Systems Model

Foundations of Engineering and Technology
Technology System

- The complete process of designing, creating, using a tool and the result of its use.
- Each technology has parts that have a relationship with all other parts and to the whole.
Technology Systems Are:

- Created from human need or want
- Designed and developed by people
- Modified and/or abandoned over time
Technology System Components

1. **Goals** - the objective, what the system should accomplish
2. Inputs - elements that flow into the system and are consumed or processed in the system

- 7 different inputs
  - People
  - Materials
  - tools or machines
  - Energy
  - information
  - Finances
  - Time
Technological Processes

Feedback

Inputs → Processes → Outputs

Time
People

Energy
Tools and Machines

Finances
Information

Materials
Technology System Components

3. **Processes**- the steps needed to complete the task

- Engineering Design Process
- Production
- Management
Processes

- **Engineering Design Process**
  - Define the Problem
  - State Constraints and Specifications
  - Research the Problem
  - Alternative Solutions
  - Final Solution
  - Model and Prototype
  - Testing and Evaluation
  - Communicate
Processes

Production Process-
Actions completed to produce the product, structure or service

Management Process
Controlling and supervising the people, materials, and the production of the output.
Technology System Components

4. **Outputs**
   - finished product and wastes or pollution
   - Can be intentional or unintentional

5. **Feedback** - Information about the output of a system used to regulate the inputs and processes