

# **Department of Mechanical Engineering, PSIT Kanpur**

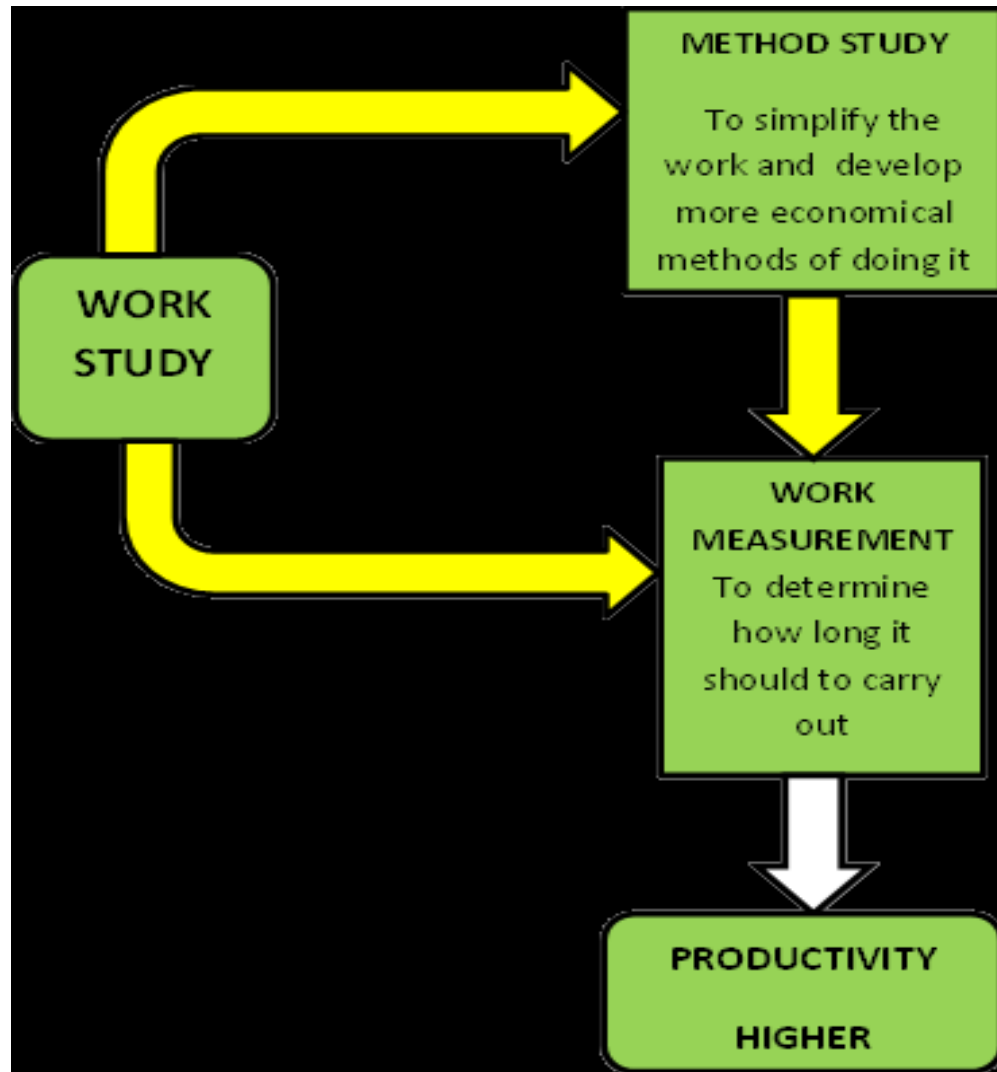
**RAS\_601\_20200325 DAY-2**

## **UNIT-3 WORK STUDY**

**INDUSTRIAL MANAGEMENT (RAS 601)**

**ME/CS/IT/EN/EC**

# Work Study



**Work Study:** Work study is one of the most important management techniques which is employed to improve the activities in production.

# Work Study

## ***Method study***

*It is the systematic recording & critical examination of existing and proposed ways of doing work, as a means of developing and applying easier and more effective methods and reducing cost.*

## ***Work measurement / Time study***

*It is the application of techniques designed to establish the time for a qualified worker to carry out a specified job at a defined level of performance*

## Objectives of Work Study

- To analyze the present method of doing the job in order to develop a better method.
- To measure the work content of the job by measuring the time required to do the job for a qualified worker and hence to establish the standard time.
- To increase the productivity by ensuring best possible use of human, machine and material resources and to achieve best quality product/service at minimum possible cost.
- To improve operational efficiency.

# WORK STUDY PROCEDURE



## *Benefits of Work study*

- Increased productivity and operational efficiency
- Reduced manufacturing cost.
- Improved work place layout.
- Better manpower planning and capacity planning
- Fair wages to employees.
- Better working conditions to employees
- Improved work flow.
- Reduced material handling cost.
- Provides a Standard of Performance to measure labour efficiency.
- Better Industrial Relations and Employee morale.
- Basis for sound incentive schemes.
- Provides better job satisfaction to employees

# Method Study

***Method Study:*** is a technique to reduce the work content by analyzing each operation of a given piece of work very closely in order to eliminate unnecessary operations/movements by workers, materials or equipment's. It includes **standardization of equipment, method and working conditions, and training the operators to follow the standard method.**

***Definition of Method study:*** Method study can be defined as “Systematic recording and critical examination of existing and proposed ways of doing work, as a means of developing and applying easier and more effective method and thereby reducing costs”.

## *Method Study Objectives*

- Improvement of processes and procedures so as to improve productivity and thereby reduce operating cost.
- Improvement in the design of plant and equipment.
- Improvement of layout.
- Improvement in the use of men, materials and machines.
- Economy in human effort and reduction of unnecessary fatigue.
- To Standardize work methods or processes, machinery, equipments and tools.
- Development of better working environment



# *Method Study - Benefits*

1. Work Simplification
2. Improved working method
3. Better product quality
4. Improved workplace layout
5. Improved equipment Design.
6. Better working conditions/environment
7. Better materials handling and lesser material handling cost.
8. Improved work flow
9. Less fatigue to workmen.
10. Optimum utilization of all resources.
11. Shorter production cycle time.
12. Higher job satisfaction for workmen.
13. Reduced material consumption and wastages.
14. Reduced manufacturing cost and higher productivity.

# *Method study - Methodology*



Procedure to accomplish method study, called "**SREDIM**" shall be as follow:

- 1. Select:** the job or operation that needs improvement,
- 2. Record:** all facts, how work is done by chart methods,
- 3. Examine:** every aspect of the job by asking; what, why, where, when, who and how
- 4. Develop:** review ideas, eliminate, simplify, combine, rearrange, make new method which more safe, chart new method, submit for approval,
- 5. Install:** the new method, consider best time to introduce, convince all, train users,
- 6. Maintain:** check frequently, match results, correct deviations.

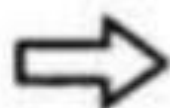
# METHOD STUDY SYMBOLS



**OPERATION**



**INSPECTION**



**TRANSPORTATION**



**DELAY**



**STORAGE**



**Combined Activity**

# RECORDING TECHNIQUES

## ➤ **CHARTS**

- ✓ *Macro-motion charts*
- ✓ *Micro-motion charts*

## ➤ **DIAGRAMS**

- ✓ *Flow & String diagrams*
- ✓ *Cycle graph & Chronocycle graph*

## SELECTION: FACTORS TO BE CONSIDERED

- Economical considerations: The cost of study , loss of time due to investigation, costs short term and long term associated with prospective changes in the recommended working method of the job should be carefully estimated and examined .

Based on economical considerations the following jobs are selected :

- (a) Operations having bottlenecks(which hold up production)
- (b) Operations done repetitively
- (c) Operations having a great amount of manual work.
- (d) Operations where materials are moved for a long distance.

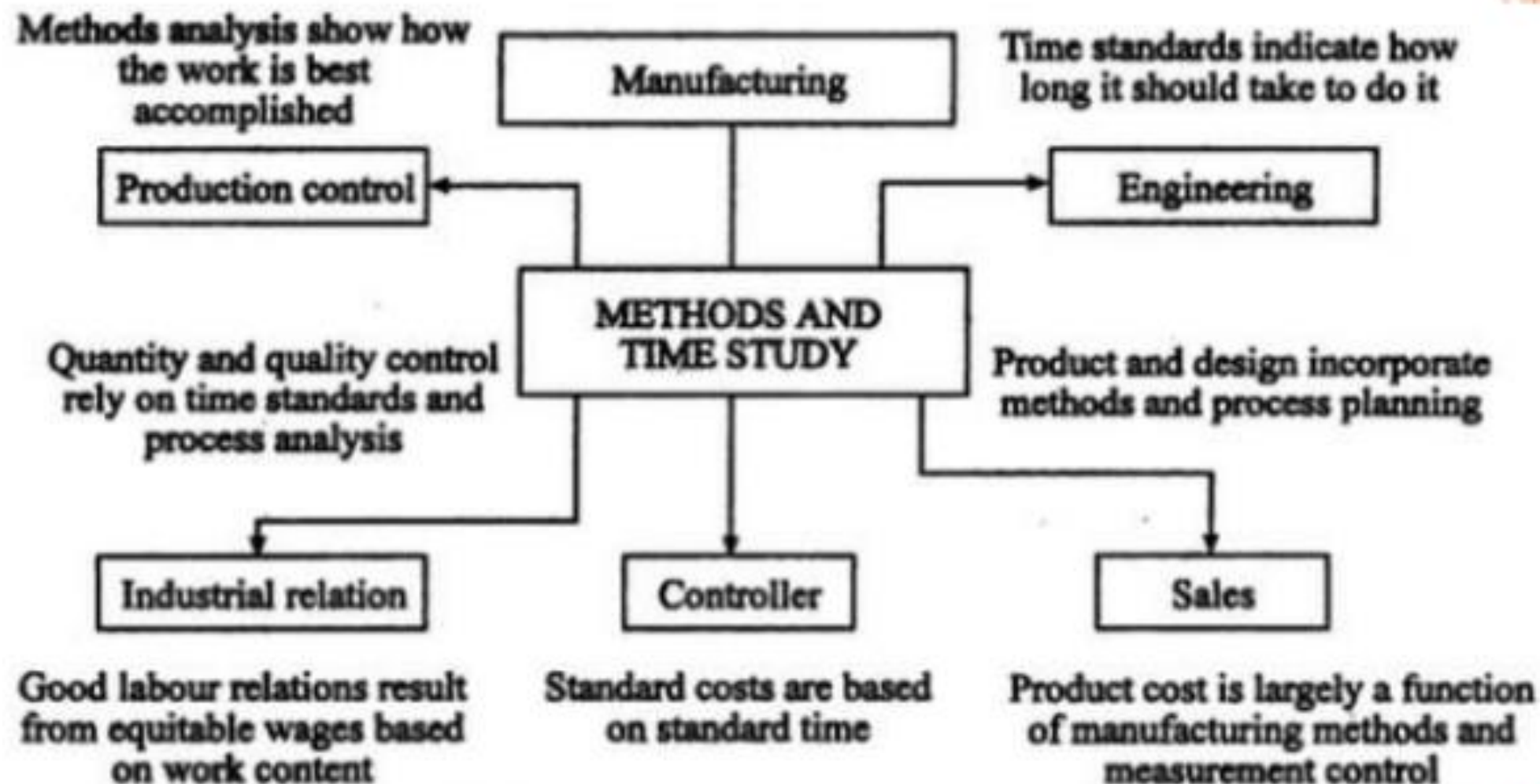
➤ Technical considerations: The important point is to make sure that adequate technical knowledge is available with which to carry out the study.

Examples:

A machine tool constituting a bottleneck in production is known to be running at a speed at which the high speed or ceramic cutting tools will not operate effectively. Can it be speeded up or is the machine itself not robust enough to take faster cut?. This calls for advice of a machine tool expert.

➤ Human reactions : These are the most important considerations to be made, since mental and emotional reactions to investigation , and change of method has to be anticipated. Trade Union representative have to be educated on the general objectives of the method study. If however the study of a particular job is creating unrest or ill feeling amongst the workmen ,leave it alone however promising it may be for economic point of view.

## INFLUENCE OF METHOD & TIME STUDY IN PRODUCTION ACTIVITIES





*Thank You*