

<h1>SRI</h1>		ISO 9001: 2015 Quality Management System Quality Procedure Manual	
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## Procedure for Time study - Operation

**Definition** : Time Study 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.*”

**Scope** : Any specified Job at a defined level of performance in operation management

**Requirement:** Time study or work measurement is essential for both planning and control of operations.

**Technique** : Stop watch time is the basic technique for determining accurate time standards.

### a) PROCESS STEPS of TIME STUDY

1. Select the work to be studied.
2. Obtain and record all the information available about the job, the operator and the working conditions likely to affect the time study work.
3. Breakdown the operation into elements. (one or more fundamental motions selected for convenience of observation and timing ).
4. Measure the time by means of a stop watch taken by the operator to perform each element of the operation.
5. At the same time, assess the operators effective speed of work relative to the observer's concept of 'normal' speed. This is called performance rating
6. Adjust the observed time by rating factor to obtain normal time for each element
7.  $\text{Normal} = \text{Observed time} \times \text{Rating}$  100
8. Add the suitable allowances to compensate for fatigue, personal needs, contingencies etc. to give standard time for each element.
9. Compute allowed time for the entire job by adding elemental standard times considering frequency of occurrence of each element.
10. Make a detailed job description describing the method for which the standard time is established.
11. Test and review standards wherever necessary.

### b) Computation of Standard time

Standard time is the time allowed to an operator to carry out the specified task under specified conditions and defined level of performance. The various allowances are added to the normal time as applicable to get the standard time .

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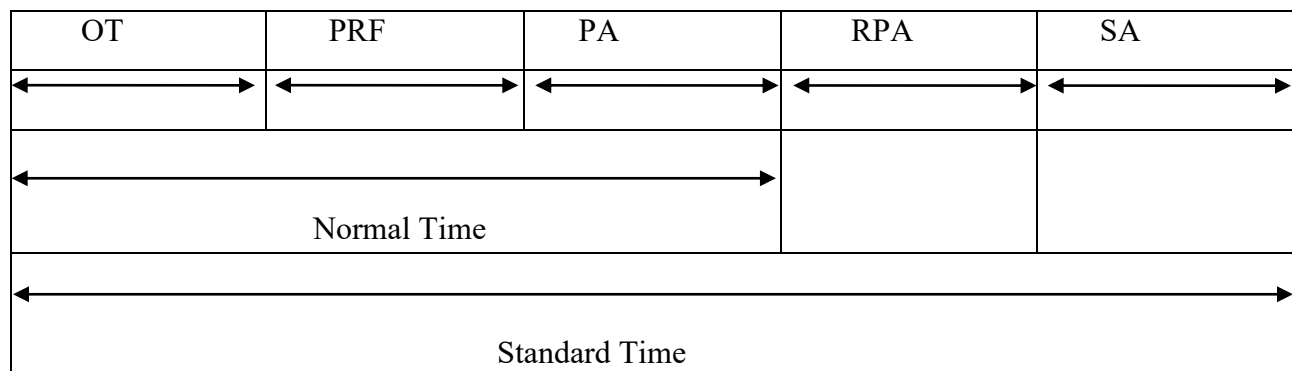
Standard time may be defined as the, amount of time required to complete a unit of work:

1. under existing working conditions,
2. using the specified method and machinery,
3. by an operator, able to the work in a proper manner,
4. at a standard pace.

c) Basic constituents of standard time are:

1. Observed Time
2. Performance rating to compensate for difference in pace of working.
3. Relaxation allowance.
4. Interference and contingency allowance.
5. Policy allowance.

### *Components standard time*



- OT –Observed Time
- PRF – Performance Rating Factor
- NT – Normal Time (Normal time for an operation does not contain any allowances for the worker.
- PA – Process Allowances
- RPA – Rest and Personal Allowance
- SA- Special Allowances

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## ALLOWANCEES IN COMPUTATION of STANDARD TIME

- i. Some allowance must be made for recovery from fatigue and for relaxation.
- ii. Allowances must also be made to enable the worker to attend to his personal needs. The allowances are categorized as:
  - A. Relaxation allowance,
  - B. Interference allowance,
  - C. Contingency allowance.

### A. RELAXATION ALLOWANCE

Ai. Relaxation allowances are calculated so as to allow the worker to recover from fatigue.

Aii. Relaxation allowance is a addition to the basic time intended to provide the worker with the opportunity to recover from the physiological and psychological effects of carrying out sp

Aiii. The amount of allowance will depend on nature of the job.

Aiv. Relaxation allowances are of two types:

fixed allowances

variable allowances.

Av. Fixed allowances constitutes:

#### a. Personal needs allowance:

It is intended to compensate the operator for the time necessary to leave, the workplace to attend to personal needs like drinking water, smoking, washing hands.

Women require longer personal allowance than men.

A personal allowance is 5% for men, and 7% for women.

#### b. Allowances for basic fatigue:

This allowance is given to compensate for energy expended during working.

Common figure considered as allowance is 4% of the basic time.

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#### Avi. Variable Allowance

- a. Variable allowance is allowed to an operator who is working under poor environmental conditions that cannot be improved, added stress and strain in performing the job.
- b. The variable fatigue allowance is added to the fixed allowance to an operator who is engaged on heavy work and working under abnormal conditions. The amount of variable fatigue allowance varies from operation to operation.

#### B. INTERFERENCE ALLOWANCE

- a. INTERFERENCE ALLOWANCE It is an allowance of time included into the work content of the job to compensate the operator for the unavoidable loss of production due to simultaneous stoppage of two or more machines being operated by him.
- b. This allowance is applicable for machine or process controlled jobs.
- c. Interference allowance varies in proportion to number of machines assigned to the operator. because interference of the machine increases the work content.

#### C. CONTINGENCY ALLOWANCE

- a. A contingency allowance is a small allowance of time which may be included in a standard time to meet legitimate and expected items of work or delays.
- b. Contingency allowance provides for small unavoidable delays as well as for occasional minor extra work:

examples

Tool breakage involving removal of tool from the holder and all other activities to insert new tool into the tool holder.

Power failures of small duration.

Obtaining the necessary tools and gauges from central tool store.

Contingency allowance should not exceed 5%.

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