

Manufacturing

BBHHS

Goubeaux

Manufacturing

- **Manufacturing** is the production of merchandise for use or sale using labor and machines, tools, chemical and biological processing, or formulation. The term may refer to a range of human activity, from handicraft to high tech, but is most commonly applied to industrial production, in which raw materials are transformed into finished goods on a large *scale*.
- Process of making things!

- <https://www.youtube.com/watch?v=JT7RcMPuDS0>

Processes

Primary Processes

- **Primary Manufacturing** is taking raw materials (from *Primary Industry*) and using them to make industrial materials.
- Ex. Steel, wood, glass...



Secondary Processes

- **Secondary Manufacturing** uses these products and turn them into finished goods.
- Ex. Steel beam, wooden furniture, glass bottles...

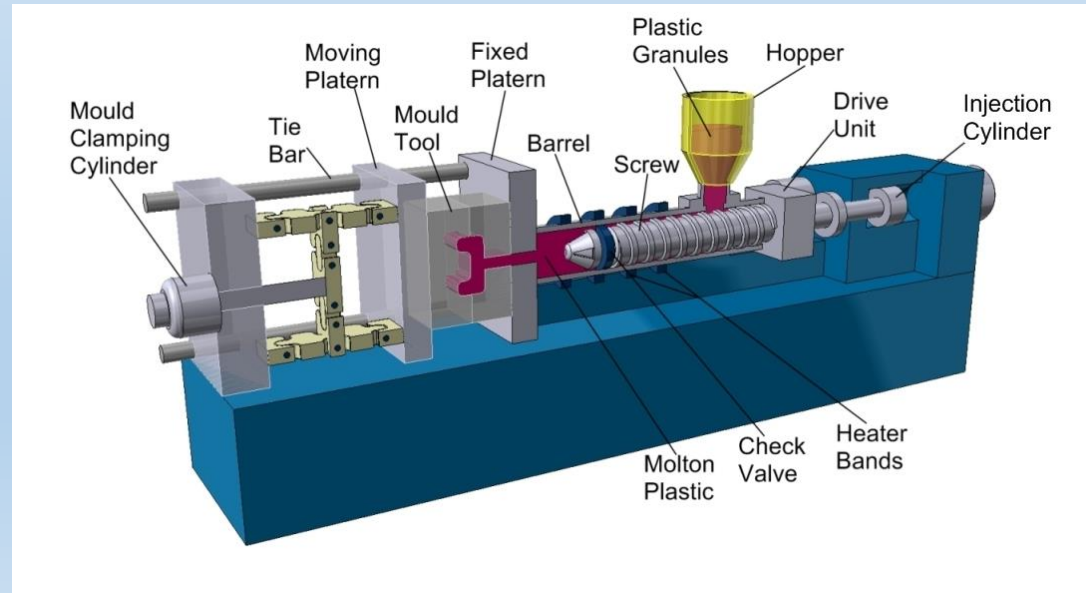


Secondary Processes

- Casting & Molding
- Forming
- Separating
- Conditioning
- Assembly
- Finishing
- Additive*

Casting & Molding

- Liquid material is poured or forced into a mold. The object produced is determined by the mold.
- Casting: Material is poured (Metal)
- Molding: material is forced (Plastic)



Forming

- Forming is the changing the shape of a material but not changing the materials properties.
- No material is added or removed but deformed.



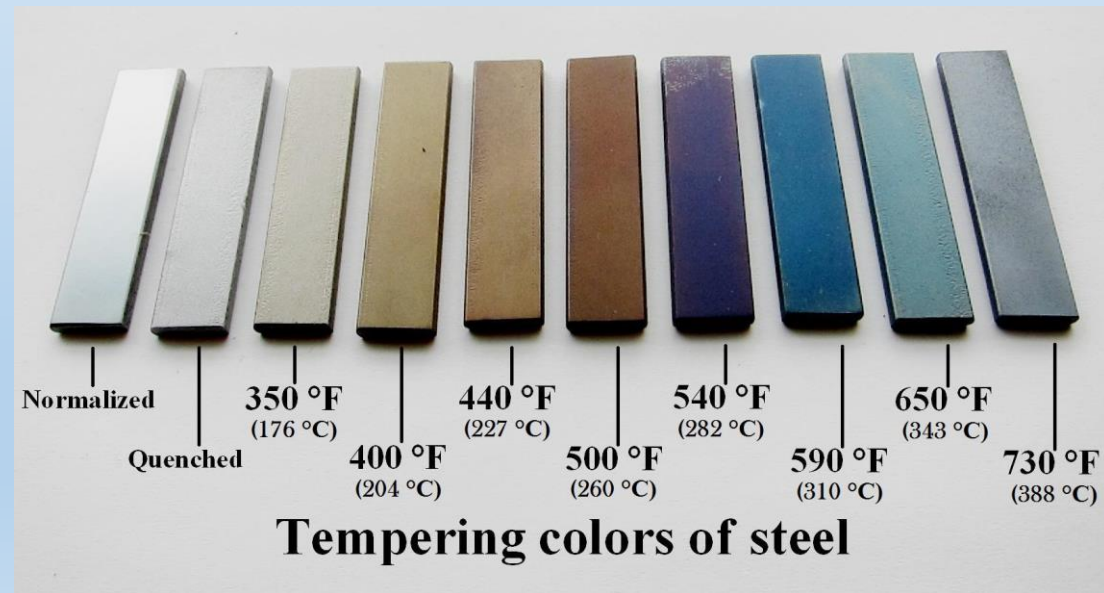
Separating

- Separating is changing a material's size or shape.
- 2 major types: Machining & Shearing
- Machining is removing material by chips or particles
- Shearing is fracturing the material



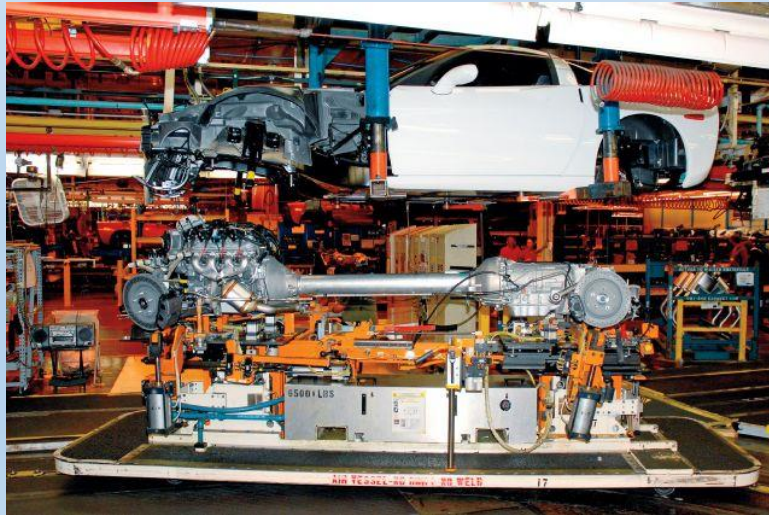
Conditioning

- Conditioning changes the internal properties of the material.
- Harder, softer, more elastic...
- Makes a material better for its desired use.



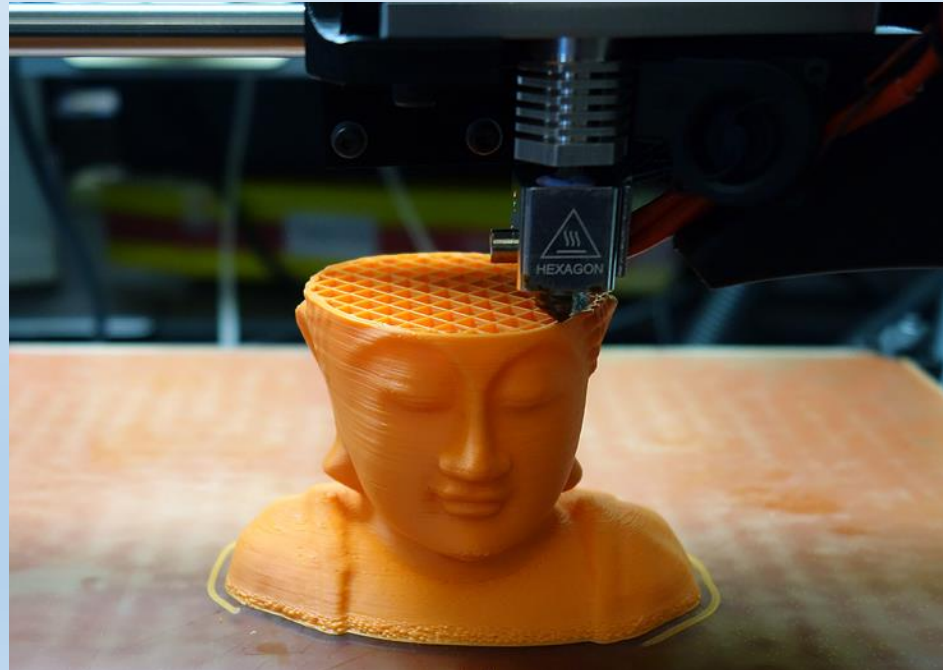
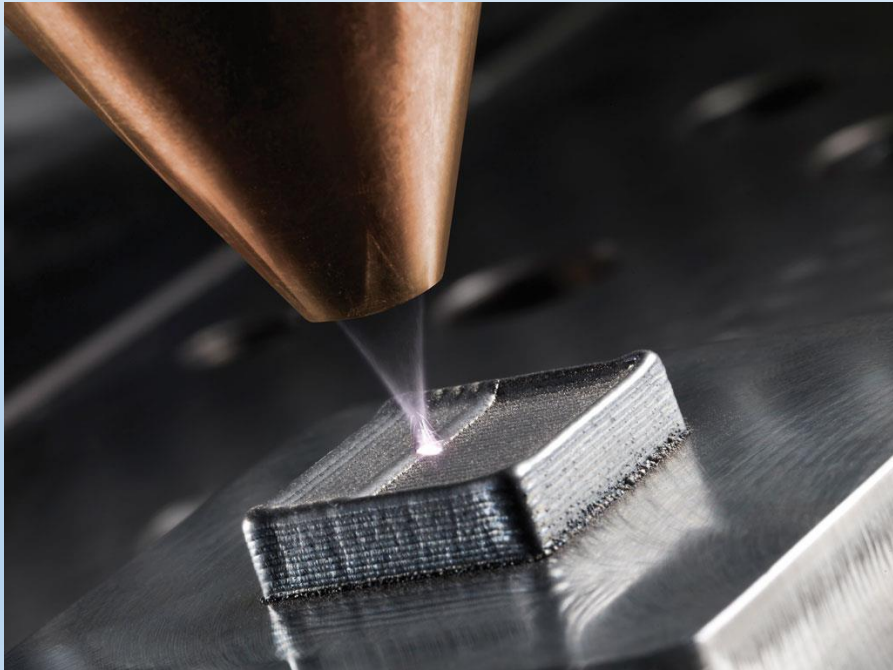
Assembly

- Assembly is the process of putting all the pieces of a product together.
- Bonding, Mechanical Fastening, Joining



Additive

- **Additive Manufacturing** refers to a process by which digital 3D design data is used to build up a component in layers by depositing material.



JIT Manufacturing

- Just in time manufacturing is when a company makes a product as it is needed to reduce inventory.
- Pioneered by Toyota

Manufacturing Careers

- There are thousands of jobs that pertain to manufacturing in every industry and field.
- Engineers, chemists, designers, Processes engineer...
- http://www.jobbank.gc.ca/job_titles-eng.do?area=27236&lang=eng&noc=0911&backurl=%2Freport-eng.do%3Farea%3D27236%26lang%3Deng%26noc%3D0911

The future of Manufacturing

- <https://www.youtube.com/watch?v=zsElhM17pCw>
- Processes, Materials, people?

