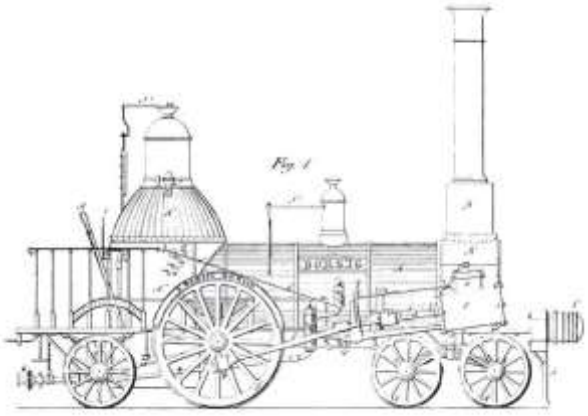
بسمه تعالى

الجامعة : المستنصرية الكلية : الهندسة القسـم : الميكانيك المرحلة : الأولى

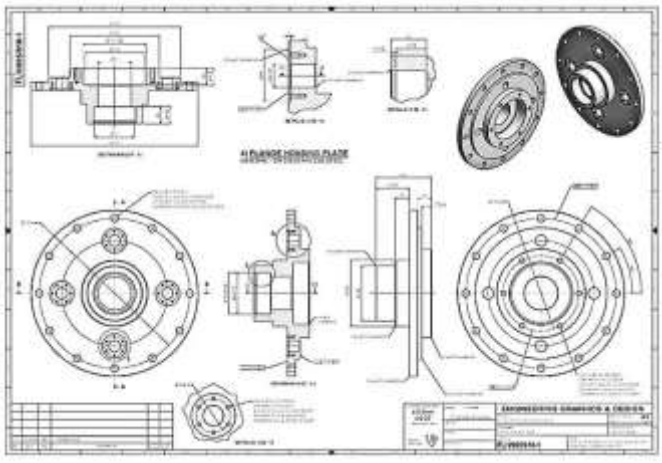
مباديء هندسة الانتاج استاذ مساعد د. ناظم مجبل فالح

PRINCIPLE OF PRODUCTION ENGINEERING

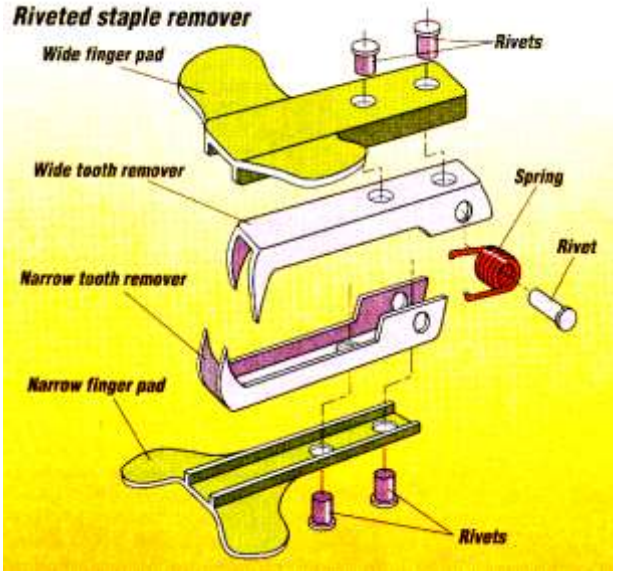
ENGINEERING is the application of mathematics, empirical scientific, economic, social, and practical knowledge in order to design, build, maintain, research, and improve structures, machines, tools, systems, components, materials, and processes.



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.

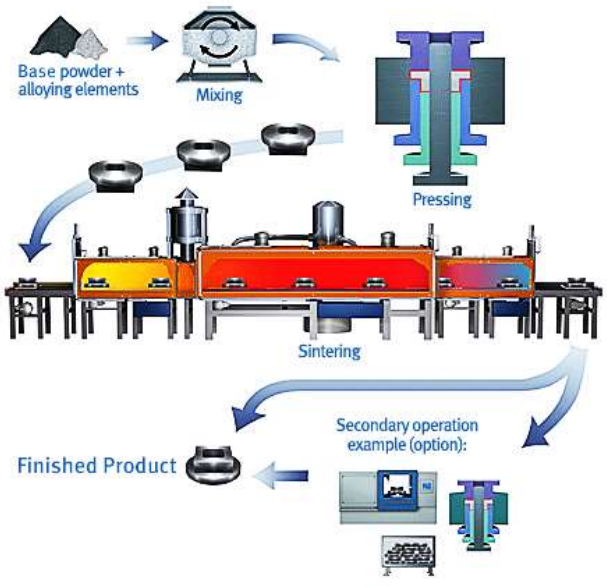


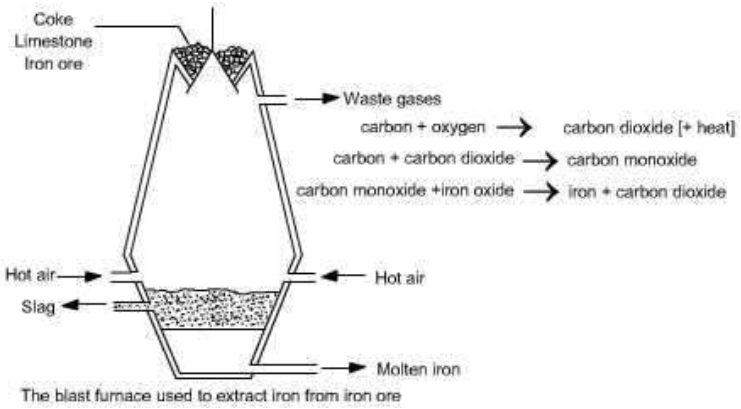
PRODUCTION ENGINEERING : Design and application of manufacturing techniques to produce a specific product. It includes activities such as (1) planning, specification, and coordination of the use of resources, (2) analysis of produicbility, productions processes, and systems, (3) application of methods, equipment, and tooling, (4) controlled introduction of engineering changes, and (5) application of cost control techniques



	File	Edit	View	Insert	Format	Tools	Data	Window	H
	A	B					C	D	E
1	**DFA Analysis Worksheet**								
2					Assembly Name:		Staple Remover		
3									
4	Part						DFA Complexity		Func Rede
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	

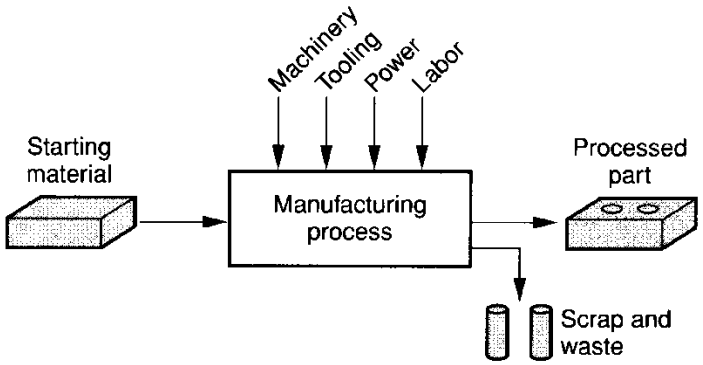
A RAW MATERIAL: unprocessed material, is a basic material that is used to produce finished products. An example of this , oil, which is a raw material used in the production of industrial chemicals, fuels and plastics.



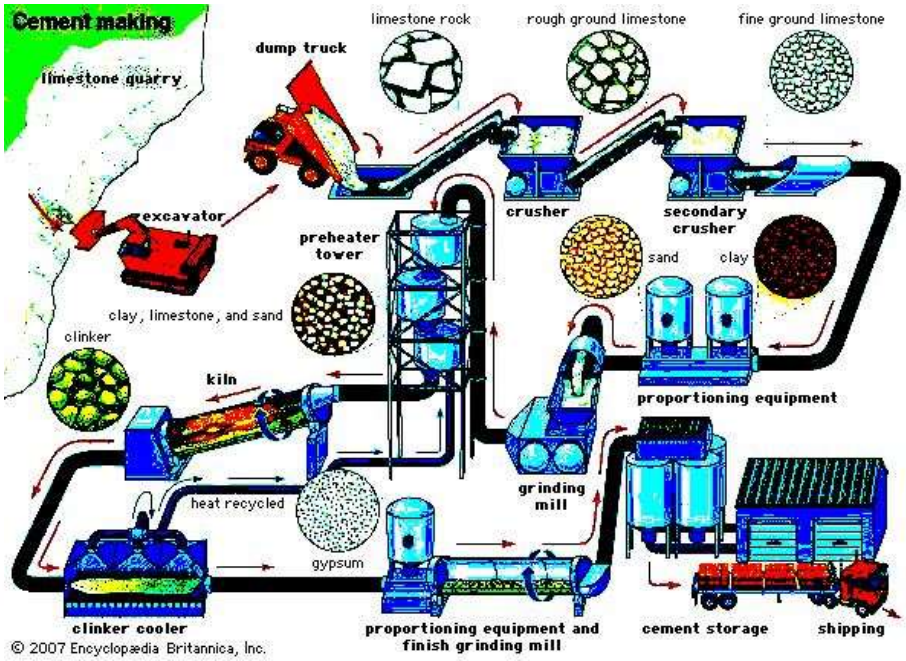


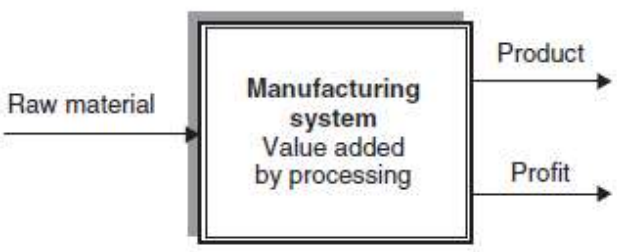
The blast furnace used to extract iron from iron ore

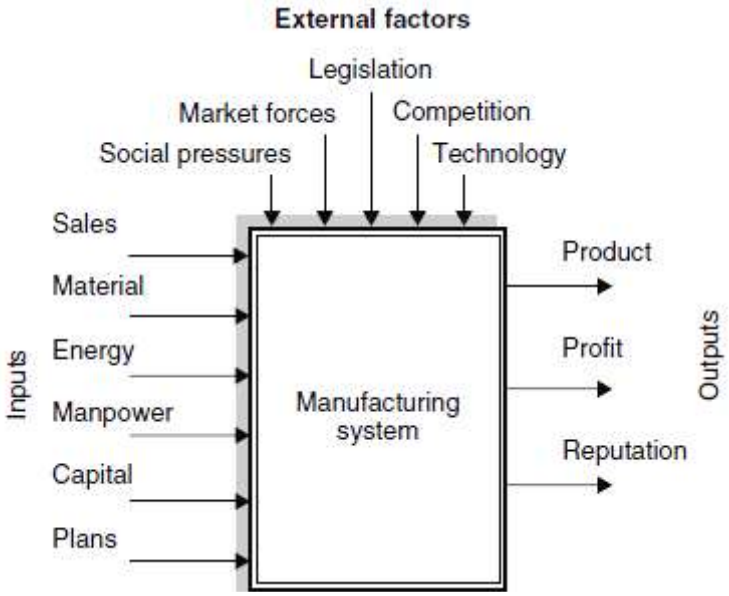
MANUFACTURING: The process of converting raw materials, components, or parts into finished goods that meet a customer's expectations or specifications. Manufacturing commonly employs a man-machine setup with division of labor in a large scale production.



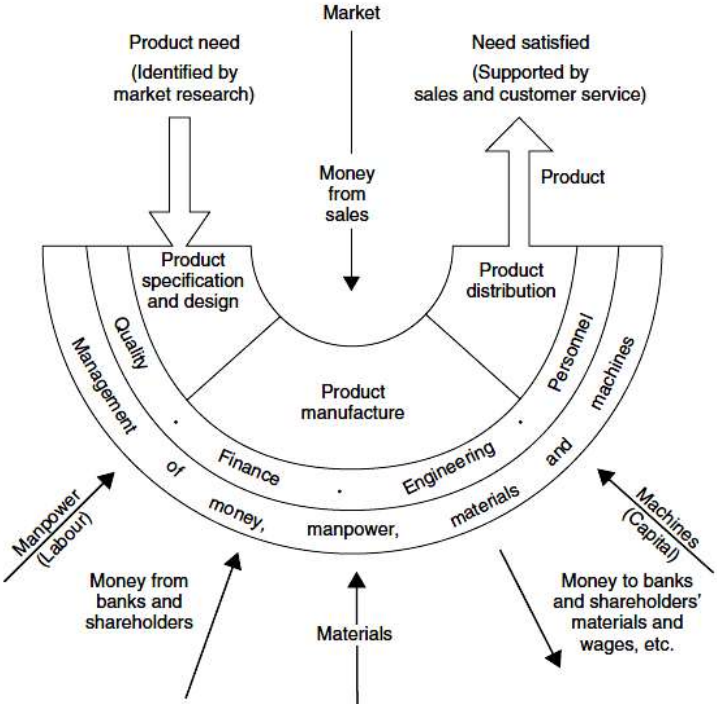
MASS PRODUCTION is the production of large amounts of standardized products, including and especially on assembly lines. With job production and batch production



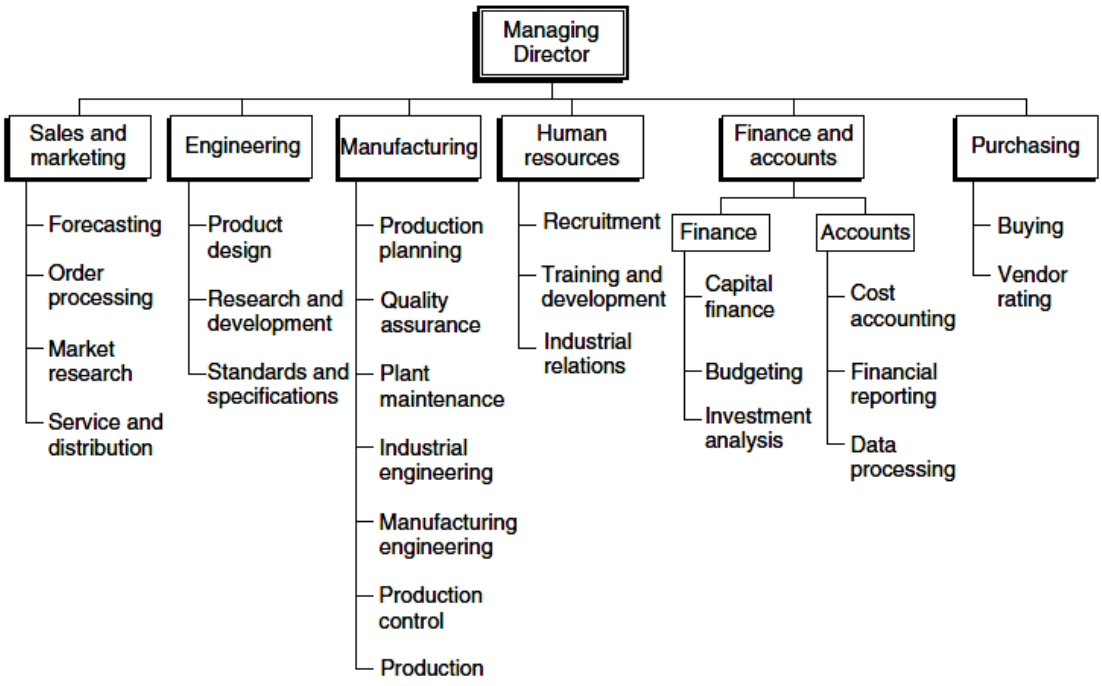




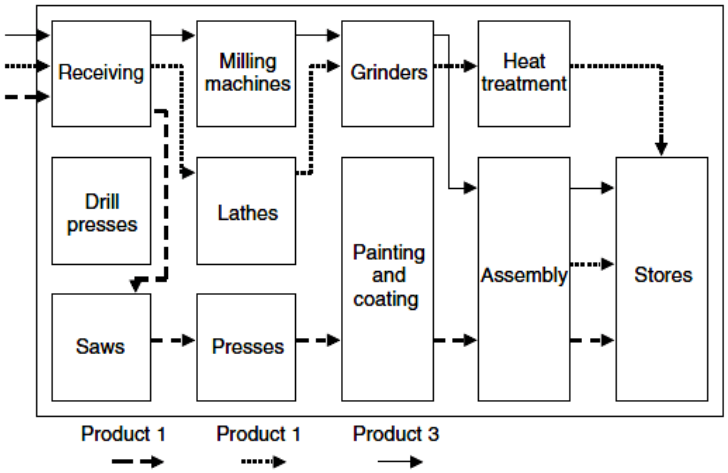
characteristics of a manufacturing system



Types of organizational structure

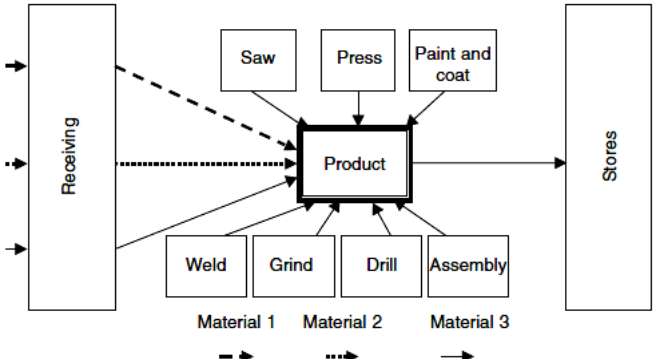


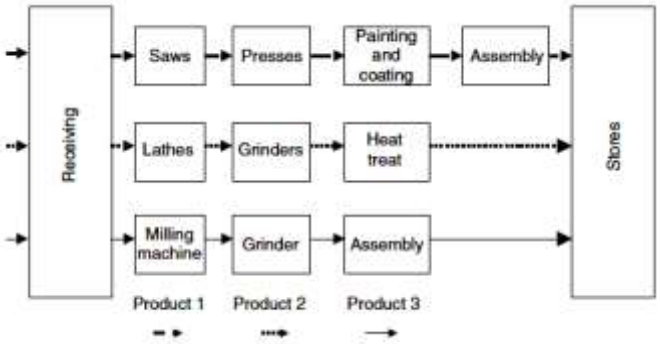
Process-focused layout



Fixed position layout

Product-focused layout





Machining

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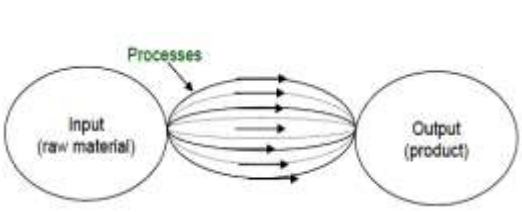
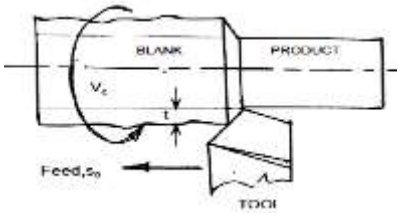
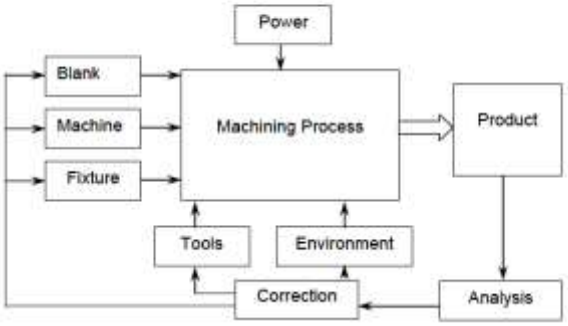
MACHINING : various processes in which a piece of raw material is cut into a desired final shape and size by a controlled material-removal process .



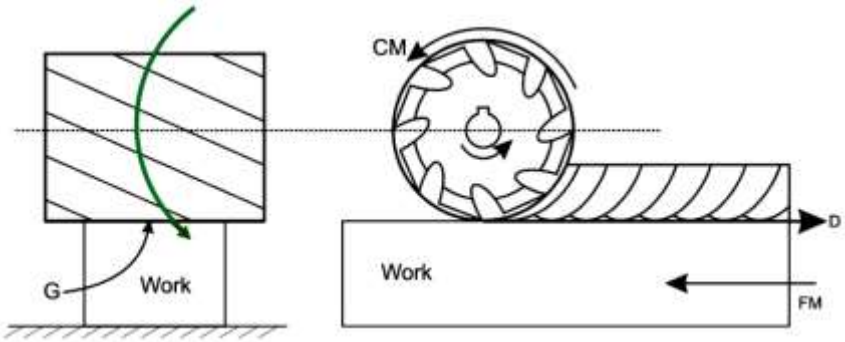


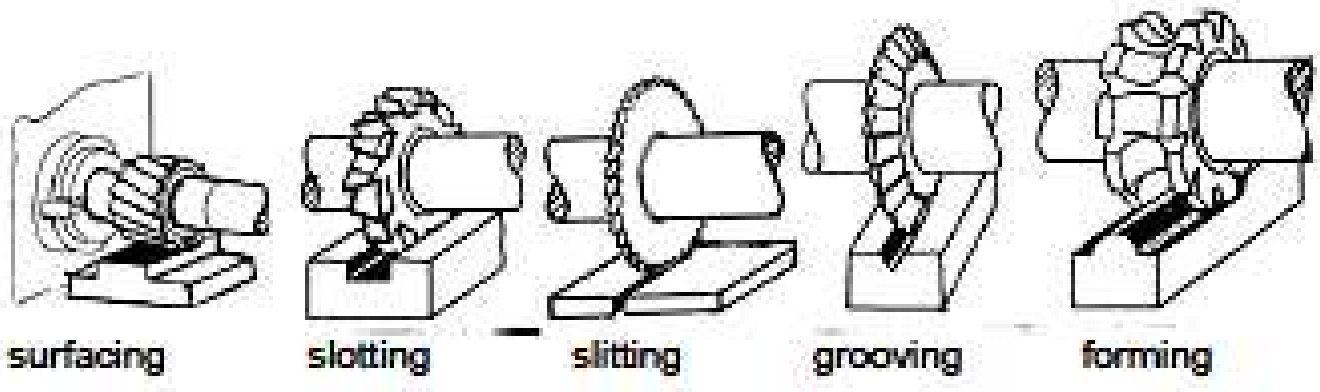
(iv) Machining requirements

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



Milling





ASSIGNMENTS:

No. of group		No. of group	

1	Forming process	10	Production of High speed steels HSS
2	Classification of materails	11	Brass and Bronze
3	Production of Ferros Metals	12	Production of Aluminium
4	Alloys	13	Production of Copper
5	Production of glass	14	Manufacturing of Plastic
6	Production of ceramics	15	Measurement
7	Organic polymers	16	Line production
8	Production of Steel	17	Tools
9	Stainless steels	18	Raw material

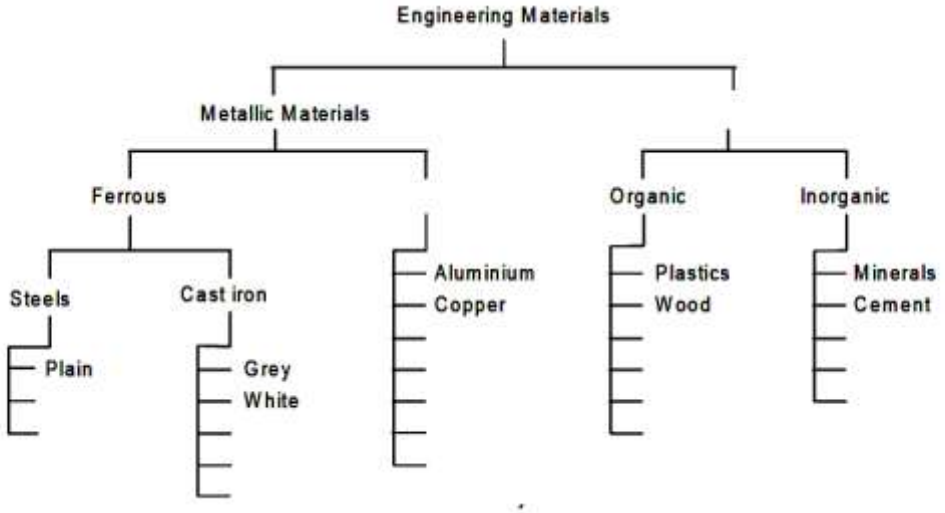
- المجموعة تتكون من ٣ طلبة تتولى تقديم تقرير بواحد من المواضيع (المبينة في الجدول) .
- تتكون المجموعة الاولى من التسلسل ١ و٢ و٣ حسب قائمة الحضور الصادرة من القسم.
- تسجل المجموعة اسم الموضوع بطلب يقدم في المحاضرة الثانية. وموعد المناقشة. بالتنسيق مع مدرس المادة. بحضور افراد المجموعة.
- تخصص ٥ درجات لكل تقرير. والمناقشة حسب تسلسل الموضوع في الجدول. لا يزيد التقرير عن ٦ صفحات بمعدل ٢ صفحة للطالب.
- يكتب اسم الطالب مع رقمه في قائمة الحضور. مجموع التقييم ٥ درجات من الدرجة الفصلية

1- CLASSIFICATION OF ENGINEERING MATERIALS HOME WORK

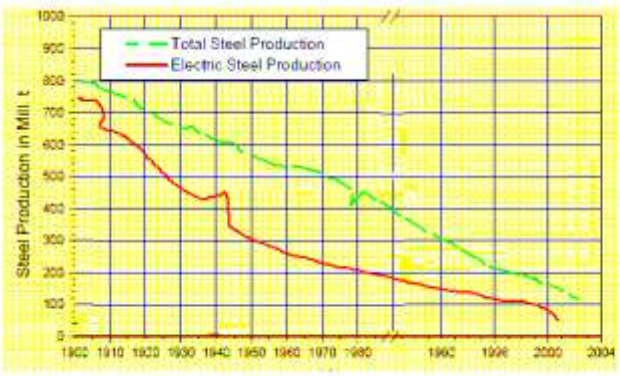
Metals and alloys are further classified into two major kind namely ferrous metals and non-ferrous metals.

(*a*) Ferrous metals are those which have the iron as their main constituent, such as pig iron, cast iron, wrought iron and steels.

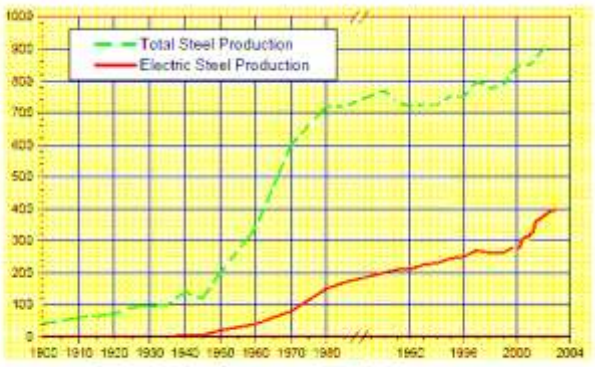
(*b*) Non-ferrous metals are those which have a metal other than iron as their main constituent, such as copper, aluminium, brass, bronze, tin, silver zinc, invar etc.



2- Steel Production in the World

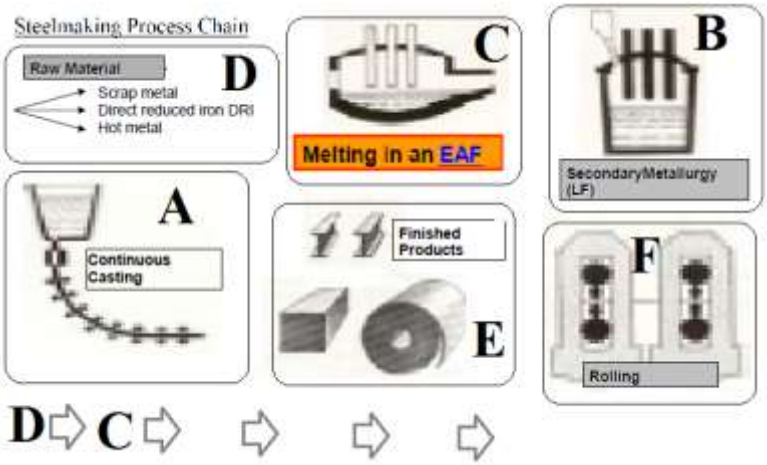


☐ False ☐ True

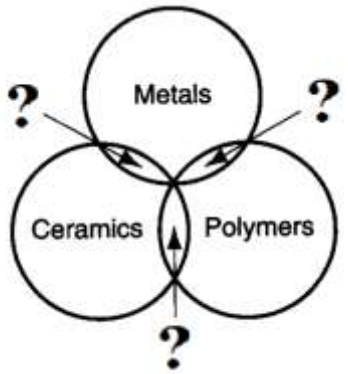


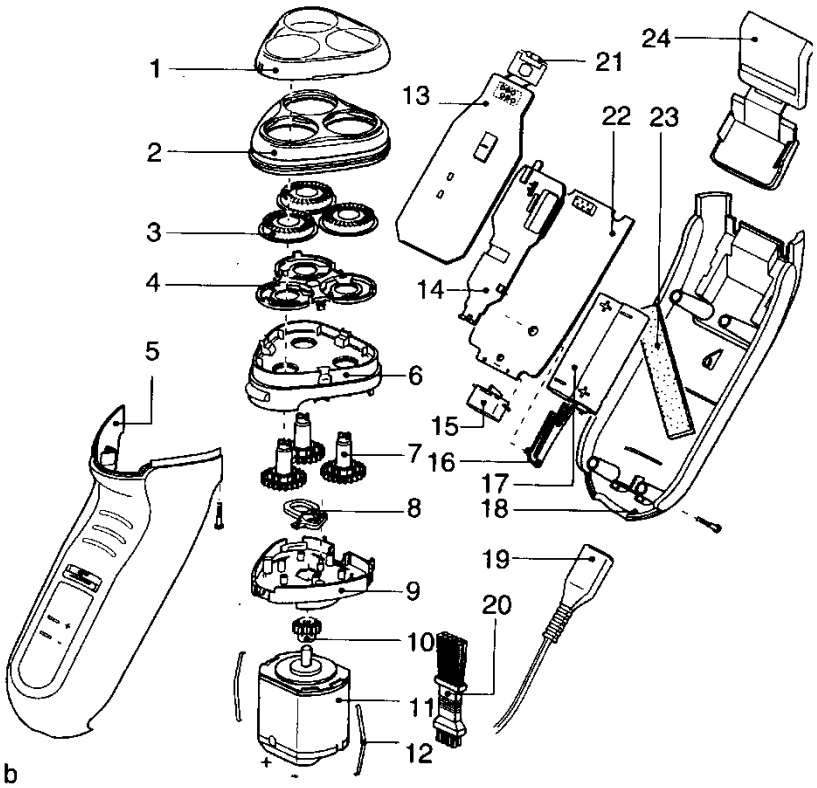
☐ False ☐ True

3- Re-write the steel making process path



4- What is name of this operations?:





5- What is name of this operations?