FACULTY OF ENGINEERING & TECHNOLOGY

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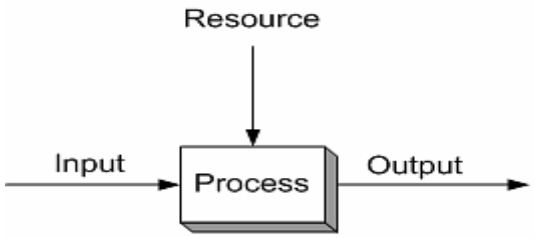
INTRODUCTION

Why do we need Process Control?

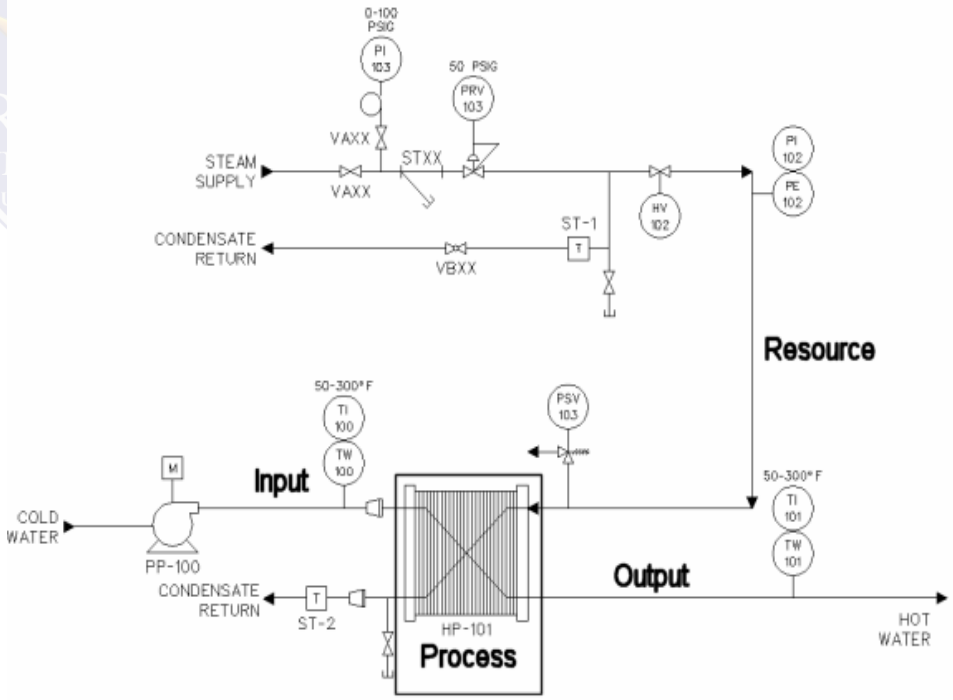
Effective process control is required to maintain safe operations, quality products, and business viability.

Process:

A process is broadly defined as an operation that uses resources to transform inputs into outputs. It is the resource that provides the energy into the process for the transformation to occur.



Example: a hot water generation process commonly found in plants. The input to this process is cold water and the output of the process is hot water. Steam is the resource that provides energy for the transformation to occur within the heat exchanger plates as shown in figure.



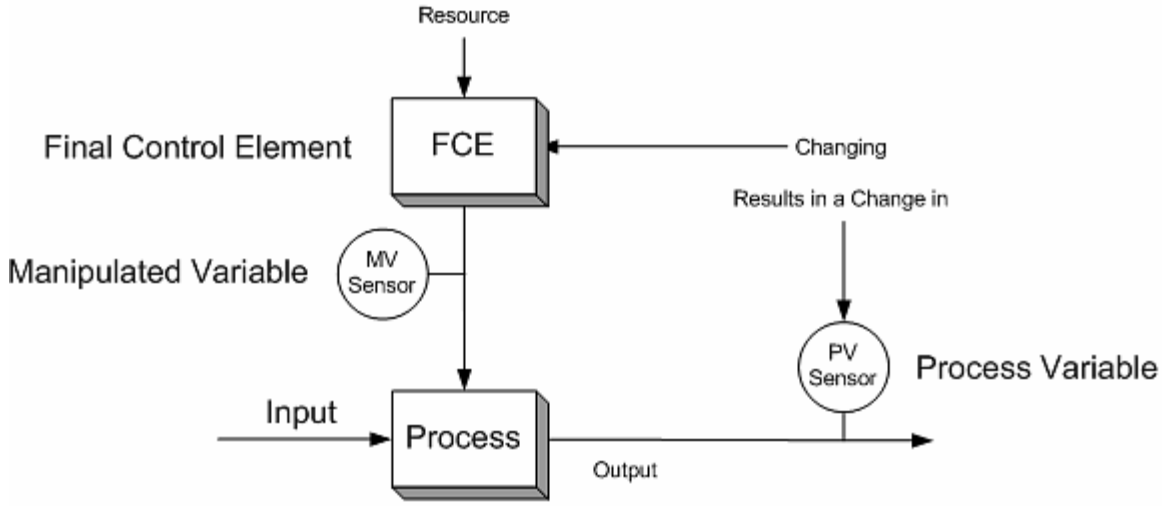
INTRODUCTION

Process Control:

Process control is the act of controlling a final control element to change the manipulated variable to maintain the process variable at a desired Set Point.

Definitions of some terms that are commonly used in process control

- The **manipulated variable (MV)** is a measure of resource being fed into the process, for instance how much thermal energy.
- A **final control element (FCE)** is the device that changes the value of the manipulated variable.
- The **controller output (CO)** is the signal from the controller to the final control element.
- The **process variable (PV)** is a measure of the process output that changes in response to changes in the manipulated variable.
- The **Set Point** (**SP)** is the value at which we wish to maintain the process variable.



Block diagram of a process with a final control element and sensors