



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**  
**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade  
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



## **DEPARTMENT OF AUTOMOBILE ENGINEERING**

**19AUT303 – Additive Manufacturing and its applications**

III YEAR / V SEM

**UNIT – 1 INTRODUCTION TO 3D PRINTING & CAD FOR**

**ADDITIVE MANUFACTURING**



# Manufacturing



Manufacturing is the creation or production of goods with the help of equipment, labor, machines, tools, and chemical or biological processing or formulation. It is the essence of secondary sector of the economy.





# Classification



Manufacturing processes are classified into six broad categories:

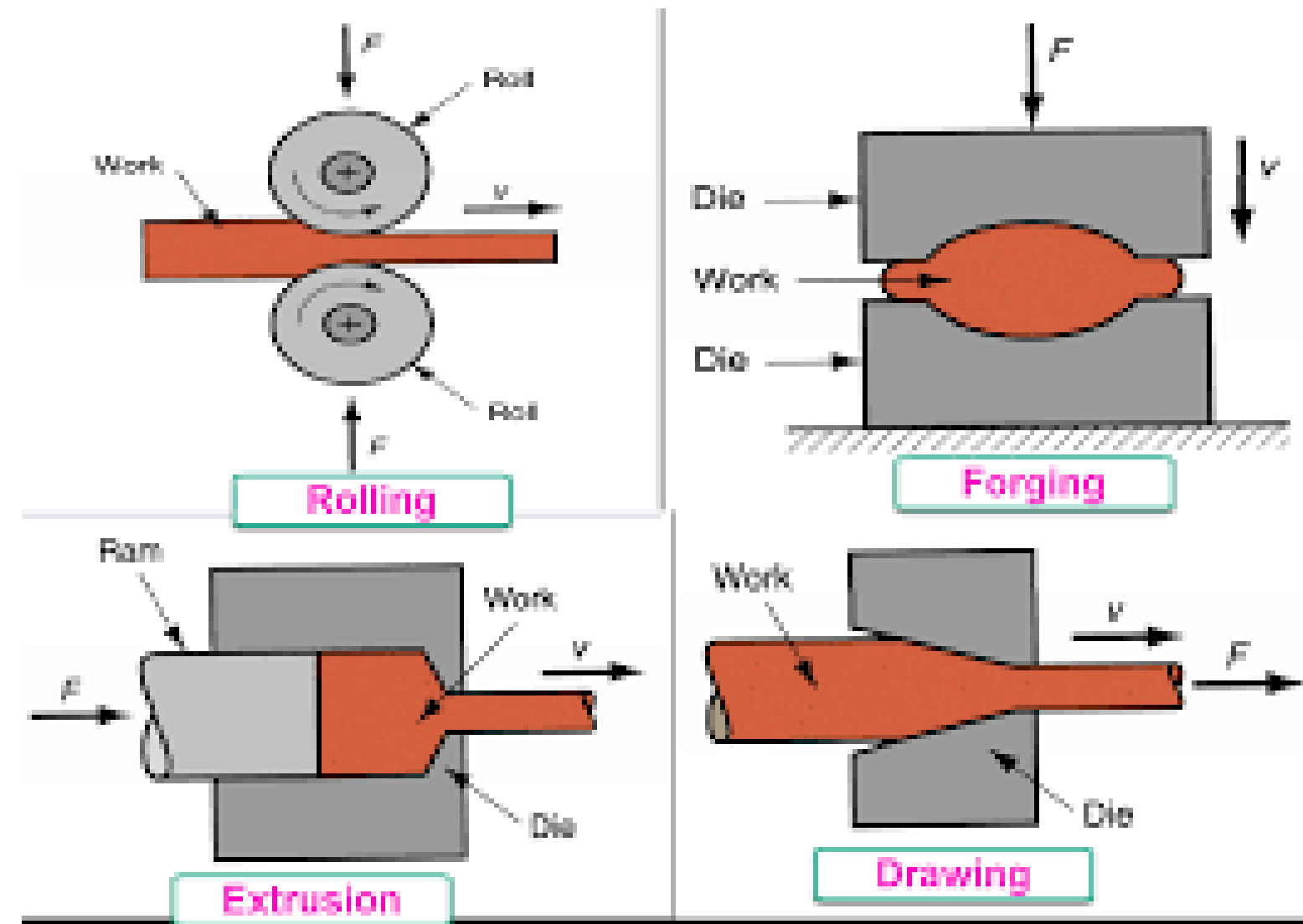
- **forming,**
- **casting, moulding,**
- **joining,**
- **machining, and**
- **additive manufacturing.**



# Forming



Forming is a process in which the shape of a partly finished product, for example sheet metal, is changed using plastic deformation

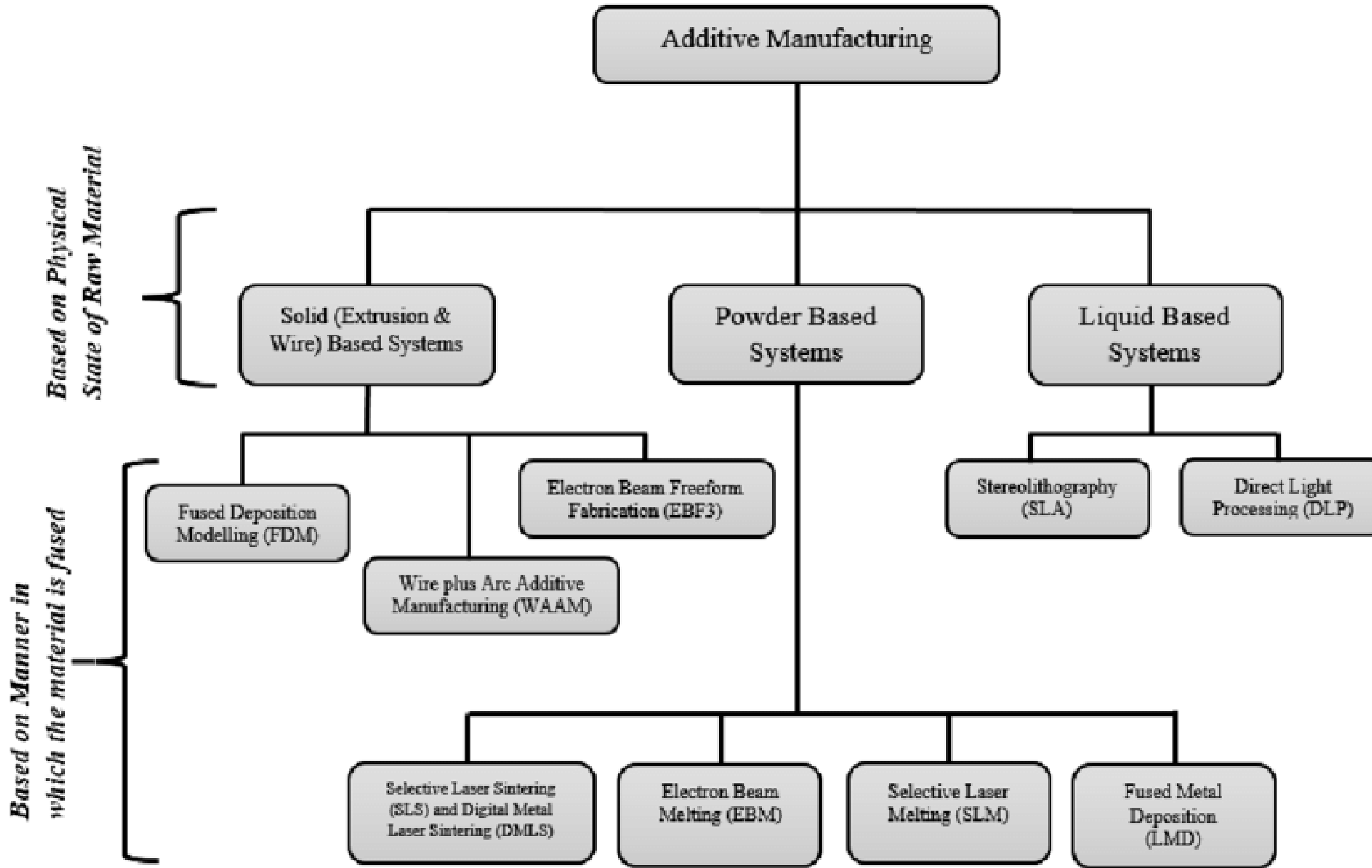




# Additive Manufacturing



Additive manufacturing is **the process of creating an object by building it one layer at a time**





## *Difference between various AM techniques?*

- ✓ Techniques used for creating layers;
- ✓ Techniques of bonding the layers together;
- ✓ Speed;
- ✓ Layer thickness;
- ✓ Range of materials;
- ✓ Accuracy;
- ✓ Cost.



# Pros and Cons

Pros	Cons
<b>Freedom to design and innovate without penalties</b>	<b>Unexpected pre- and post-processing requirements</b>
<b>Rapid iteration through design permutations</b>	<b>High process cost</b>
<b>Excellent for mass customization</b>	<b>Lack of industry standards</b>
<b>Elimination of tooling</b>	<b>Low speed, not suitable for mass production</b>
<b>Green manufacturing</b>	<b>Inconsistent Materials</b>
<b>Minimal material waste</b>	<b>Limited number of materials</b>
<b>Energy efficient</b>	<b>High equipment cost for high-end manufacturing</b>
<b>Enables personalized manufacturing</b>	





*Thank You*