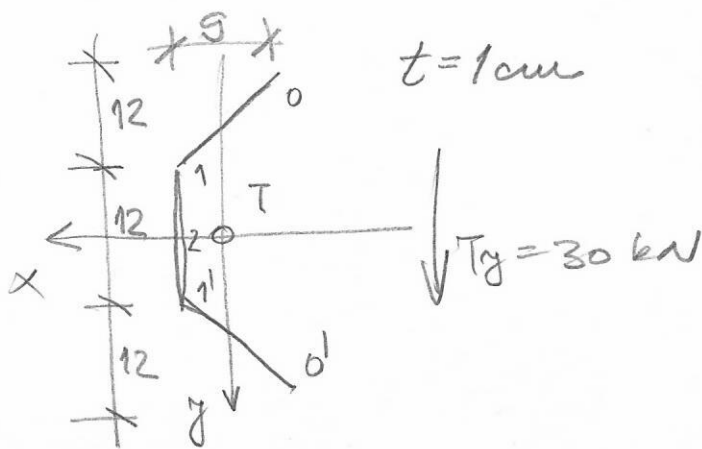
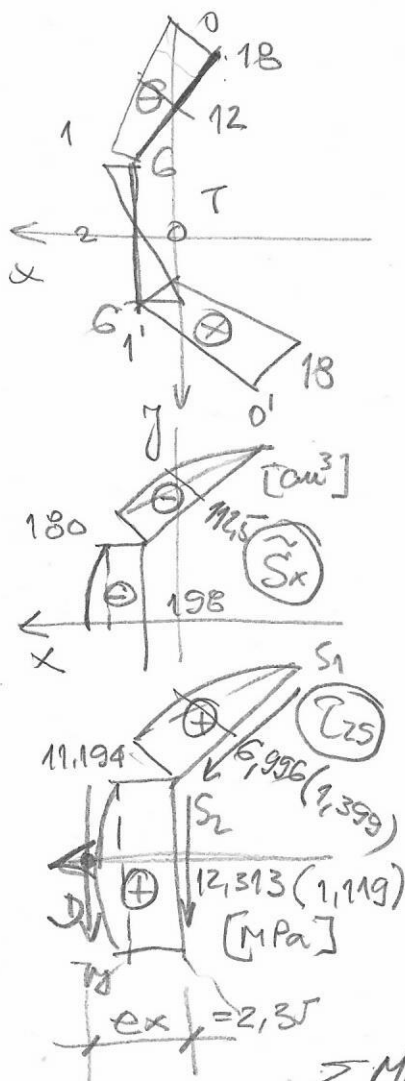


UNIVERZITET U BANJALUCI  
ARHITEKTONSKO-GRADUVINSKO-GEODETSKI FAKULTET  
KATEDRA ZA MEHANIKU I TEORIJU KONSTRUKCIJA  
STUDIJSKI PROGRAM GRADEVINARSTVO 09.06.2021.

II KOCOKVIJUM OTPORNOST MATERIJALA 2.

ZA TANKOZIDNI NOSAČ NA SKICI TREBA ODREDITI /  
RASPORED NAPONA SMICANJA OD  $T_y = 30 \text{ kN}$  ,  
ODREDITI POLOŽAJ CENTRA SMICANJA.





$$J_x = 2 \cdot \left[ \frac{15}{3} (18^2 + 6 \cdot 18 + 6^2) + \frac{6}{3} \cdot 6^2 \right] = 4824 \text{ cm}^4$$

$$\tilde{S}_{x,02} = \frac{15}{2} \cdot 1 \cdot (-15) = -112,5 \text{ cm}^3$$

$$\tilde{S}_{x,1} = 15 \cdot 1 \cdot (-12) = -180,0 \text{ cm}^3$$

$$\tilde{S}_{x,2} = -180 + 6 \cdot 1 \cdot \left(-\frac{6}{2}\right) = -198 \text{ cm}^3$$

$$\tilde{I}_{z5,02} = -\frac{30 \cdot 10^{-3} \cdot (-112,5) \cdot 10^{-6}}{4824 \cdot 10^{-8} \cdot 1 \cdot 10^{-2}} = -0,062 \cdot (-112,5) = 6,996 \text{ MPa}$$

$$\tilde{I}_{z5,1} = -0,062 \cdot (-180) = 11,194 \text{ MPa}$$

$$\tilde{I}_{z5,2} = -0,062 \cdot (-198) = 12,313 \text{ MPa}$$

$$S_1 = 15 \cdot 10 \cdot 1 \cdot 10 \cdot \left( \frac{11,194}{2} + \frac{2}{3} \cdot 11,399 \right) \cdot 10^3 = 9,794 \text{ kN}$$

$$S_2 = 12 \cdot 10 \cdot 1 \cdot 10 \cdot \left( 11,194 + \frac{2}{3} \cdot 11,119 \right) \cdot 10^3 = 14,328 \text{ kN}$$

$$\sum Y = 2 \cdot 0,8 \cdot 9,794 + 14,328 = 30,00 \text{ kN} = 7\gamma$$

$$\sum X = (S_1 - S_2) \cdot 0,6 = 0 \quad \checkmark$$

$$\sum M_0 = ex(14,328 + 2 \cdot 0,8 \cdot 9,794) - 0,6 \cdot 9,794 \cdot 12 = 0$$

$$ex = 2,35$$

ZBOG SIMETRIJE JE CENTAR SMICAJA LEŽI  
NA OSI X U DALJEN ZA  $ex = 2,35 \text{ cm}$  OD VERTIKALNE  
ZIDA U DESNO.