



● **W E L C O M E**

ME F243



PRODUCTION TECHNIQUE-1

SECOND SEMESTER 2012-2013

Course Handout

- Contents
- Scope
- Books
 - Text Book
 - Ref. Book
 - Lab. Manual
- Pre- Requisites
- Course Plan
- Course outcome
- Evaluation
- Laboratory
- Consultation
- Make-up
- Notices

3

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Books

Text books [TB]:-

1. Serope Kalpakjian and Steven R. Schmid, "Manufacturing Engineering and Technology,"
 2. Amitabha Ghosh and Ashok Kumar Mallik, "Manufacturing Science",
- Laboratory Manual

4

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Course Plan

1. Lectures (2 periods/week)

**2. Practical session
(2 periods/week)**

5

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Evaluation

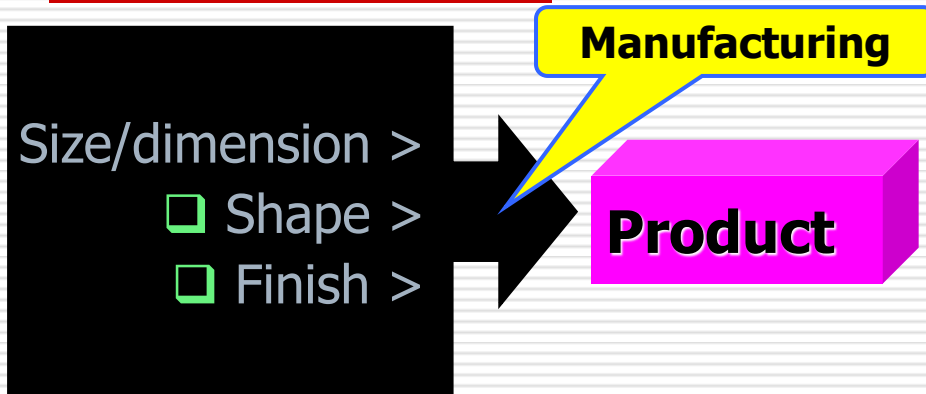
EC No	Evaluation Comp	Nature of Comp	Duration	Weightag	Date
1	Test-I	CB	50 mins	15 %	18.03.13 M4
2	Test - 2	OB	50 min	15 %	06.05.13 M4
3	Quiz	CB	20 min	05 %	27.11.12 T
4	Practical	Continuous	2 P/week	20%	Continuous
5	Compre Exam(Theory)	CB	3 hours	35 %	08.06.13 Sa (AN)
6	Compre Exam (Practical)	-----	2 hours.	10 %	To be announced

6

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Manufacturing..

Produce (convert/transform **raw material** into) **desired**



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Manufacturing ..

- Manufacture is derived from two Latin words: *manus* (hand) and *factus* (make); the combination means "made by hand"
- "Manufacture" was first coined around 1567 A.D.
- Made by hand???!!!
the Modern Manufacturing?

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9

Manufacturing – 5 M's

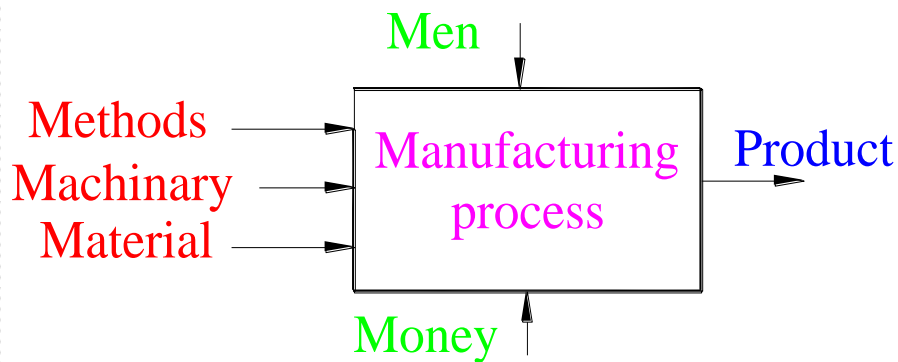
☐ **M**aterial

☐ **M**ethod

☐ **M**achine

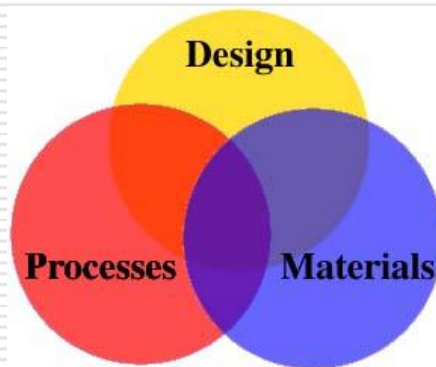
☐ **M**en

☐ **M**oney



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Manufacturing is understanding the relationship between design, processes, and materials.



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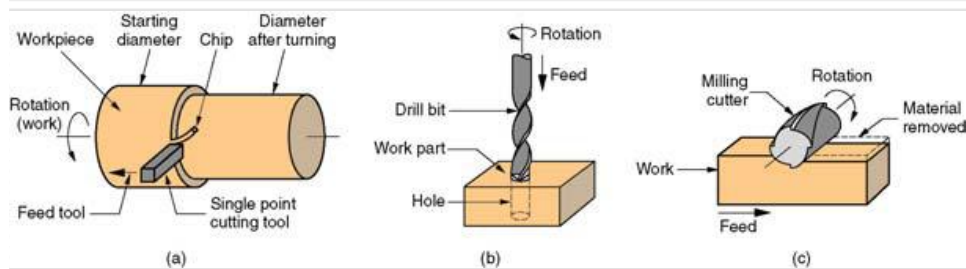
Manufacturing Processes

- ☐ Machining #material removal
- ☐ Casting #melt & solidify
- ☐ Forming #deform
- ☐ Joining #
- ☐ Powder Metallurgy #

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15

Material Removal Processes ..



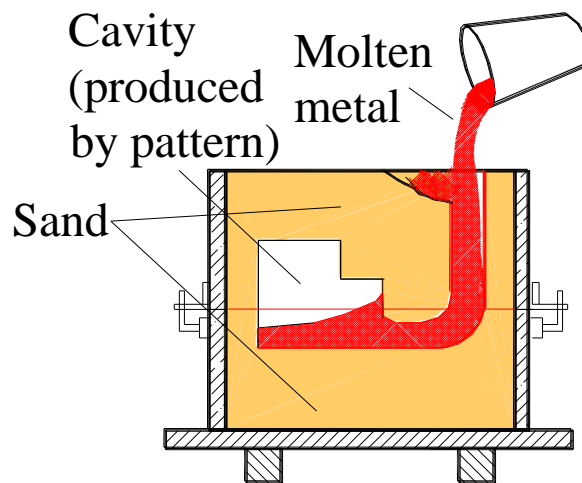
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17

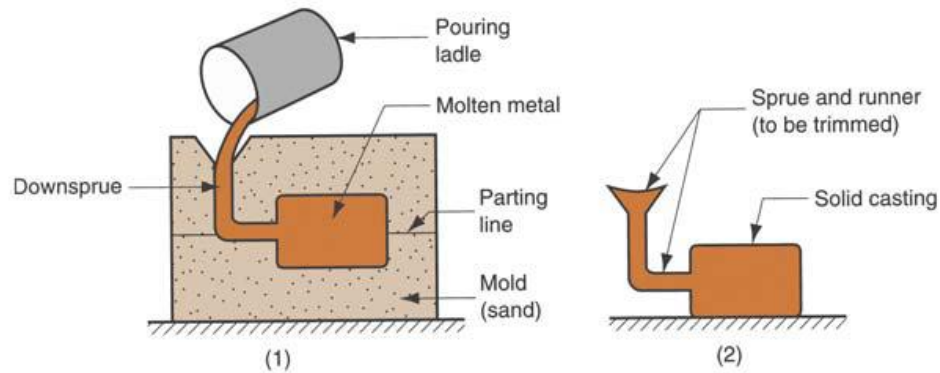
Casting Process

- ☒ Material is heated sufficiently to transform it into a liquid - pouring into desired shaped cavity - cooling
- ☒ Examples: Casting for metals, molding for plastics

Casting Process ..



Casting Process ..



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20

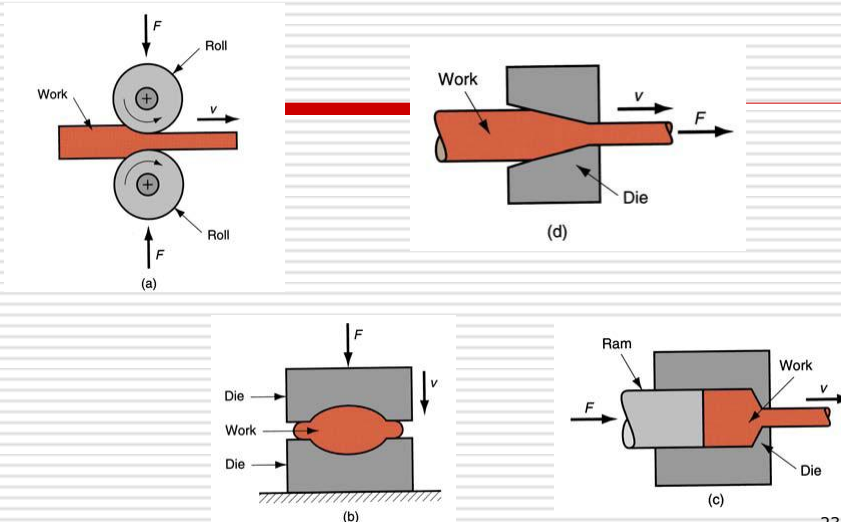
Deformation Processes Forming Process

□ **Workpiece is shaped by application of forces that exceed the yield strength of the material – deforming material**

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21

Deformation Processes ..



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23

Joining Process

Produce desired shape/size by joining material/parts

❑ **Joint – permanent/semi-permanent/temporary**

- **Welding arc/gas**
- **Soldering/Brazing**
- **Fasteners**

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24

TYPES OF PRODUCTION

1. JOB SHOP PRODUCTION (LOW VOLUME HIGH VARIETY)
2. BATCH PRODUCTION (PRODUCES IN SMALL LOT SIZES)
3. MASS PRODUCTION (IDENTICAL PRODUCTS IN BULK QUANTITY)

25

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SELECTION OF MANUFACTURING PROCESS

1. **VOLUME OF PRODUCTION**
2. **QUALITY OF THE END PRODUCT**
3. **TECHNICAL VIABILITY OF THE PROCESS**
4. **ECONOMY**

26

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