

## Experiment No. 8

**Title:** Time response specifications second order systems.

**Objectives:**

1. To plot the step response of second order system using formula.
2. To calculate the time response specifications of second order system using formulae.

**MATLAB:**

1. Write a programme in MATLAB to
  - a) plot the step response of second order system with  $\omega_n = 2 \text{ rad/sec}$  and  $\xi = 0.25$  without using inbuilt `step` function. (Hint: use the formula of step response).
  - b) calculate and plot delay time, rise time, peak time, settling time, peak overshoot on step response generated in Q.1. (Hint: use the formulae of time response specifications). Verify results using `stepinfo`.

**Conclusion:** (Hint: Write your interpretation from output graphs)