Matrica krutosti stapa tipa K

$$K_k = \begin{bmatrix} \frac{EF}{l} & 0 & 0 & -\frac{EF}{l} & 0 & 0 \\ 0 & \frac{12EI}{l^3} & \frac{6EI}{l^2} & 0 & -\frac{12EI}{l^3} & \frac{6EI}{l^2} \\ 0 & \frac{6EI}{l^2} & \frac{4EI}{l} & 0 & -\frac{6EI}{l^2} & \frac{2EI}{l} \\ -\frac{EF}{l} & 0 & 0 & \frac{EF}{l} & 0 & 0 \\ 0 & -\frac{12EI}{l^3} & -\frac{6EI}{l^2} & 0 & \frac{12EI}{l^3} & -\frac{6EI}{l^2} \\ 0 & \frac{6EI}{l^2} & \frac{2EI}{l} & 0 & -\frac{6EI}{l^2} & \frac{4EI}{l} \end{bmatrix}$$

Matrica krutosti stapa tipa G

$$K_g = \begin{bmatrix} \frac{EF}{l} & 0 & 0 & -\frac{EF}{l} & 0 \\ 0 & \frac{3EI}{l^3} & \frac{3EI}{l^2} & 0 & -\frac{3EI}{l^3} \\ 0 & \frac{3EI}{l^2} & \frac{3EI}{l} & 0 & -\frac{3EI}{l^2} \\ -\frac{EF}{l} & 0 & 0 & \frac{EF}{l} & 0 \\ 0 & -\frac{3EI}{l^3} & -\frac{3EI}{l^2} & 0 & \frac{3EI}{l^3} \end{bmatrix}$$

Matrica krutosti stapa tipa G

$$K_g = \begin{bmatrix} \frac{EF}{l} & 0 & -\frac{EF}{l} & 0 & 0 \\ 0 & \frac{3EI}{l^3} & 0 & -\frac{3EI}{l^3} & \frac{3EI}{l^2} \\ -\frac{EF}{l} & 0 & \frac{EF}{l} & 0 & 0 \\ 0 & -\frac{3EI}{l^3} & 0 & \frac{3EI}{l^3} & -\frac{3EI}{l^2} \\ 0 & \frac{3EI}{l^2} & 0 & -\frac{3EI}{l^2} & \frac{3EI}{l} \end{bmatrix}$$

$$T_k = \begin{bmatrix} \cos\alpha & \sin\alpha & 0 & 0 & 0 & 0 \\ -\sin\alpha & \cos\alpha & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & \cos\alpha & \sin\alpha & 0 \\ 0 & 0 & 0 & -\sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

$$T_g = \begin{bmatrix} \cos\alpha & \sin\alpha & 0 & 0 & 0 \\ -\sin\alpha & \cos\alpha & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & \cos\alpha & \sin\alpha \\ 0 & 0 & 0 & -\sin\alpha & \cos\alpha \end{bmatrix}$$

$$T_g = \begin{bmatrix} \cos\alpha & \sin\alpha & 0 & 0 & 0 \\ -\sin\alpha & \cos\alpha & 0 & 0 & 0 \\ 0 & 0 & \cos\alpha & \sin\alpha & 0 \\ 0 & 0 & -\sin\alpha & \cos\alpha & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

$$K_P = \frac{EF}{l}\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix} \quad T_P = \begin{bmatrix} \cos\alpha & \sin\alpha & 0 & 0 \\ 0 & 0 & \cos\alpha & \sin\alpha \end{bmatrix} \quad Ks = \begin{bmatrix} \frac{EF}{l_s} & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & \frac{EI}{l_s} \end{bmatrix}$$

Veza globalnog i lokalnog kordinatnog sistema

$R^* = T^T \cdot R$ $\quad q^* = T^T \cdot q$ $\quad Q^* = T^T \cdot Q$ $\quad K^* = T^T K\, T$

$R = T \cdot R^*$ $\quad q = T \cdot q^*$ $\quad Q = T \cdot Q^*$

Uslovne jednacine

$$q^* = K_{nn}^{*-1}(S_n^* - K_{np}^* q_p^*)$$