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COLLEGE OF ENGINEERING

DEPARTMENT OF CHEMICAL AND PETROLEUM ENGINEERING B.ENG. CHEMICAL ENGINEERING PROGRAMME

Process Dynamics and Control I (CHE 531) Assignment II

*Given Date: 08/10/2018
Submission Date: 14/10/2018*

PROBLEM STATEMENT

A single-tank process has been operating for a long period of time with the inlet flow rate equal to $30.4 \text{ ft}^3/\text{min}$. After the operator increases the flow rate suddenly by 10%, the liquid level in the tank changes as given in Table 1. Assuming that the process dynamics can be described by a first-order model, calculate the steady-state gain and the time constant of the process with the aid of MATLAB *mfile*.

Table 1. Dynamics data of the process

t (min)	h (ft)
0	5.5
0.2	5.75
0.4	5.93
0.6	6.07
0.8	6.18
1	6.26
1.2	6.32
1.4	6.37
1.6	6.4
1.8	6.43
2	6.45
3	6.5
4	6.51
5	6.52