

Group Technology (Part-1)
6ME4-02: Computer Integrated Manufacturing Systems

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Outcomes

- Meaning, importance, goals and benefits of Group technology
- About part families, part classification

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Introduction

Batch manufacturing is estimated to be the most common form of production across the globe

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To make batch manufacturing more efficient and productive


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An increasing trend toward achieving a higher level of integration between the design and manufacturing functions

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Group Technology (GT)

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Group Technology

- Group technology is a **manufacturing philosophy** in which **similar parts** are **identified** and **grouped together** to take **advantage** of their **similarities** in **design** and **production**.
- **Similar parts** are arranged into **part families**, where each part family possesses **similar design** and/or **manufacturing characteristics**.
- The **processing of each member** of a given family would be similar and this results in **better manufacturing efficiencies** such as **set-up times**, **in-process inventories**, **better scheduling**, **improved tool control** and the use of **standardized process plan**.

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Group Technology



- The manufacturing efficiencies are generally achieved by arranging the **production equipment** into machine **groups or cells**, to facilitate work-flow.
- Grouping the production equipment into **machine cells**, where each cell specializes in the production of a **part family**, is called **cellular manufacturing**.

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Goals of GT



- Reduce manufacturing lead time
- Reduce Work-in-process
- Improve scheduling
- Reduced setup times
- Reduce tooling
- Increase equipment utilization

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Benefits of GT



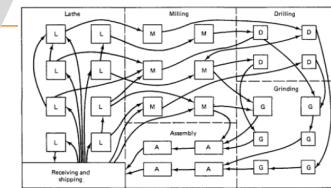
- ✓GT promotes standardization of tooling, fixturing and setups.
- ✓Material handling is reduced because parts are moved within a machine cell rather than within the entire factory.
- ✓Process planning and production scheduling are simplified.
- ✓Setup times are reduced, resulting in lower manufacturing lead times.
- ✓Worker satisfaction usually improves when workers collaborate in a GT cell.
- ✓Higher quality work is accomplished using group technology.

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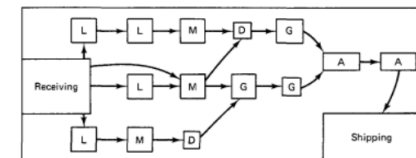
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Layouts



- Process type layout
- Group technology layout

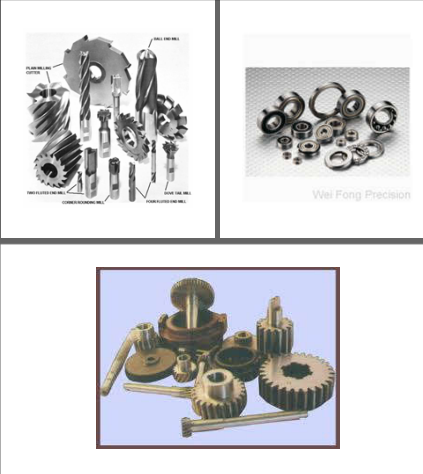


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Part family

- Similarity
 - Shape
 - Features
 - Size
 - Dimensional
 - Processes



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Identification of Part Families



- VISUAL INSPECTION
- PRODUCT FLOW ANALYSIS
- PART CLASSIFICATION AND CODING

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Thank you for your kind attention



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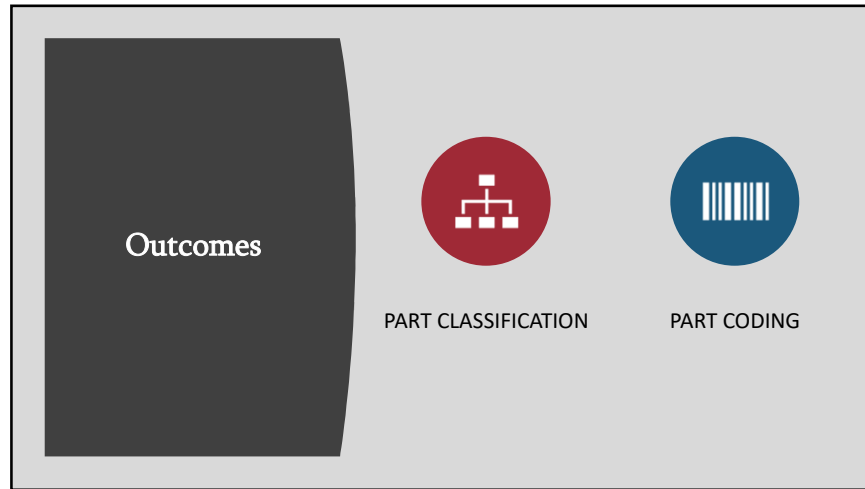
Group Technology (Part-2)

8ME1A: Computer Integrated Manufacturing Systems

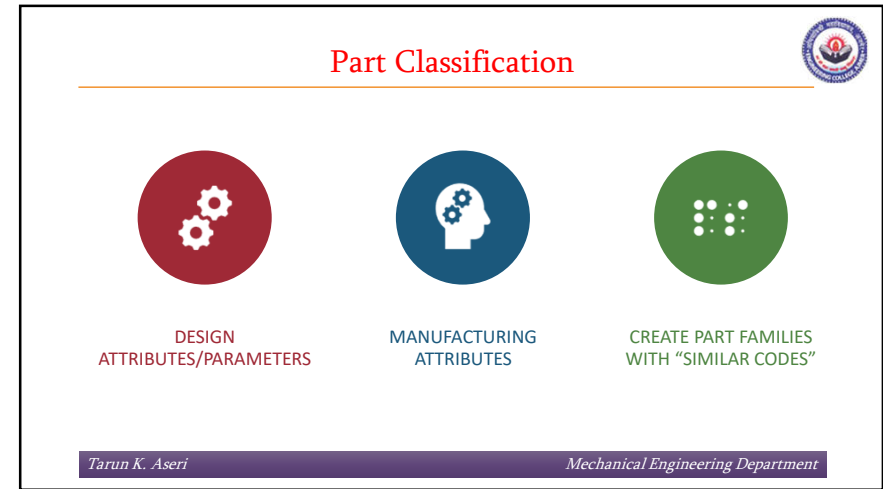
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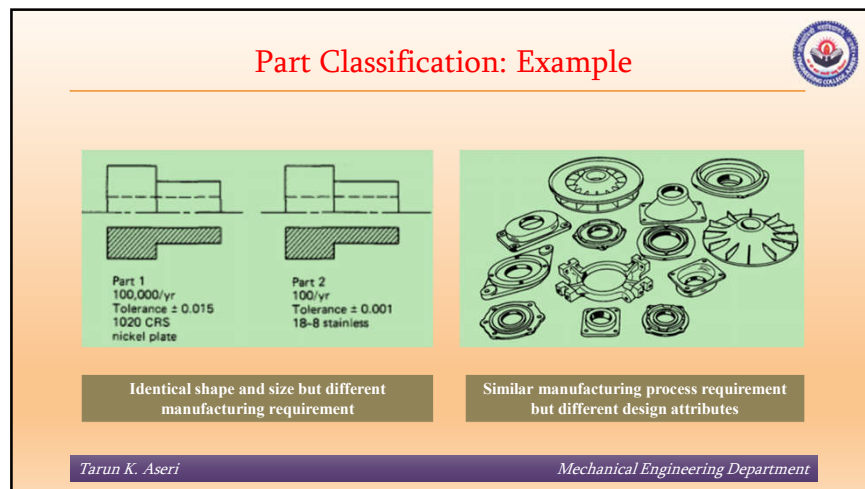
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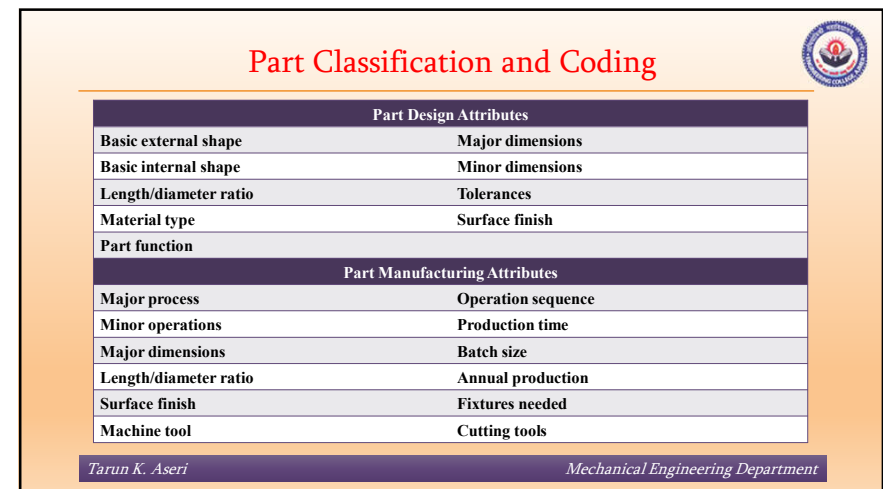
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Summary

- Basic understanding about Group Technology,
- How it works, what are the goals and benefits,
- How a part can be classify and recognized it for family.

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