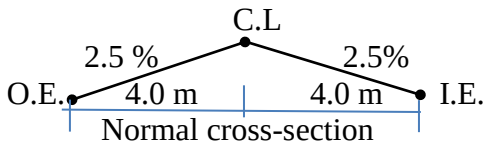
CE 353 PRINCIPLES OF TRANSPORTATION AND TRAFFIC ENGINEERING

RECITATION 3

1) curve with 450 m radius is designed for 100 km/h design speed. According to Turkish practice, 2/3 of the superelevation runoff distance (Ls) is located before PC point and 1/3 of Ls is located after PC point. The normal cross-section on alignment is shown below.

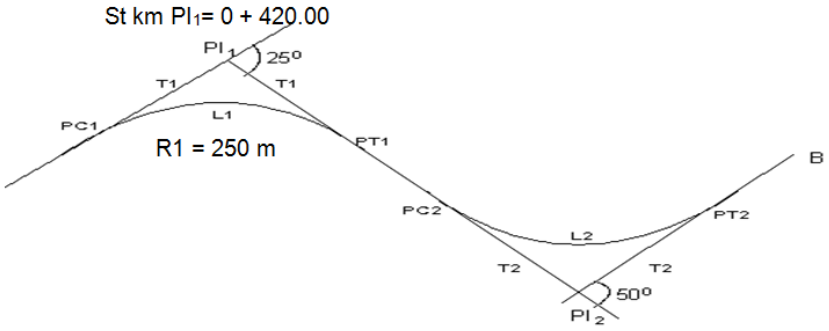


Superelevation is applied rotating around centerline and the following elevation data is given:

Station km	Elevation (m)		
	O.E.	C.L.	I.E.
0 + 175,07	125.23	125.28	125.18
0 + 225.07	126.98	126.78	126.58
0 + 250.00	127.85	127.53	127.21
0 + 255.00	128.00	127.68	127.36
0 + 260.00	128.15	127.83	127.51

a) Determine the maximum superelevation rate (e_{max}) for the curve
b) Determine superelevation runoff (L_s) and tangent runout (L_t) distance
c) Determine the side friction factor used for design
d) Determine station km of PC.
e) Draw superelevation diagram between the starting point of tangent runout and the ending point of superelevation runoff distance.

2)



The horizontal alignment segment with reverse curves shown above will be designed for 70 km/h design speed. If the distance between PI_1 and PI_2 is 294.95 m,

Find:
- **a)** T_1, L_1, St. km. PC_1, St. km. PT_1
- **b)** Determine the maximum radius for the second curve (R_{2max}) (Use revised speed in L_s calculations)
- **c)** T_2, L_2, St. Km. PC_2, St. Km. PT_2

Note: Apply Turkish practice