement and inspection.
8. Discuss those aspects of current method that can be improved.

Format for Lab Report:

Cover Page is Title page in any format.

- Introduction to operation analysis.
- Brief introduction that explains the task you had studied.
- Current method information as explain above.
 - o Sketch of layout.
 - o Operator process chart (operation chart).
 - o Determine the Value adding & non-Value Adding activities.
- Analysis – Explain aspects of current method that can be improved (on basis of principle of motion economy).
- Conclusion – what you conclude about operation analysis.

LAB # 2 OPERATION ANALYSIS (WORK SHEET)

Layout for Bolt & Washer assembly:-

