

## Lesson Plan

### (MANUFACTURING PROCESS)

**Paper Code: ES119**

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**Paper: Manufacturing Process**

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<b>Topics to be covered</b>		
<b>S. No.</b>	<b>Contents</b>	<b>Total Lectures+ Tutorial</b>
1	Definition of manufacturing, Importance of manufacturing towards technological and social economic development, Classification of manufacturing processes, Properties of materials.	3
2	Metal Casting Processes: Sand casting, Sand moulds, Type of patterns, Pattern materials, Pattern allowances, .	2
3	Types of Moulding sand and their Properties, Core making,	1
4	Elements of gating system. Description and operation of cupol	2
5	Working principle of Special casting processes - Shell casting, Pressure die casting, Centrifugal casting. Casting defects	2
6	Joining Processes: Welding principles, classification of welding processes	1
7	Fusion welding, Gas welding, Equipments used, Filler and Flux materials	2
8	Electric arc welding, Gas metal arc welding	1
10	Submerged arc welding, Electro slag welding,	2
11	TIG and MIG welding process	1
12	Resistance welding	2
14	Welding defects	1
15	Deformation Processes: Hot working and cold working of metals, Forging processes, Open and closed die forging process. Typical forging operations	3
16	Rolling of metals, Principle of rod and wire drawing	2
17	Principle of Extrusion, Types of Extrusion, Hot and Cold extrusion	2

18	Sheet metal characteristics -Typical shearing operations, bending and drawing operations	2
19	Forming operations, Metal spinning.	1
20	Powder Metallurgy: Introduction of powder metallurgy process, powder production, blending, compaction, sintering	2
21	Manufacturing Of Plastic Components: Types of plastics, Characteristics of the forming and shaping processes	3
22	Moulding of Thermoplastics, Injection moulding, Blow moulding, Rotational moulding, Film blowing, Extrusion, Thermoforming. Moulding of thermo sets- Compression moulding, Transfer moulding,	4
23	Bonding of Thermoplastics	2