

Al-Mustansiriya University

College of Engineering

Mechanical Department



2016-2017

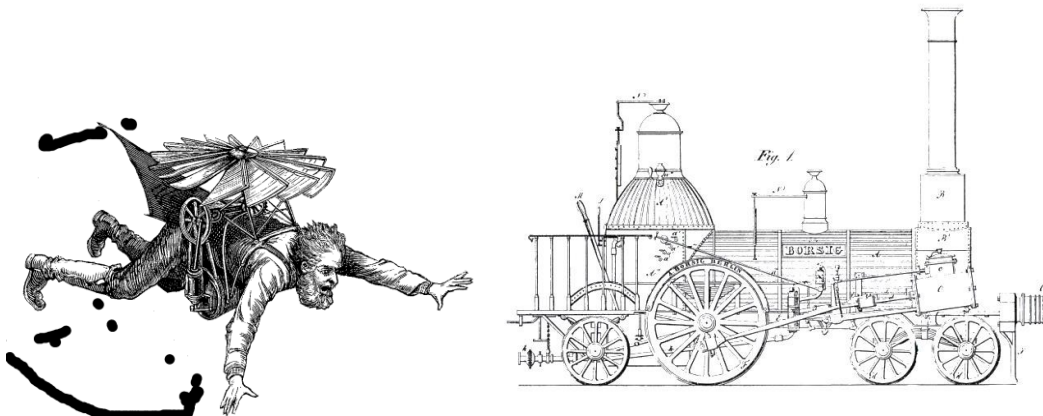
PRODUCTION

Lecturers:

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Lec. No. 1 PRINCIPLE OF PRODUCTION ENGINEERING

ENGINEERING is the application of mathematics, empirical scientific, economic, social, and practical knowledge in order to design, build, maintain, research, and improve structures, machines, tools, systems, components, materials, and processes.

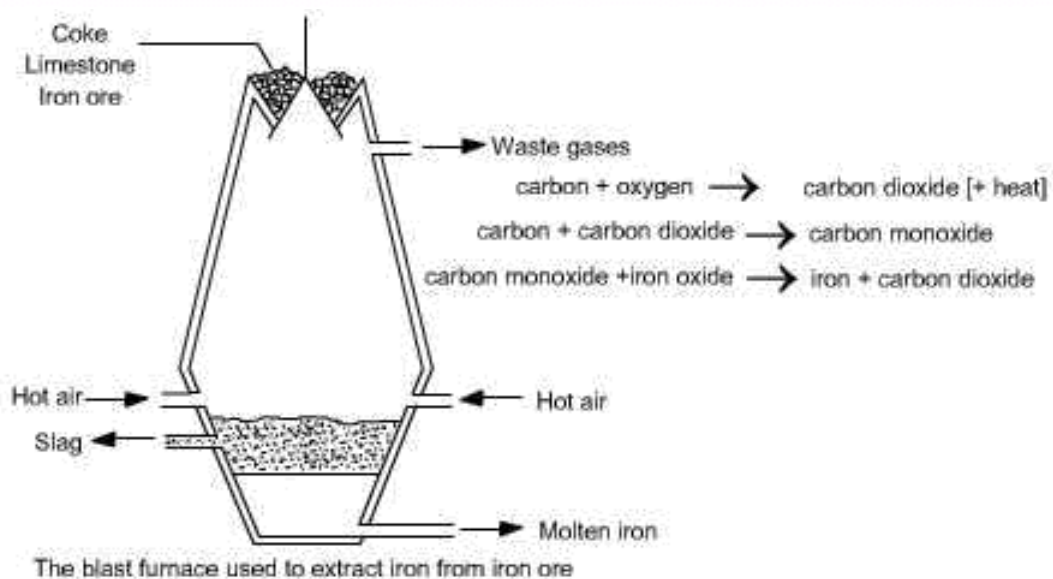
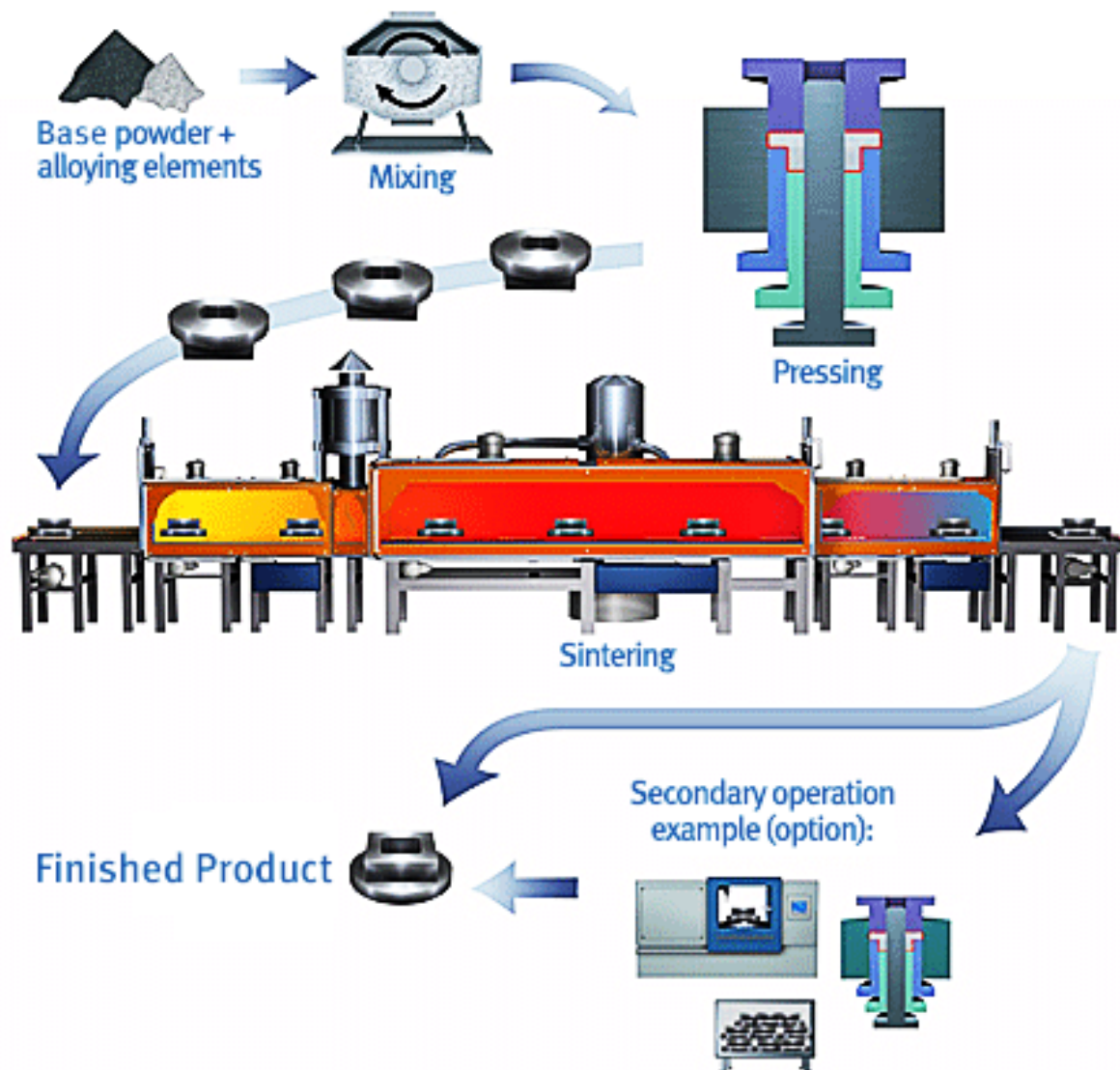


MECHANICAL ENGINEERING : The design and manufacture of physical or mechanical systems, such as power and energy systems, aerospace/aircraft products, weapon systems, transportation products, engines, compressors, powertrains, kinematic chains, vacuum technology, and vibration isolation equipment.

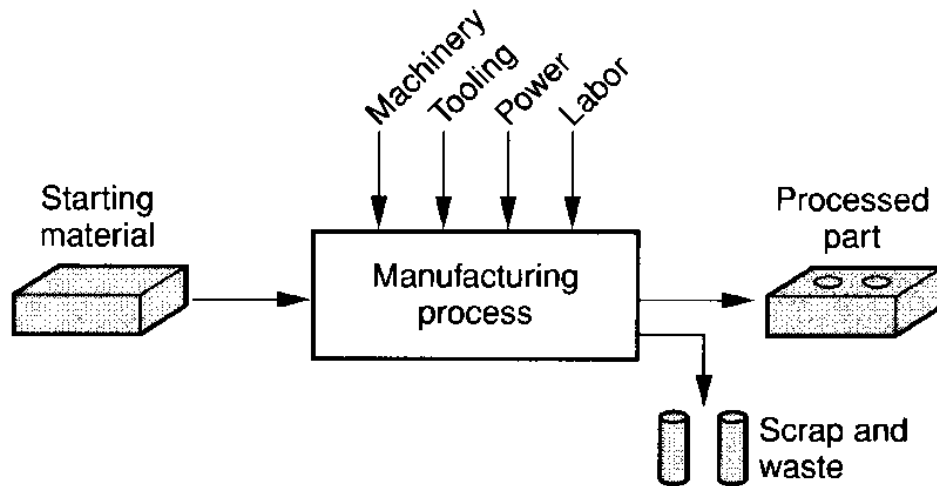


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	A	B	C	D	E
1	DFA Analysis Worksheet				
2	Assembly Name: <u>Staple Remover</u>				
3					
4	Part		DFA Complexity		Func Red
5	Part Number	 Part Name	Number of Parts (Np)	Number of Interfaces (Ni) (part a to part b = 1)	Theoretical Minimum Part (Functional Analysis chart)
6	1	Lower Arm Sub.			
7	1.1	Base Part - Lower Arm	1	6	
8	1.2	Lower Arm cover	1	3	
9	1.3	Rivet	2	4	
10	2	Upper Arm Sub.			
11	2.1	Upper Arm	1	6	
12	2.2	Upper Arm cover	1	3	
13	2.3	Rivet	2	4	
14	3	Spring	1	3	
15	4	Pivot	1	3	
16					
17	Totals		10	32	

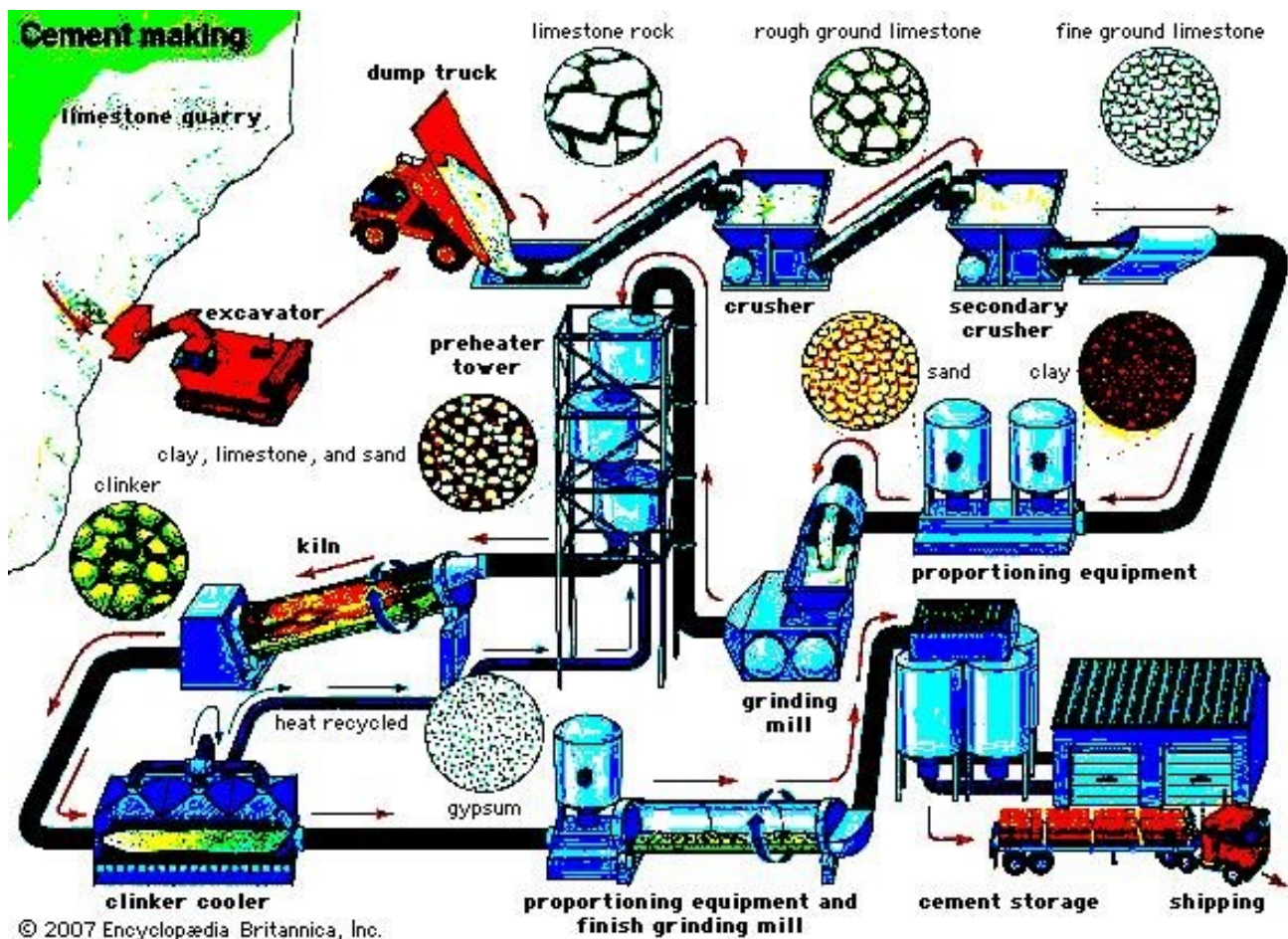
A RAW MATERIAL: unprocessed material, is a basic material that is used to produce finished products. An example of this , oil, which is a raw material used in the production of industrial chemicals, fuels and plastics.

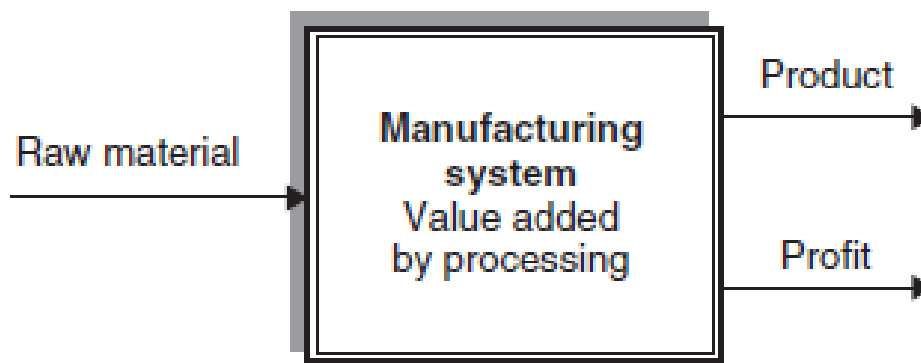


MANUFACTURING: The process of converting raw materials, components, or parts into finished goods that meet a customer's expectations or specifications. Manufacturing commonly employs a man-machine setup with division of labor in a large scale production.

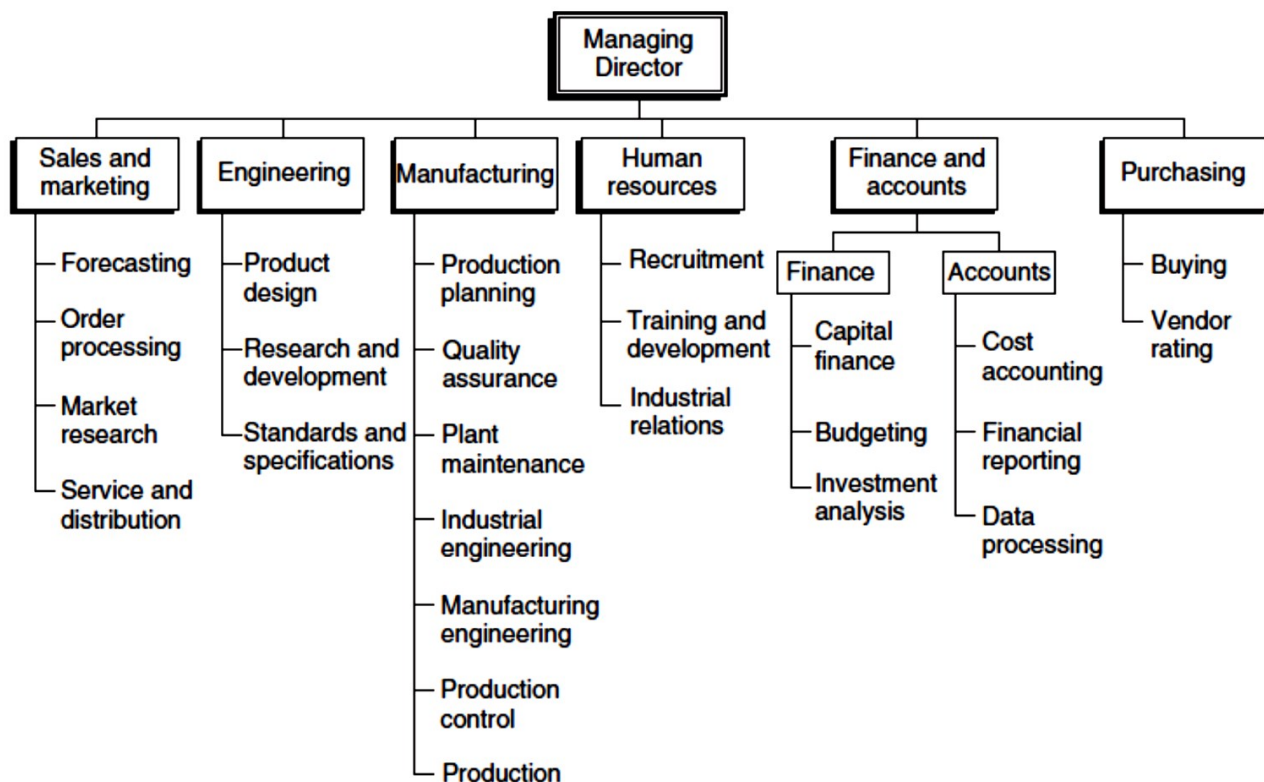


MASS PRODUCTION is the production of large amounts of standardized products, including and especially on assembly lines. With job production and batch production

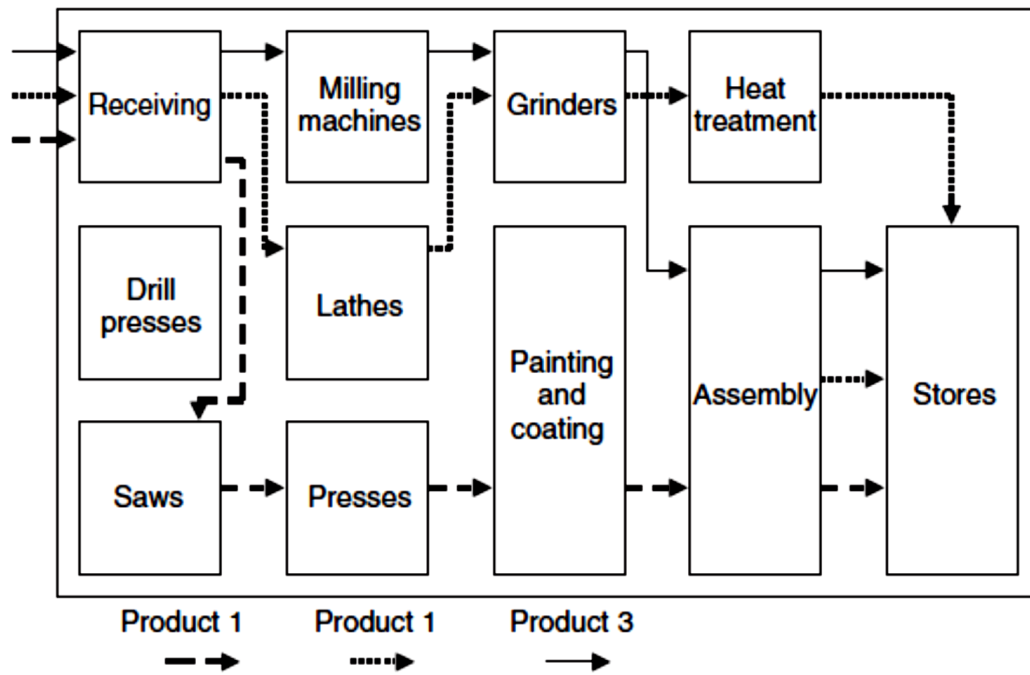




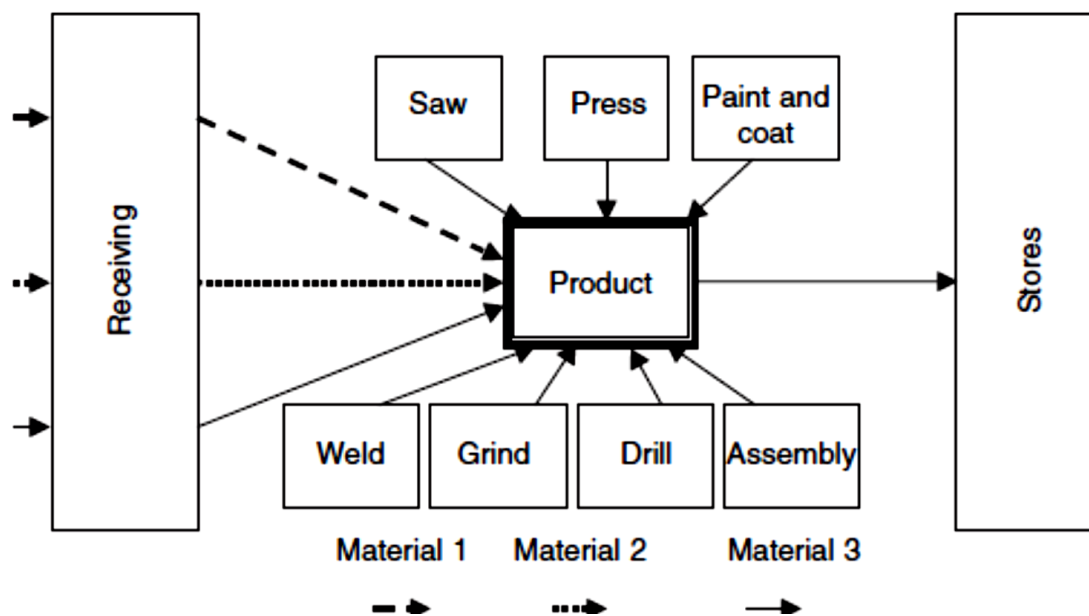
characteristics of a manufacturing system

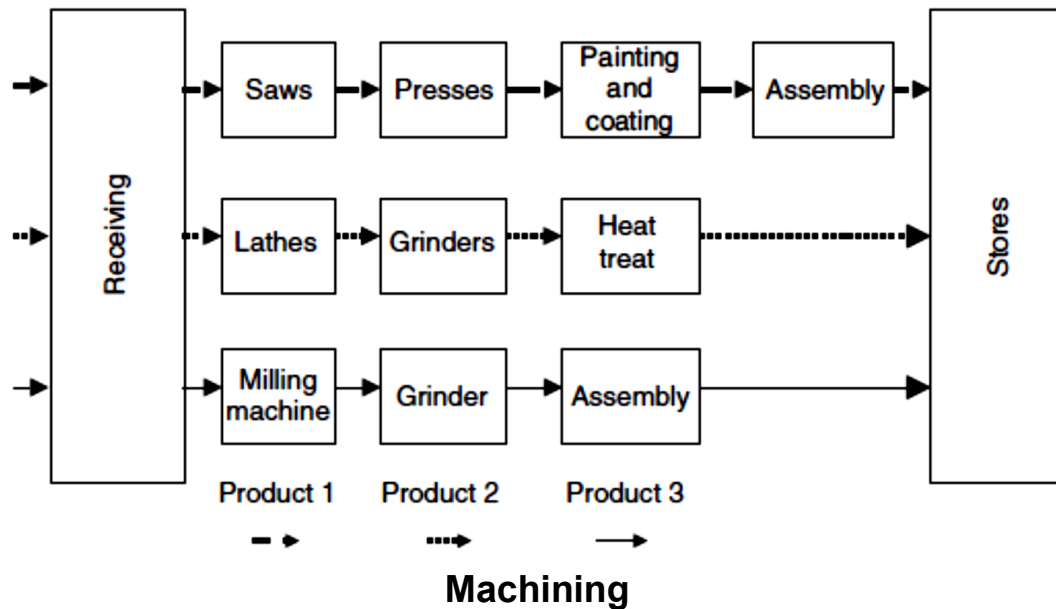


Process-focused layout



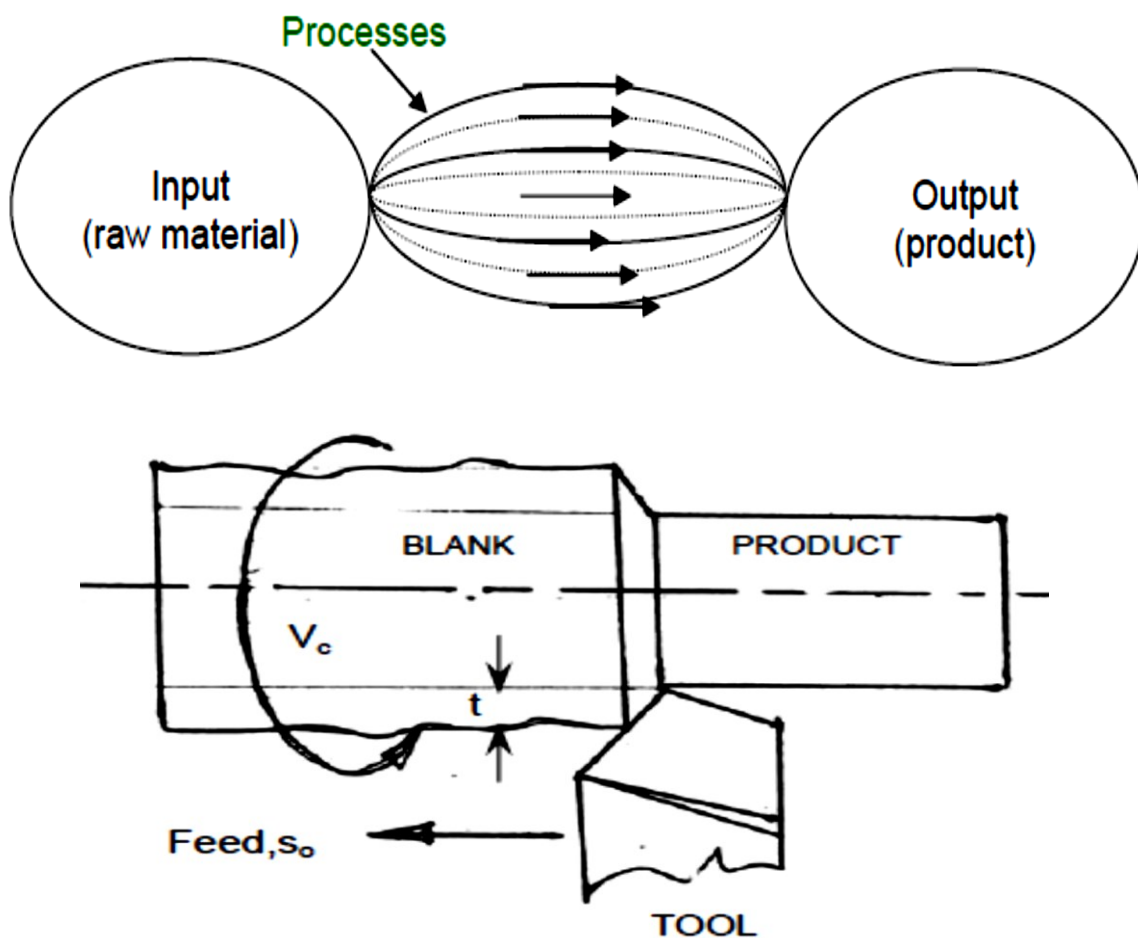
Product-focused layout Fixed position layout





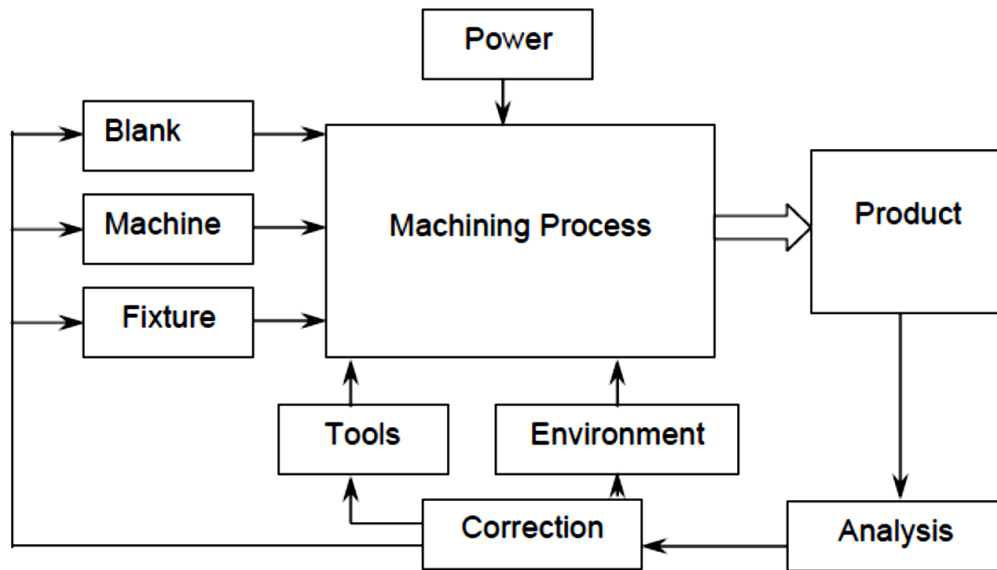
MACHINING :

various processes in which a piece of raw material is cut into a desired final shape and size by a controlled material-removal process .

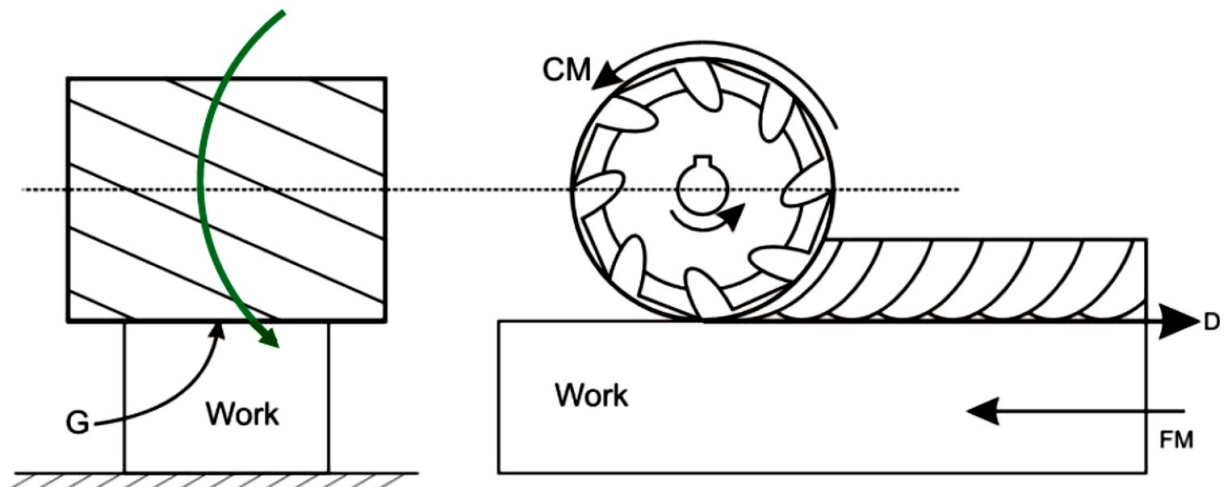


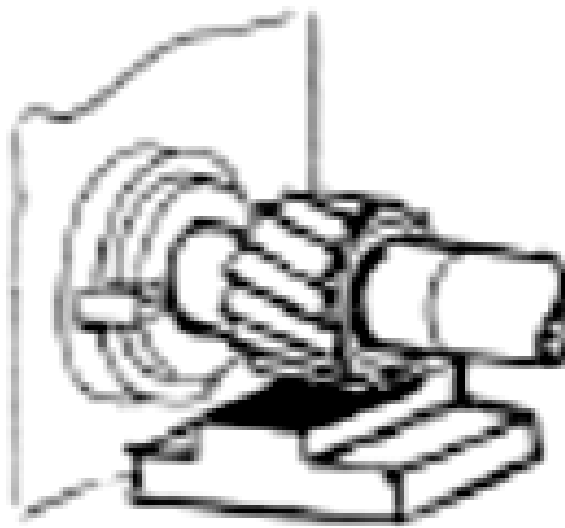
(iv) Machining requirements

The essential basic requirements for machining work are schematically illustrated in Fig. 1.5



Milling





surfacing



slotting



slitting



grooving



forming