

GRAFIČKI PRIKAZ F-JE $Z(s, u)$ I $Z'(s, u)$

$$Z(s, u) = 10\zeta^2(5\zeta^2 - 8\zeta + 3)$$

$$Z(s, u) = 0 \quad 5\zeta^2 - 8\zeta + 3 = 0 \quad \zeta_{1,2} = \frac{8 \pm \sqrt{64 - 4 \cdot 5 \cdot 3}}{2 \cdot 5} = \begin{matrix} \rightarrow 1 \\ \rightarrow 0,6 \end{matrix}$$

$$\zeta_1 = 0,6 \quad \zeta_2 = 1 \quad (u_1 = 0,6 \cdot 20 = 12 \text{ m} \quad u_2 = 1 \cdot 20 = 20 \text{ m})$$

$$Z'(s, u) = 0 \quad 10\zeta^3 - 12\zeta^2 + 3\zeta = 0 \quad \zeta(10\zeta^2 - 12\zeta + 3) = 0$$

$$\zeta'_{1,2} = \frac{12 \pm \sqrt{144 - 4 \cdot 10 \cdot 3}}{2 \cdot 10} = \begin{matrix} \rightarrow 0,355 \\ \rightarrow 0,845 \end{matrix}$$

max F-je

$$(u_1' = 7,1 \text{ m} \quad u_2' = 16,9 \text{ m})$$



$$\max Z_s = Z_s(s, u_1') = 0,996 \quad u_1' = 7,1 \text{ m} - \text{vratio u prvobitnu}$$

$$\frac{20 - 7,1}{2} \left(\frac{7,1}{20} \right)^2 (3 - 5 \cdot \frac{7,1}{20}) = 0,996$$

$$\min Z_s = Z_s(s, u_2') = -1,356$$

→ kada je $u=0$ na početku (odavle počinje)

$$Z'(s, 0) = 0$$

$$Z'(s, 1) = 1 \quad \rightarrow \text{kada je } u=1$$

$$Z''(s, u) = 0 \quad 1,5\zeta^2 - 1,2\zeta + 0,15 = 0 \quad \zeta'_{1,2} = \frac{1,2 \pm \sqrt{1,2^2 - 4 \cdot 1,5 \cdot 0,15}}{2 \cdot 1,5} = \begin{matrix} \rightarrow 0,155 \\ \rightarrow 0,645 \end{matrix}$$

$$\zeta_1'' = 0,155 \quad \zeta_2'' = 0,645 \quad (u_1'' = 3,1 \text{ m} \quad u_2'' = 12,9 \text{ m})$$

$$\max Z_s'(s, u_1'') = 10 \cdot (0,155)^3 - 12 \cdot (0,155)^2 + 3 \cdot (0,155) = 0,214$$

$$\min Z_s'(s, u_2'') = 10 \cdot (0,645)^3 - 12 \cdot (0,645)^2 + 3 \cdot (0,645) = -0,374$$

$Z(s, u)$

