

## CHAPTER-5

### PLANT LAYOUT

Plant layout means the disposition of the various facilities (equipment, material, manpower etc.) and services of the plant within the area of site located.

#### Objectives

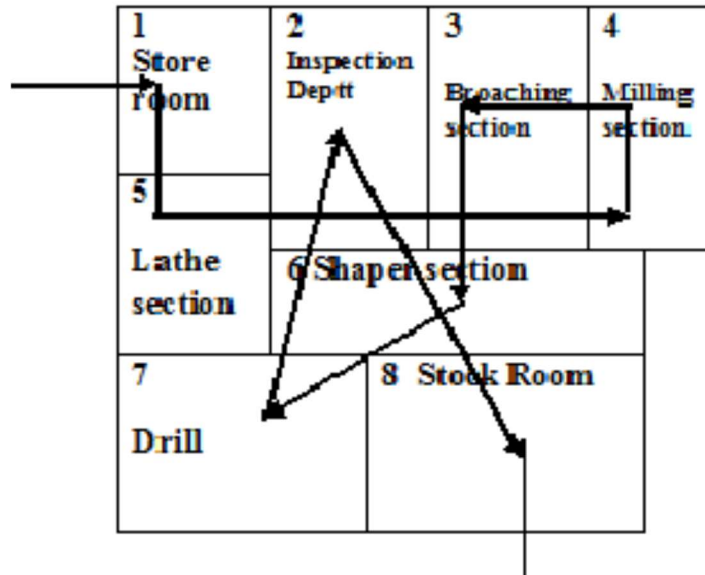
1. Material handling and transportation is minimized and effectively controlled.
2. Bottlenecks and points of congestions are eliminated (by line balancing) so that the raw material and semi-finished goods move fast from one workstation to other.
3. Workstations are designed suitable and properly.
4. Suitable spaces are allocated to production centers and service centers.
5. The movements made by the workers minimized.

Layout can be classified into the following four categories:

- a. process layout
- b. product layout
- c. Group layout(combination layout)
- d. Fixed position layout

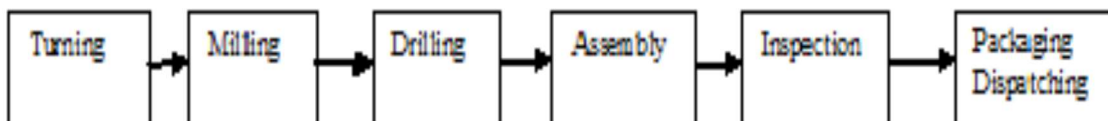
#### **a. process layout:**

- It is also known as functional layout.
- Here similar machines and services located together Ex. All the lathe machines will be at one place and all milling machines at another place and so on.
- This type of layout generally employed for industries engaged in job-shop production and non-repetitive kind of production.
- When there variety of products manufactured at low volume we prefer this type of layout.
- Ex. furniture manufacturer company, restaurant etc.



## b. Product layout

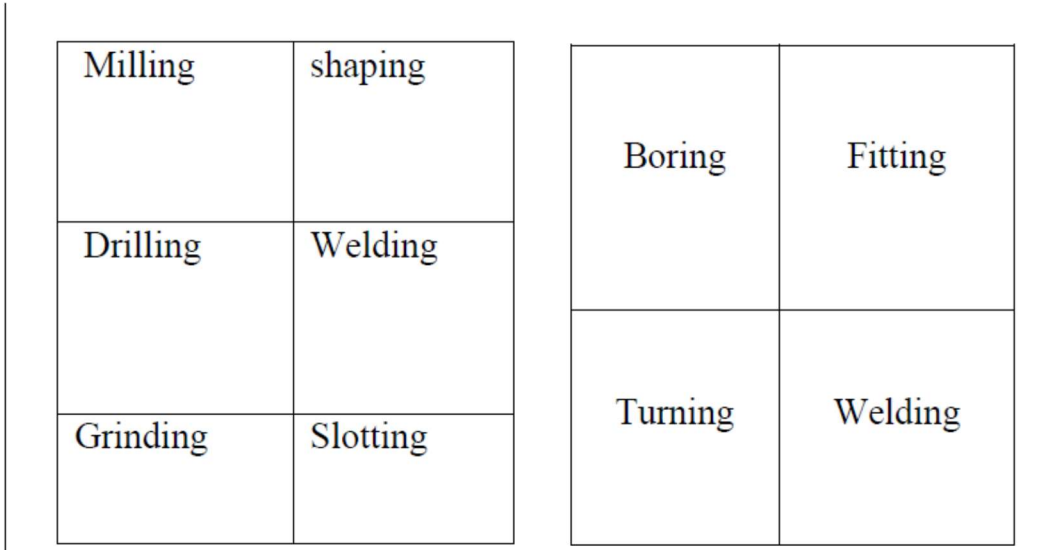
- It is also known as line (type) layout.
- The flow of product will smooth and logical.
- When the machines and auxiliary services are located according to the processing sequence we prefer this layout.
- It implies that various operations raw material are performed in a sequence and the machines are placed along the product flow line.
- The product layout is selected when the volume of production of a product is high such that separate production line to manufacture it can be justified.
- Assembly line production or mass production prefer this type layout. Ex. Assembly of television sets assembly of computer key-board etc.



## c. Group layout:

- It is the combination of both process and product layout.

- In this type of layout a set of machinery or equipment is grouped together in a section so that each group of machines or equipment is used to perform similar operations to produce a family of components. These machines grouped in to cells.
- It minimizes the sum of cost of transport and the cost of equipment.



#### d. Fixed position layout

It is also called static product layout in which the physical characteristics of the product dictate as to which type of machine and men are brought to the product.

This type layout is inherent in ship building , aircraft manufacture and big pressure vessels fabrication.

In other type layout the product moves past stationary production equipment where as in this case men and equipment are moved to the material at one place and the product is completed at the place where the material lies.

