

CHBE 470

Fall 2022

Homework 1

Assigned Friday, August 26, 2022
Homework due Friday, September 2 by 5:00 PM

Problem 1 - 10 points

Problem 1.1 in Marlin. Hint: the four necessary components are provided in Figure 1.4 and include the set point.

Problem 2 - 10 points

Problem 1.2 in Marlin.

Problem 3 - 10 points

Problem 1.6a. Perform the analysis for the continuous-flow stirred tank chemical reactor only. Provide a sketch of the sensors and final elements - see Figure 1.7 for example sketches.

Problem 4 - 10 points

Does a typical microwave oven utilize feedback control to set the cooking temperature or to determine if the food is “cooked”? If not, what technique is used? Can you think of any disadvantages to this approach, for example, in thawing and cooking foods?