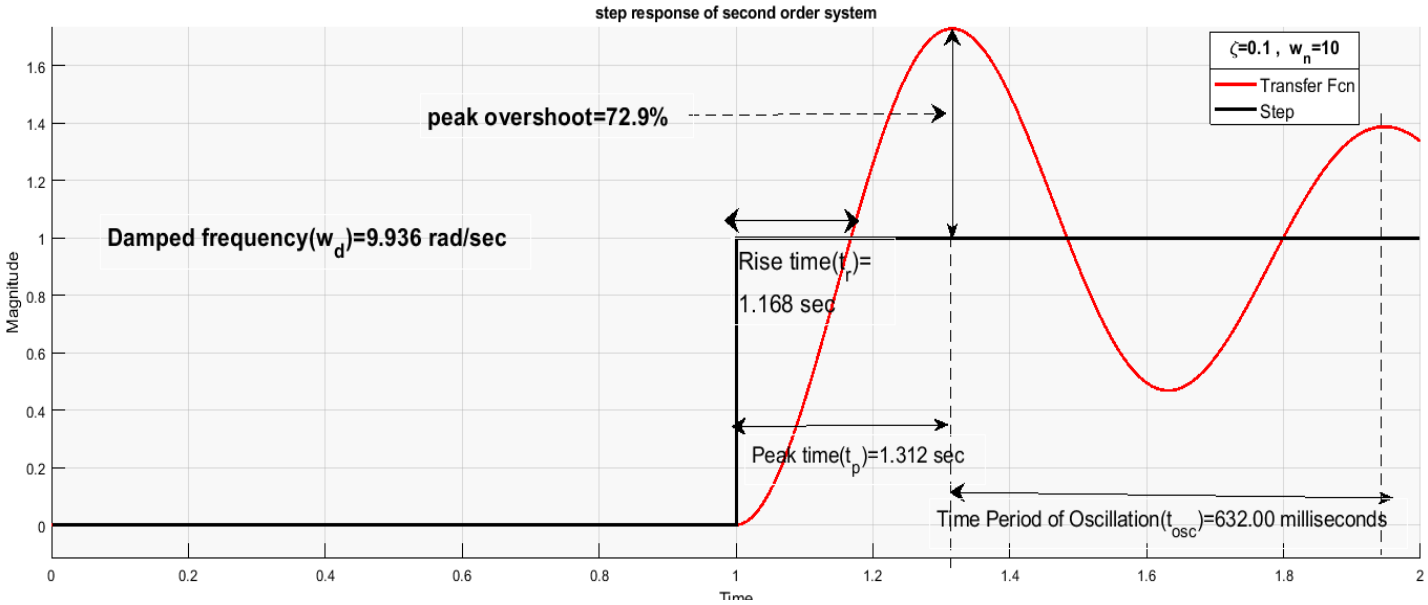
Name: Avinash Saroj **Entry Number: JID202552** **Assignment number: 1**

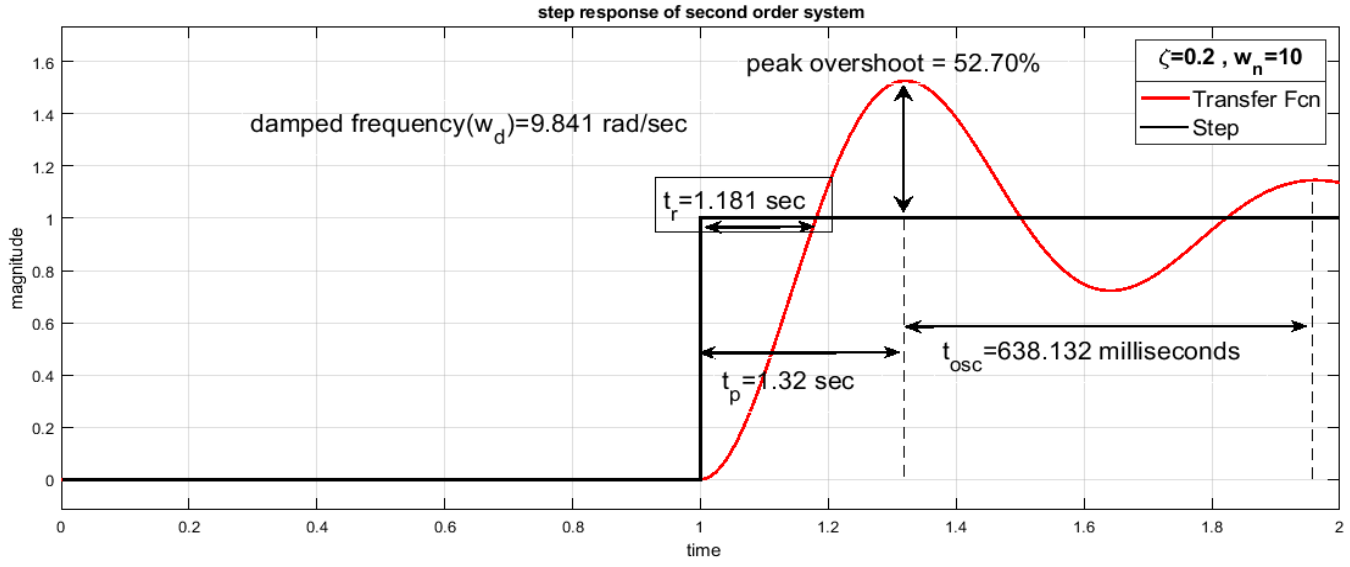
Case1:

$w_n = 10$ and $\zeta = 0.1$



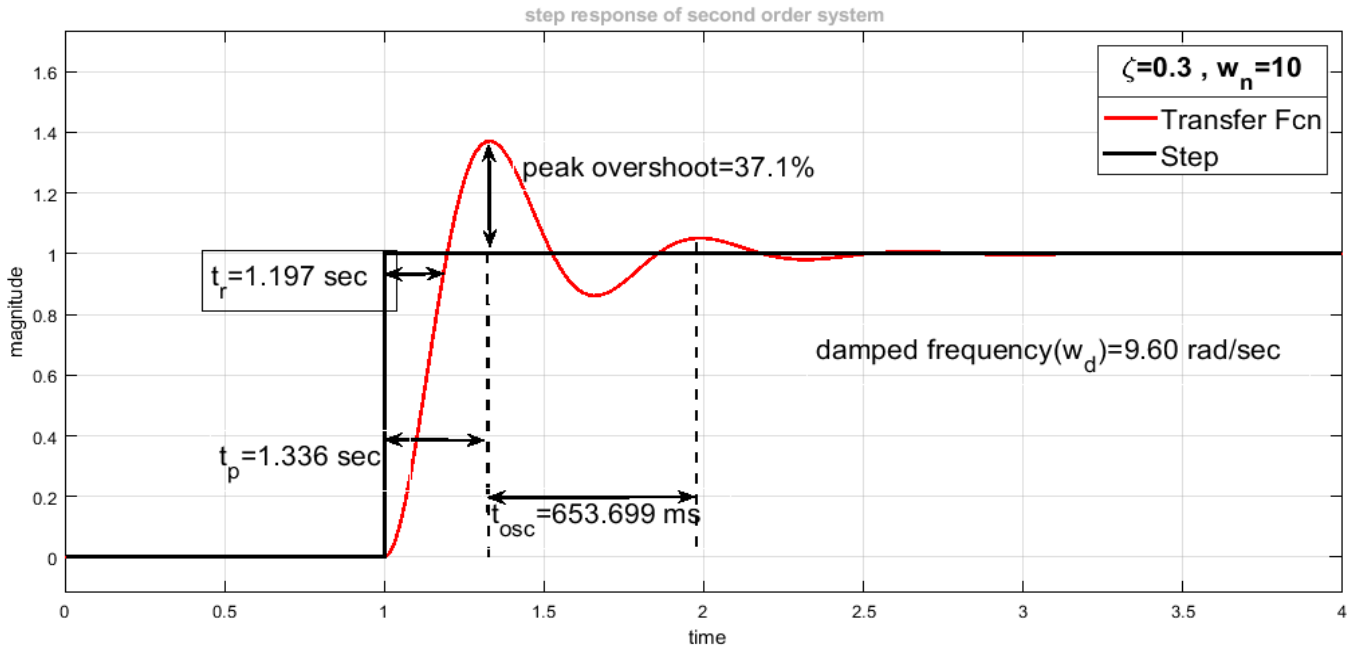
Case2:

$w_n = 10$ and $\zeta = 0.2$



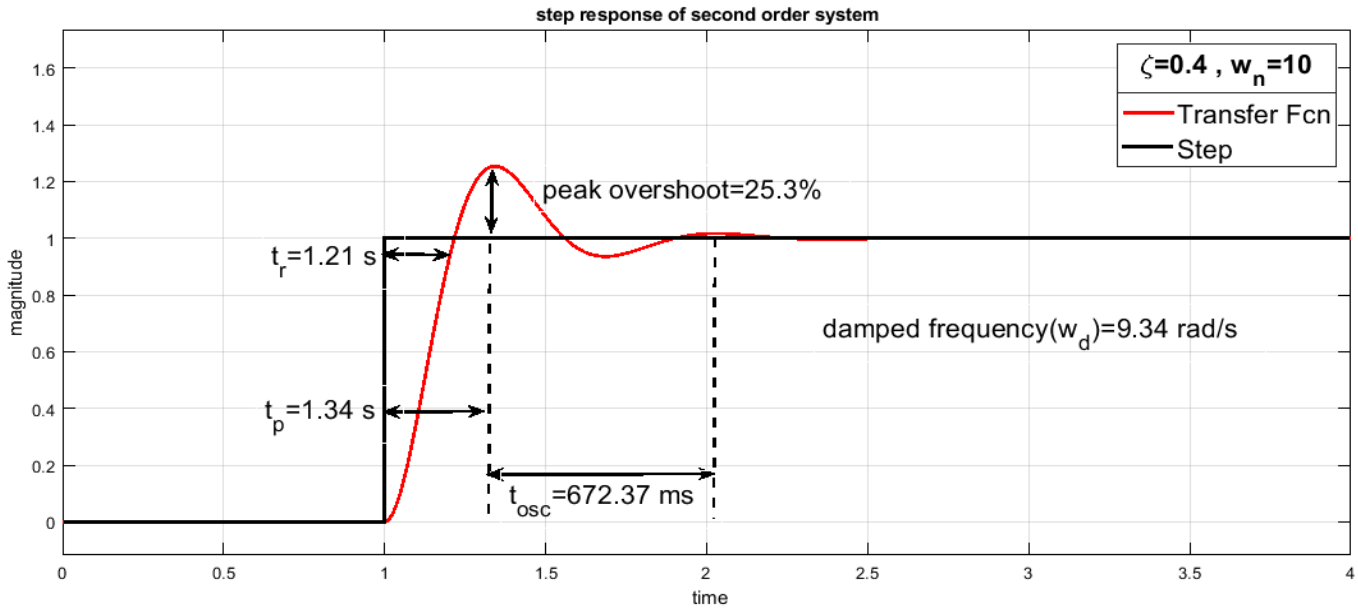
Case3:

$w_n = 10$ and $\zeta = 0.3$



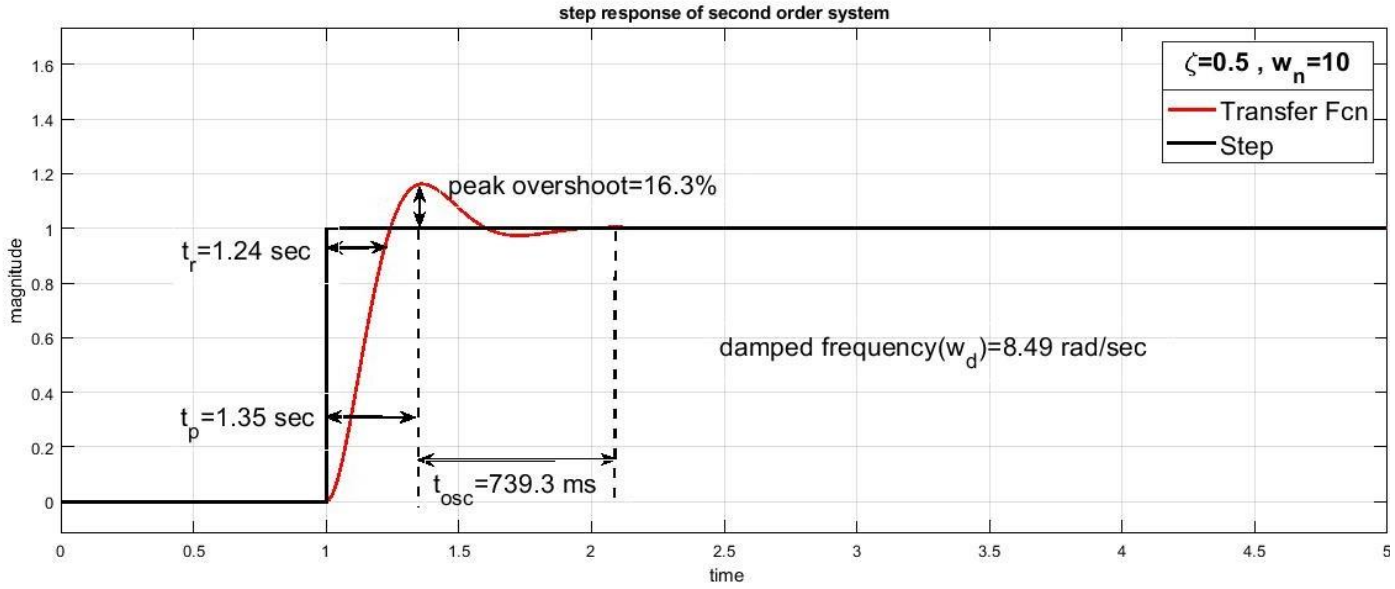
Case4:

$w_n = 10$ and $\zeta = 0.4$



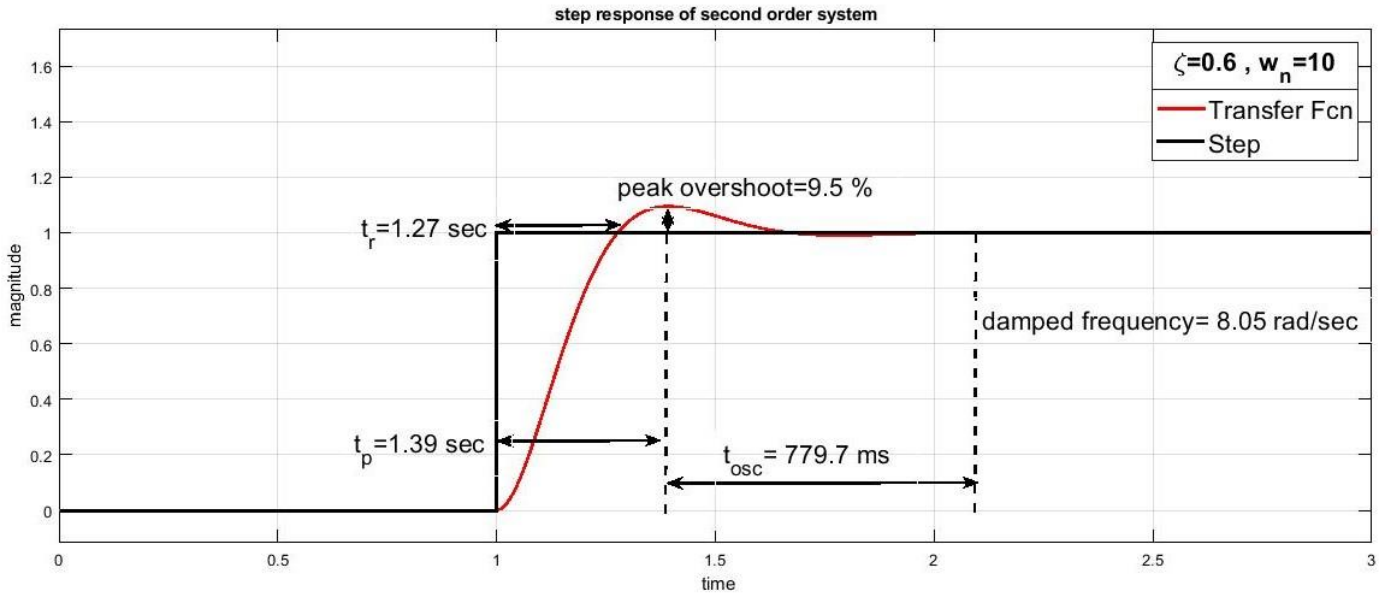
Case5:

wn = 10 and ζ = 0.5



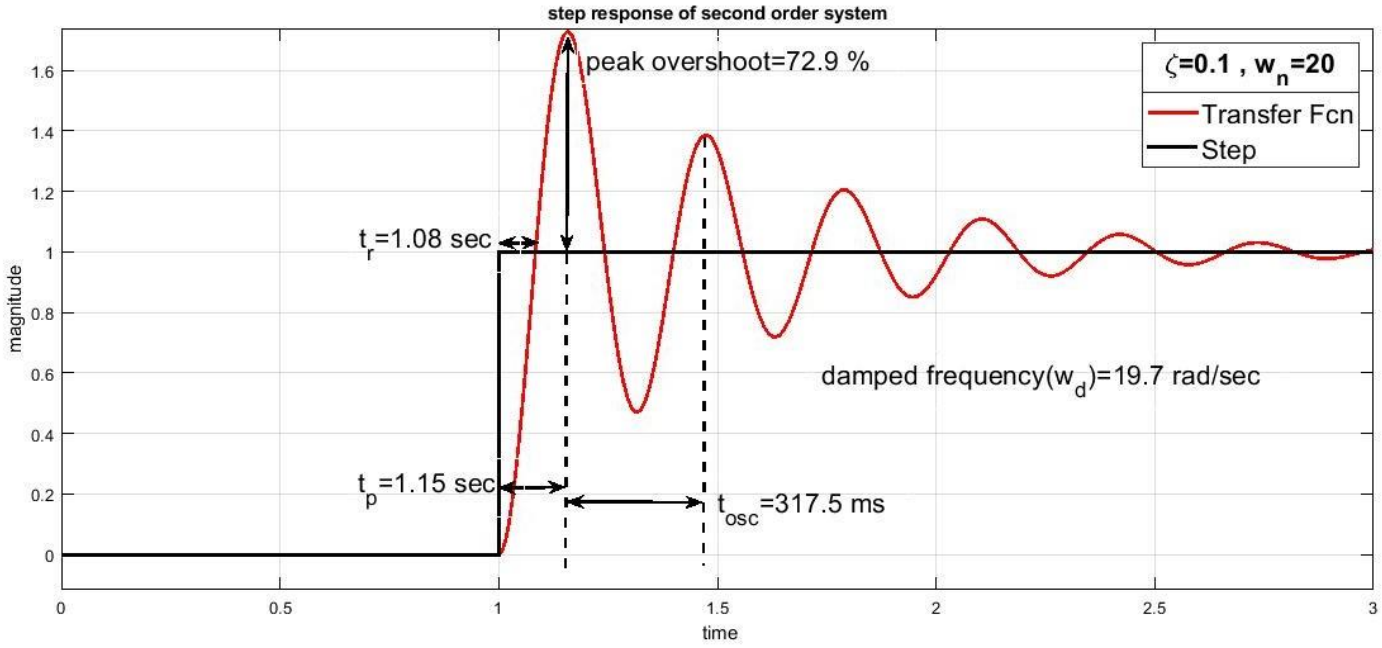
Case6:

wn = 10 and ζ = 0.6



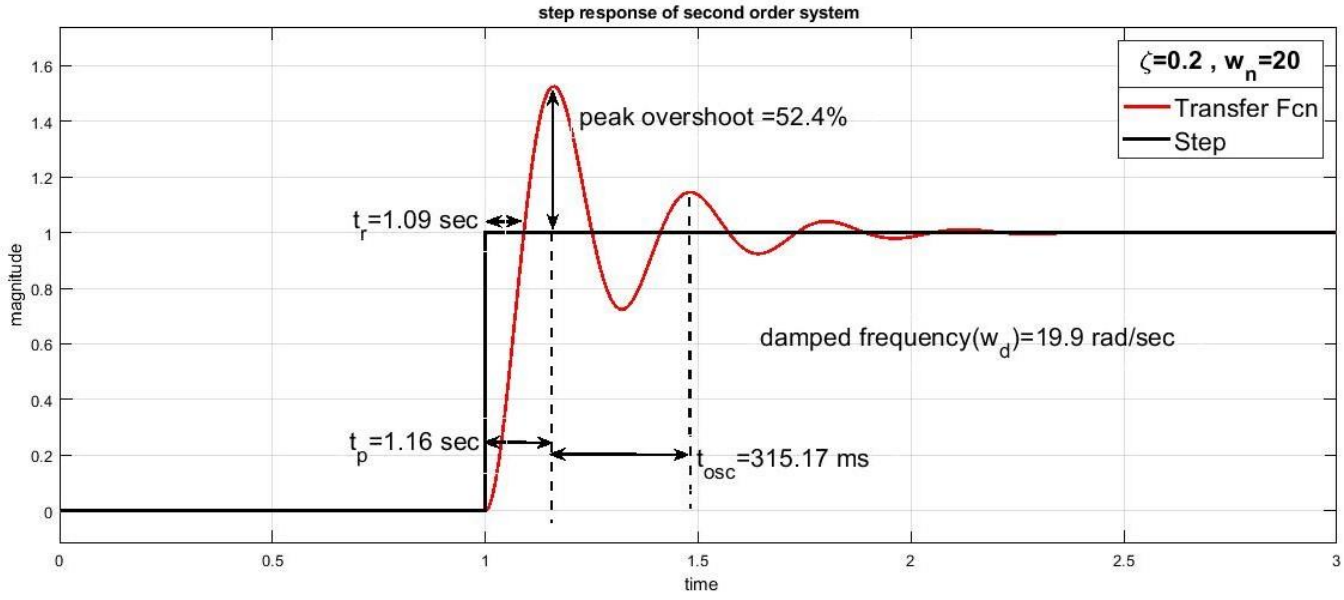
Case7:

$w_n = 20$ and $\zeta = 0.1$



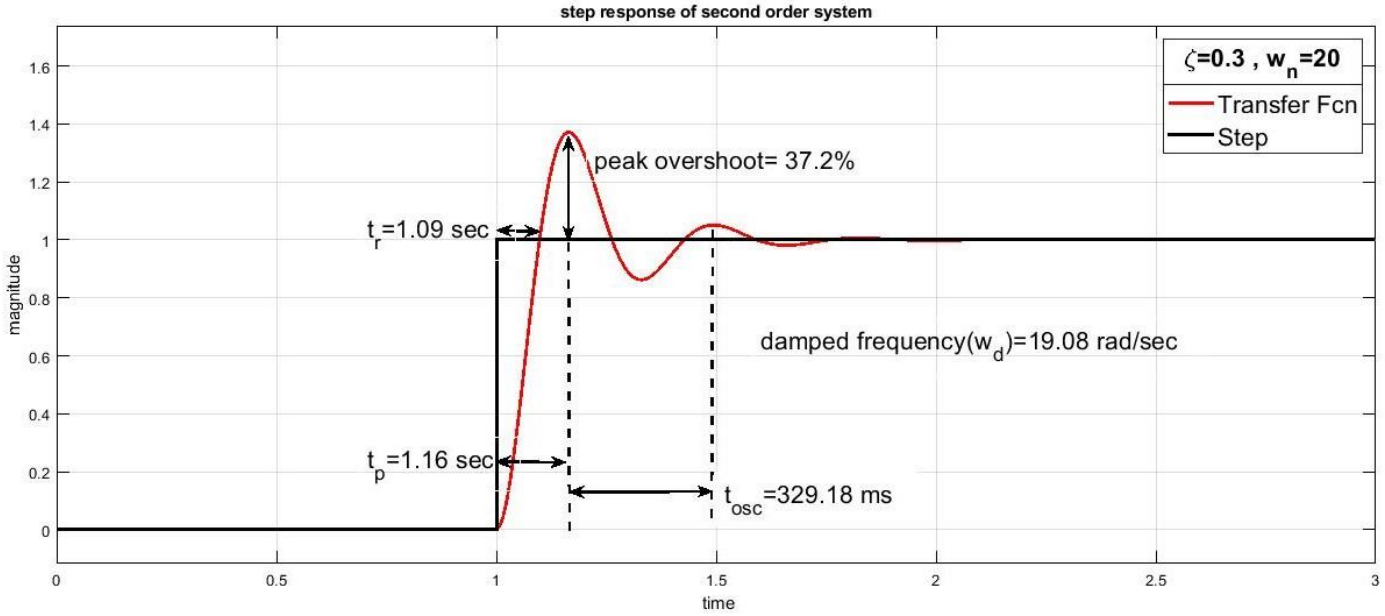
Case8:

$w_n = 20$ and $\zeta = 0.2$



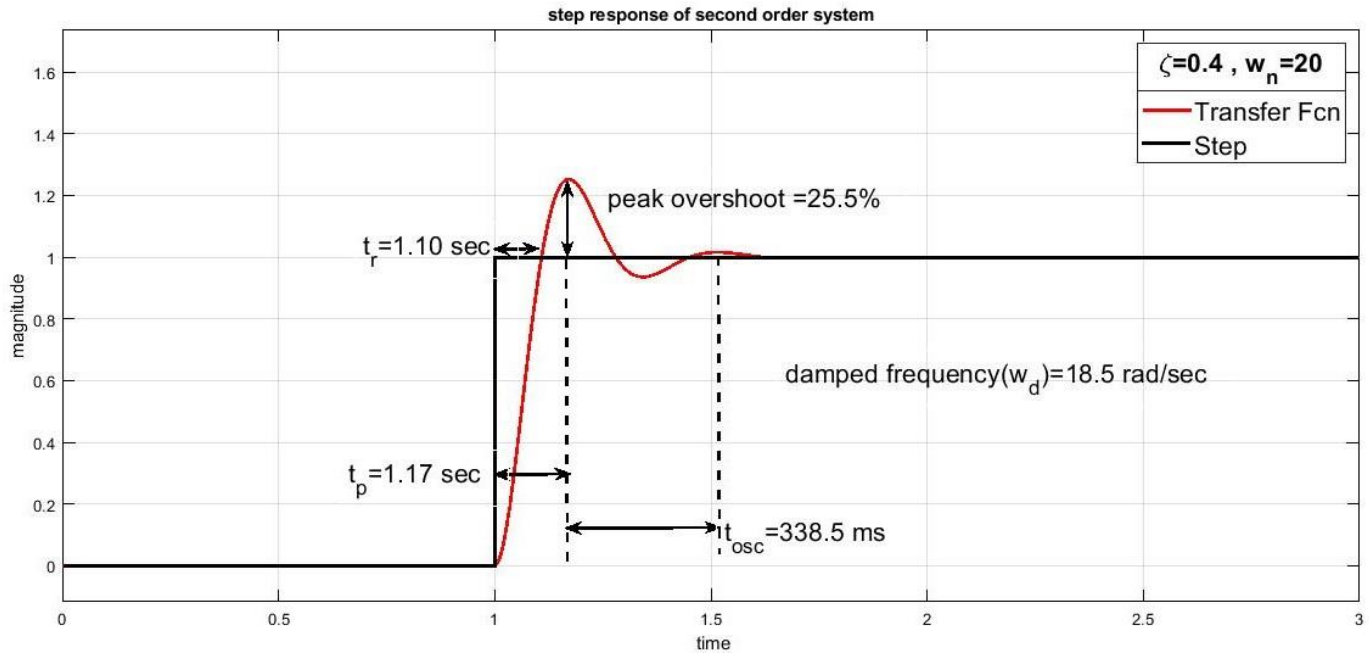
Case9:

$w_n = 20$ and $\zeta = 0.3$



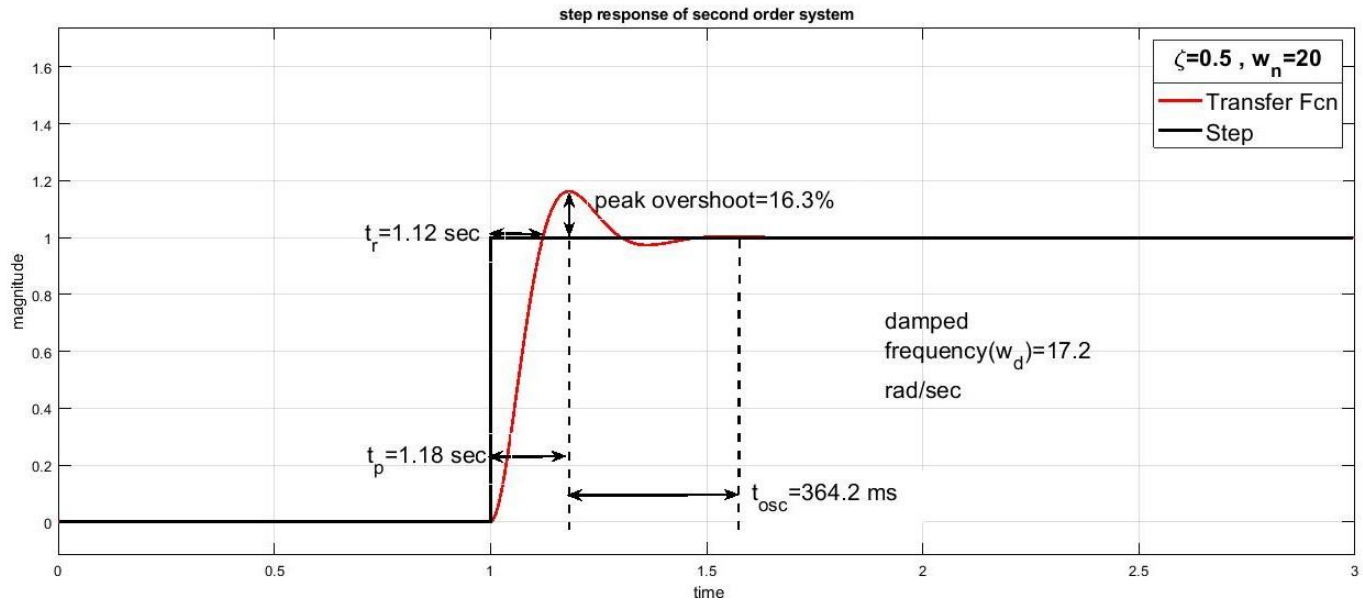
Case10:

$w_n = 20$ and $\zeta = 0.4$



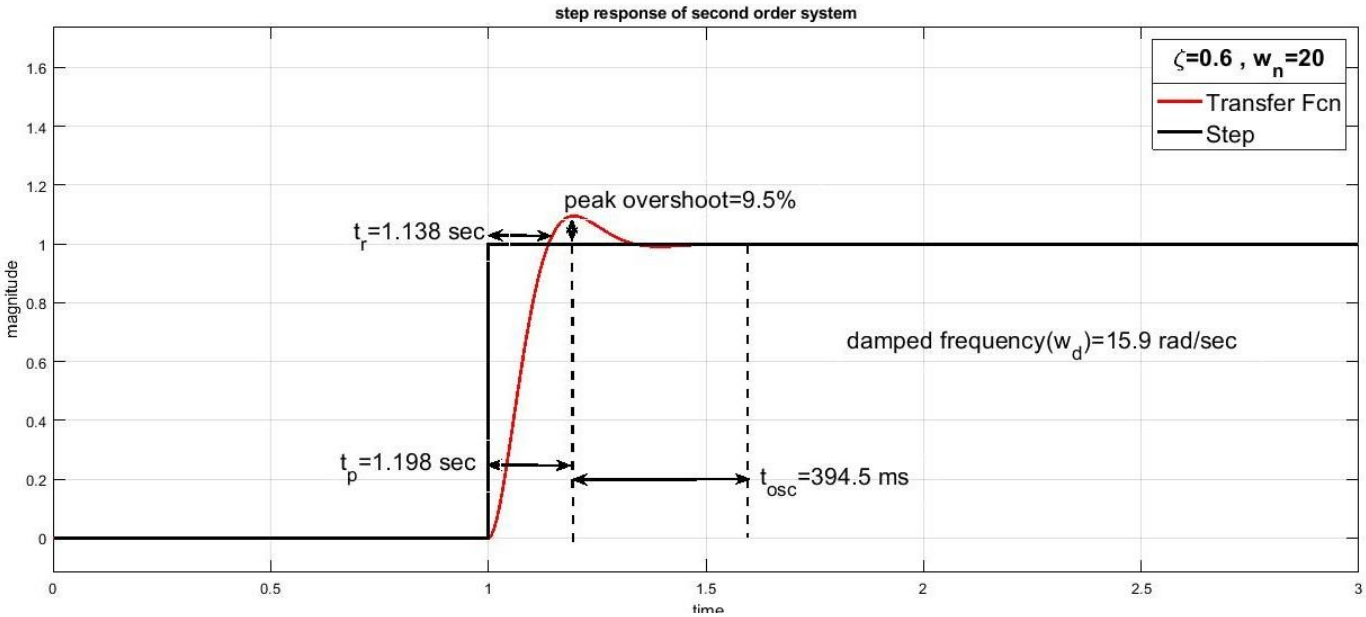
Case11:

wn = 20 and ζ = 0.5



Case12:

wn = 20 and ζ = 0.6



S. No	w_n	ζ	Rise Time (sec)	Peak Overshoot (%)	Peak Time(sec)	Time Period of Oscillations (millisec)	Damped Frequency (rad/sec)
1	10	0.1	1.16	72.9	1.31	632.0	9.936
2	10	0.2	1.18	52.7	1.321	638.13	9.84
3	10	0.3	1.19	37.1	1.33	653.69	9.6
4	10	0.4	1.21	25.3	1.34	672.37	9.34
5	10	0.5	1.24	16.3	1.35	739.3	8.49
6	10	0.6	1.27	9.5	1.39	779.7	8.05
7	20	0.1	1.08	72.9	1.15	317.5	19.7
8	20	0.2	1.09	52.4	1.16	315.17	19.9
9	20	0.3	1.09	37.2	1.16	329.18	19.08
10	20	0.4	1.10	25.5	1.17	338.5	18.5
11	20	0.5	1.12	16.3	1.18	364.2	17.2
12	20	0.6	1.138	9.5	1.198	394.5	15.9