

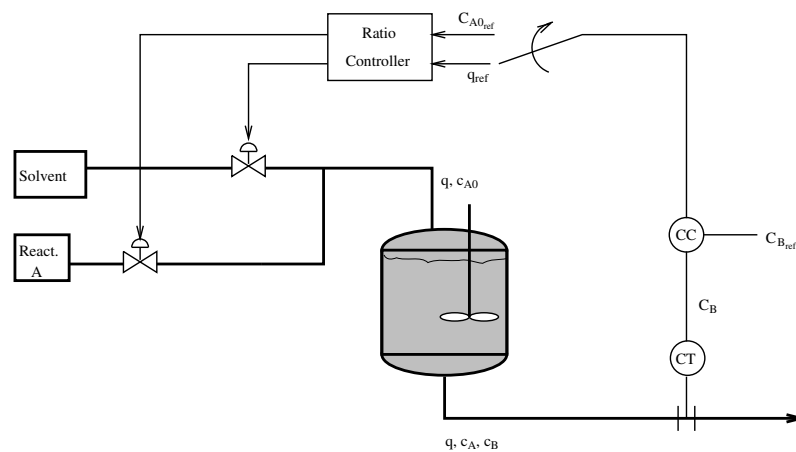
# Market Driven Systems (FRTN20)

## Exercise 1 - Solutions

### Introduction and Continuous Production Plants

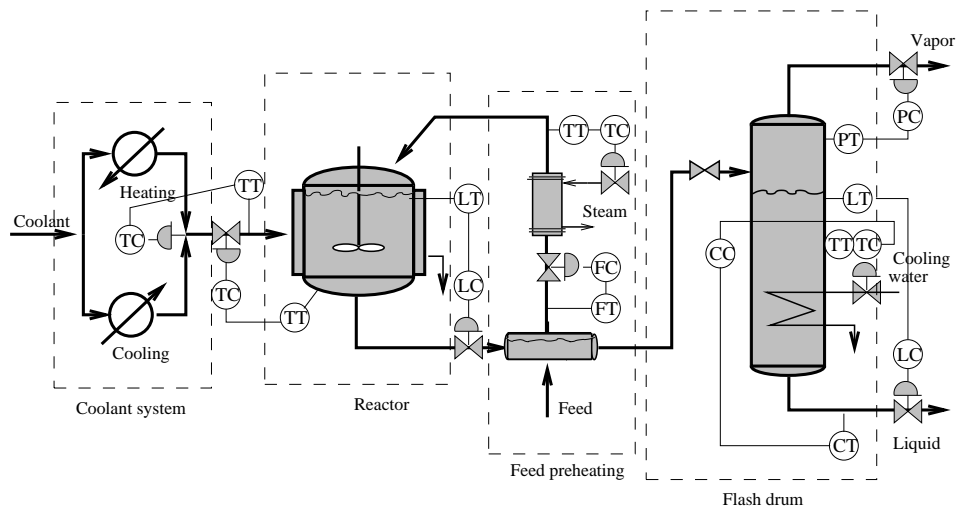
Last updated: 2014

- Continuous
  - Discrete
  - Batch
- Produce products and thereby make money.
- Continuous processes.
- Continuous processes.
- Discrete processes.
- The product is produced in batches.
  - Production is carried out in steps.
- Continuous: pulp and paper, metals
  - Discrete: automotive, machine parts
  - Batch: beverages, pharmaceuticals
- One suggestion of how the sensors, actuators, and controllers can be placed is shown in Figure 1.



**Figure 1** The reactor with sensors, actuators, and controllers.

9. Suggestion for sensors, actuators, and controllers are shown in Figure 2.



**Figure 2** The chemical process with transmitters and controllers.

**a. Production rate suggestions**

- The inflow to the reactor
- The inflow to the flash drum

**b. Inventory variables**

- The level in the reactor
- The level in the flash drum

**c. Environment variables**

- The temperature in the reactor
- The temperature in the jacket
- The temperature of the inflow
- The temperature in the flash drum
- The pressure in the flash drum

**d. Production quality**

- The concentration in the outflow of the flash drum