CAD/CAM 23ME506

Topic: Unit-IV

GROUP TECHNOLOGY

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Unit 4

GROUP TECHNOLOGY

GROUP TECHNOLOGY

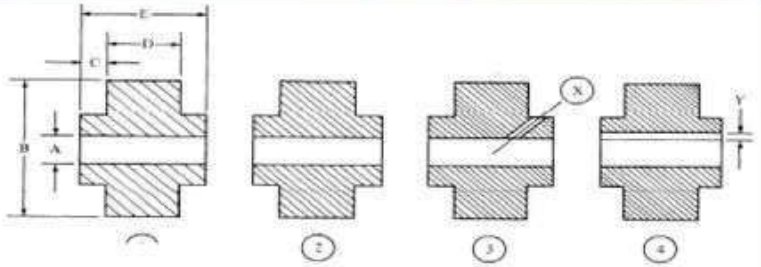
- Group Technology or GT is a manufacturing philosophy in which the parts having similarities (Geometry, manufacturing process and/or function) are grouped together to achieve higher level of integration between the design and manufacturing functions of a firm.

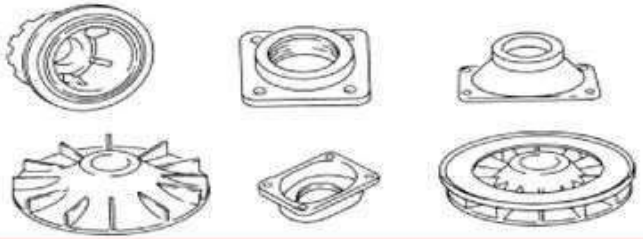
- The group of similar parts is known as part family and the group of machineries used to process an individual part family is known as machine cell.

Part Families

A part family is a collection having similar:

Design Characteristics
(Geometrical Features)





Manufacturing Processes
(Process Similarity)

Three methods for identifying parts families

- **Visual inspection**
- **Classification and coding**
- **Production flow analysis**

1.Visual Inspection Method

- The visual inspection method is the **least sophisticated** and **least expensive method.**
- It involves the classification of parts into families by looking at either the **physical parts or their photographs and arranging them into groups having similar features.**

PROBLEMS IN GROUP TECHNOLOGY

- **Identifying the part families (the biggest problem)**

➢ If the plant makes 10,000 different parts, reviewing all of the part drawings and grouping the parts into families is a substantial task

- **Rearranging production machines in the plant into the appropriate machine cells**

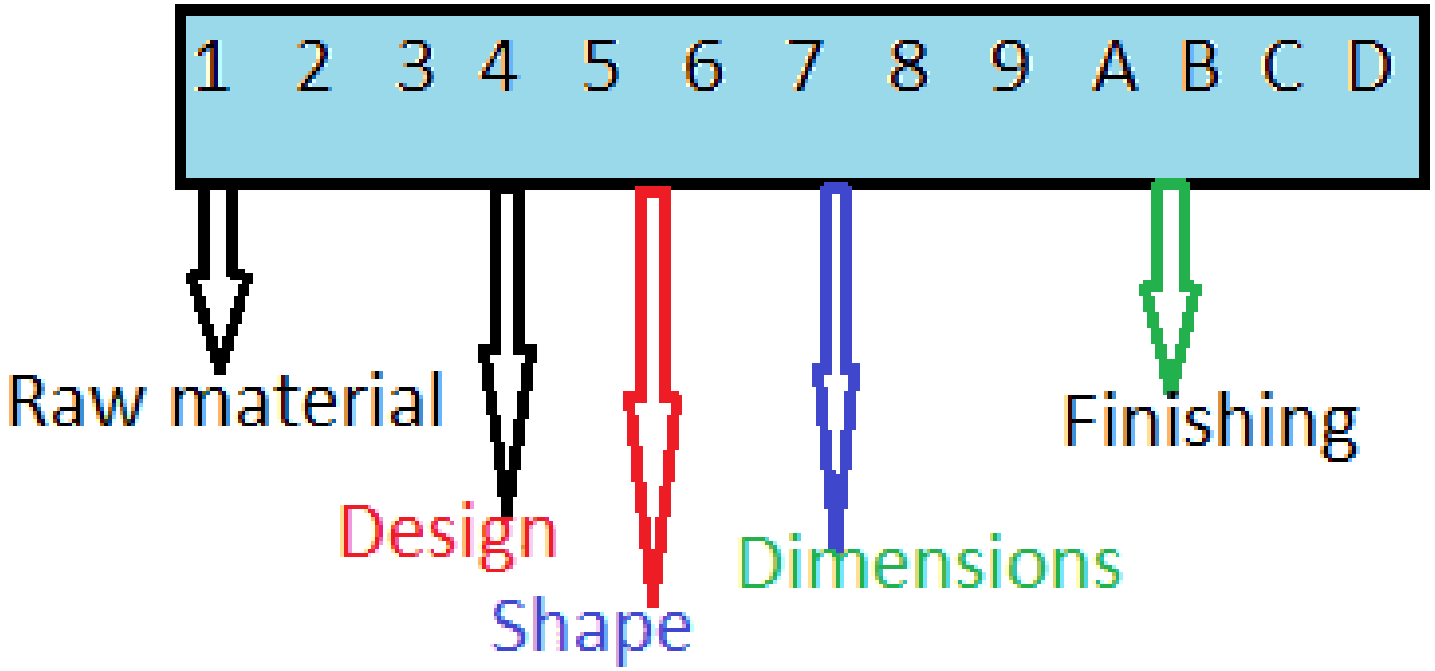
➢ It takes time to plan and accomplish this rearrangement, and the machines are not producing during the changeover

Production Flow Analysis

- It is a process in which part families are identified & associated machine group,

That uses the information contained on production route sheets rater than part drawing.

Similar routings are classified into part families. These can be used to form machine cells in GT layout.


1 2 3 4 5 6 7 8 9 A B C D
Raw material
Design
Shape
Dimensions
Finishing

Code Position	Item
1	Main shape
2	Shape elements
3	
4	Position of shape element
5	Main dimension
6	
7	Dimension ratio
8	Auxiliary dimension
9	Tolerance codes
10	
11	Material codes
12	

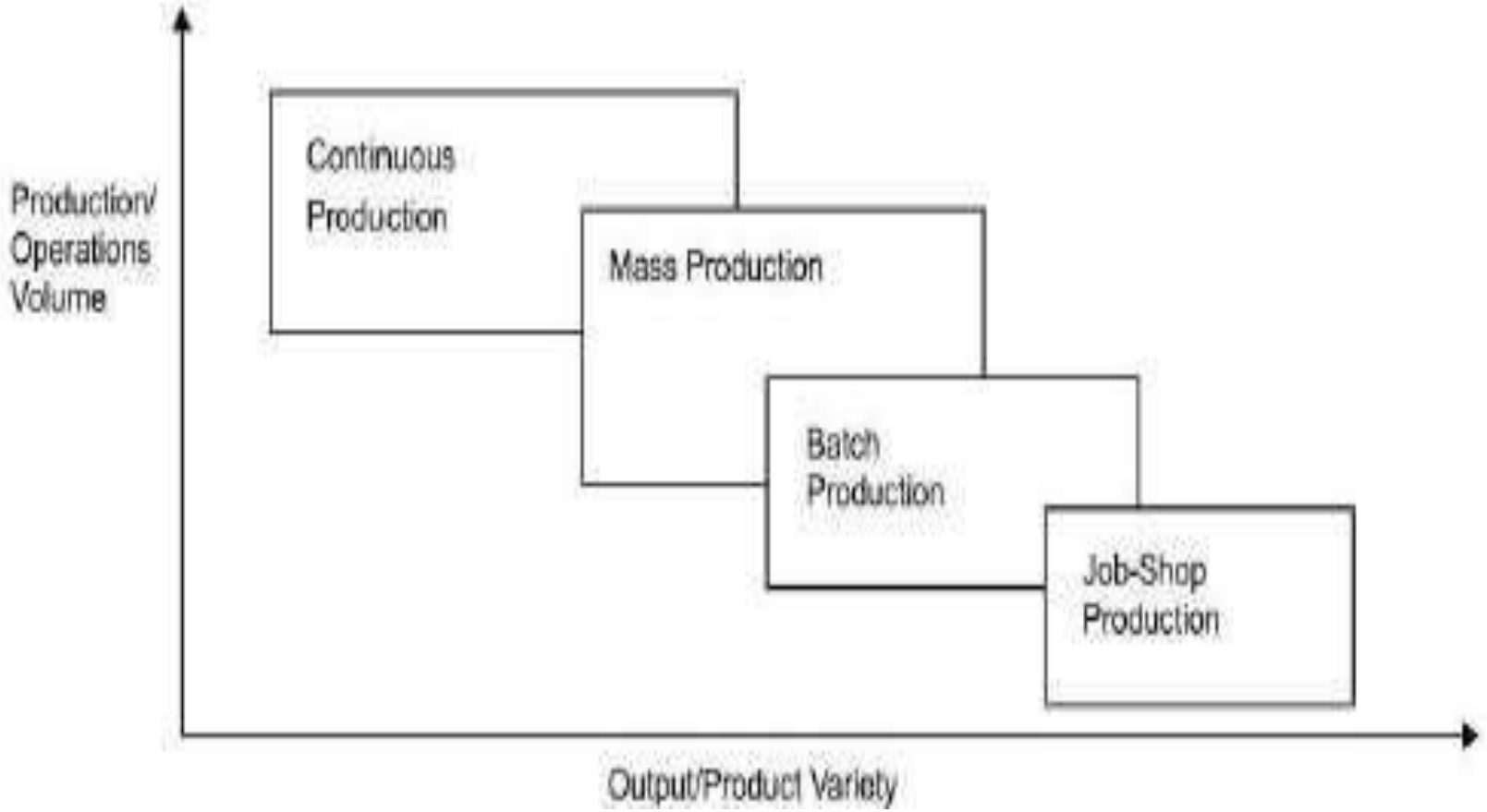
Parts Classification and Coding

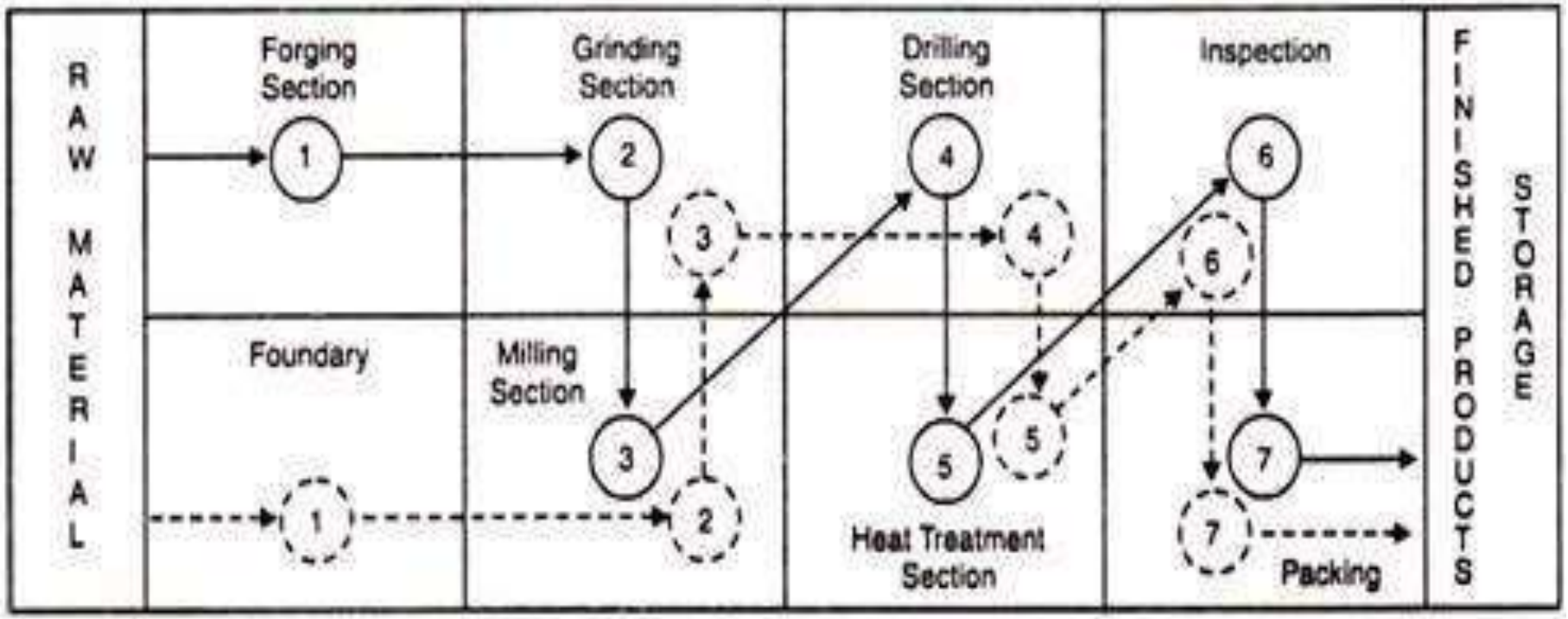
Part Design Attributes

- Major dimensions
- Basic external shape
- Basic internal shape
- Length/diameter ratio
- Aspect Ratio (L/W)
- Material type
- Part function
- Tolerances
- Surface finish

Part Manufacturing Attributes

- Major process
- Operation sequence
- Batch size
- Annual production
- Machine tools
- Cutting tools
- Material type


Production/
Operations
Volume
Continuous
Production
Mass Production
Batch
Production
Job-Shop
Production
Output/Product Variety


RAW MATERIAL
Forging Section
Grinding Section
Drilling Section
Inspection
FINISHED PRODUCTS
STORAGE
Foundary
Milling Section
Heat Treatment Section
Packing
1
2
3
4
5
6
7