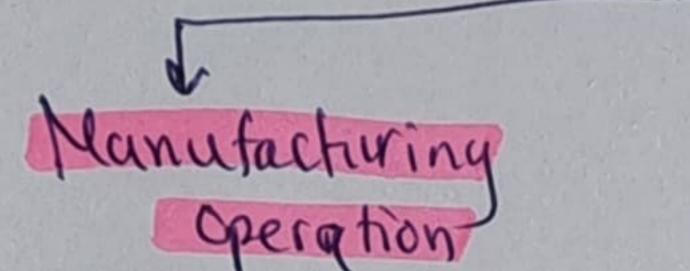
## Chill Introduction to manufacturing System

Definition: A collection of integrated equipment of human resources, who's to perform one or more processing assembly operation. 

\* value added work.

(Production System)



(machining/material removal) \* milling \* Drilling \* turning

joining swelding \* screwing

handling Process \* Gilipping \* Moving

function

Assembly

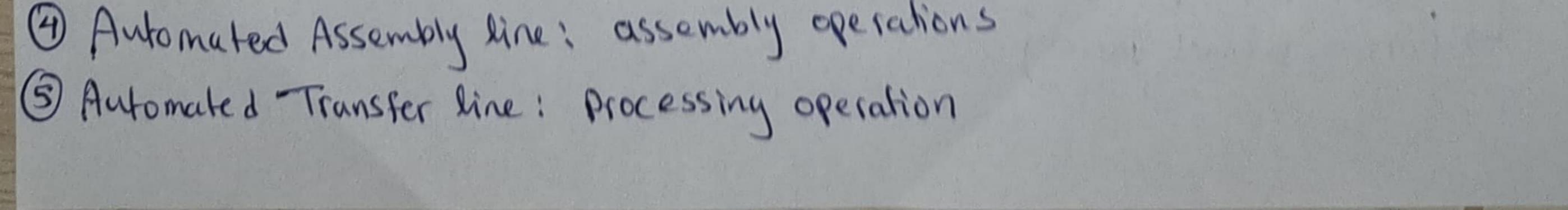
Operation

· Manufacturing System equipment: > Production machine & tools Haterial handling & work positioning (load, unload, transport) Gomputer systems

\* High production volume => (fixed routing)

\* High Flexible variety => (variable routing)

- Systems • Examples of manufacturing
  - > Single Station cells
  - A Machine clusters
  - G Manual assembly line Automated transfer line
- p Automated Assembly system Machine cells (cellular manufacturing) Flexible manufacturing Systems.
- O single-station cell : one worker -> one production machine -> operates on semautomatic cycle
- O Machine cluster: one worker -> group of Semi-automatic machine.
- (3) Manual Assembly line: production line -> series of work station assembly operation by humans

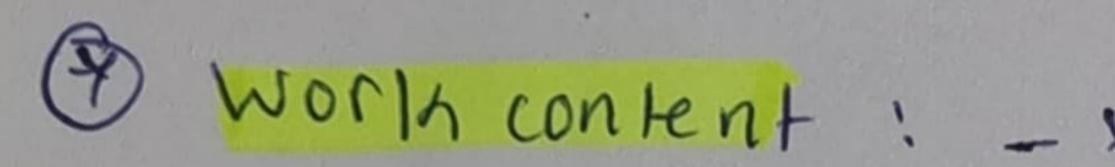


Nuchine cell : Operations on a family of Purts/products
Flexible manufacturing System (FMS) : Highly automated machine cell that produces parts/product family
Component of a Manufacturing System:
Production machine, 10015-- @Material handling system ③ computer system
Human workers

· Classification of production machines:

- Manually automated machines (worker) => machine provides the power, worker provides the control
  Semi-Automated machines (Automation & worker) => portion of workcycle
  Fully-Automated meching (ONLY Automation) => more than one cycle
- Work station: A location in the factory where task or operation is accomplished \* A system & multiple workstations is called a production line, machine cell.
  Work transport blw stations:
  If fixed routing: work units flow through the same sequence worth unit moved through
  - Most production line
- worth unit moved through a variety of diff. station - Most job shops
- · computer functions in a manufacturing system:
  - instruction to workers Download Part Program
  - Schedule production QC operation mangement
- · Factors that define & distinguish manufacturing systems:
  - > Types of operation performed (assembly / process)
  - > no. of workstations
  - -> System layout
  - > Automation 4 manning Level
  - > Part of product variety

## 7 n=1 (Single station)



## · Part or product variety: Flexibility Thee cases:

(D single - model case

\* n1, workload capacity 1, higher production 1 rate WORKLoad : is the amount of processing or assembly accomplished by system, in terms of time required to perform the work. - Sum of the cycle times of all worth unit completed by the system

Derth content : - total time of all work donent - performed on the line to make one unit of product

(2) Batch-model case Ghard product variety

3 Mixed model case 9 Soft product variety

