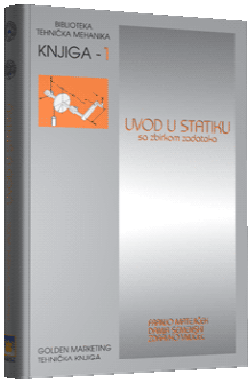
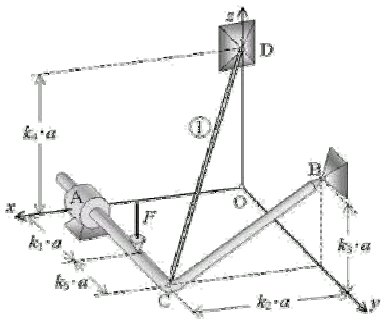
Teaching work, research and general interests -
IVAN GELO

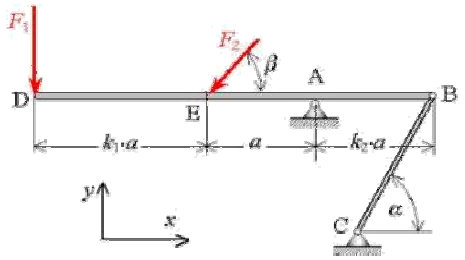
Mechanical Engineering Faculty in Slavonski Brod

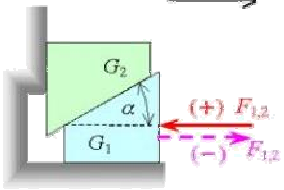
PREGRADUATE STUDY:

- **Mechanics 1**
  - Static problems

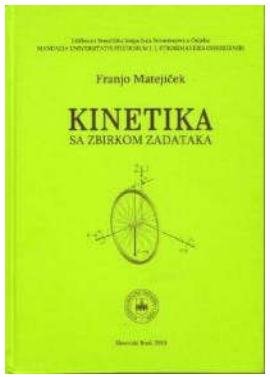


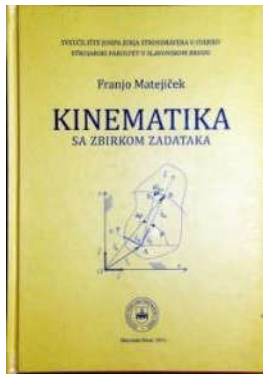


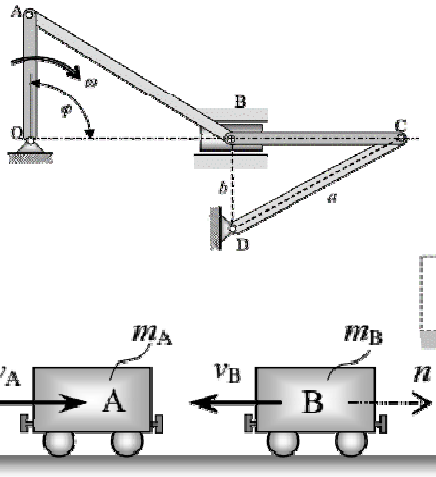


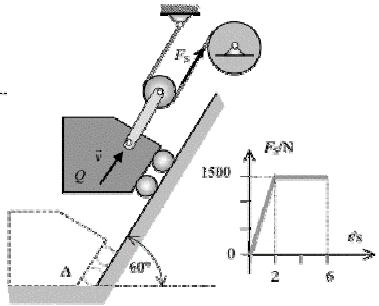


- **Mechanics 2**
  - Dynamic problems



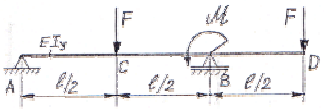




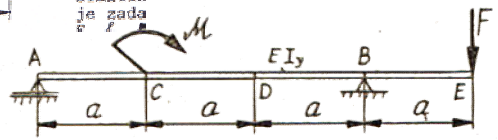


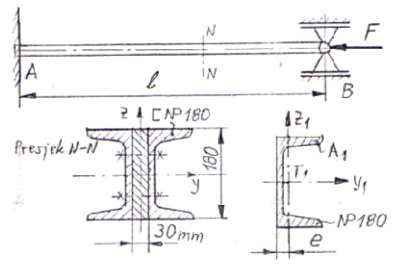
- **Strength of materials**

a) proraču
b) proraču
Zadano:



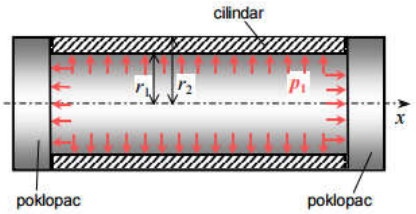
3. Za ravn
slici n
progibe
sjecima
elastčn
je zada

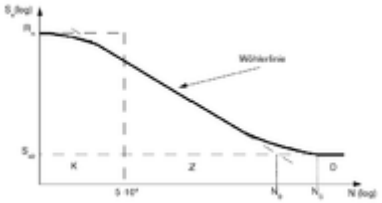


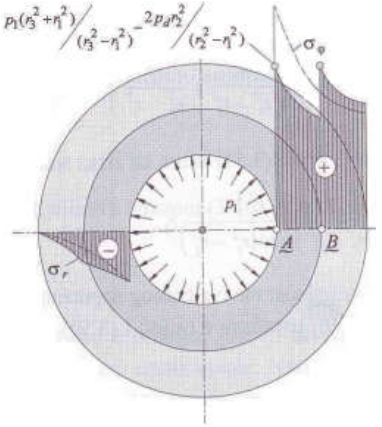


GRADUATE STUDY:

- **Strength of Materials II**

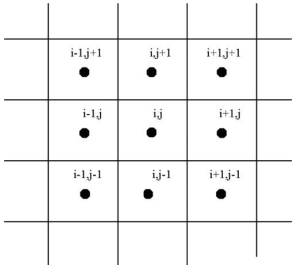




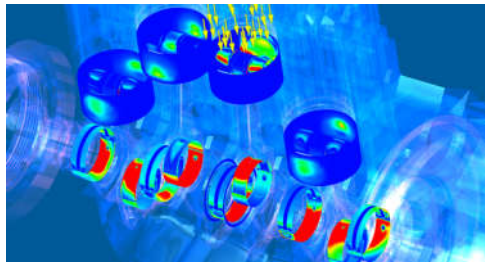


- **Numerical Methods**

$$\mathbf{k} = EI\begin{bmatrix} \frac{12}{l^3} & -\frac{6}{l^2} & -\frac{12}{l^3} & -\frac{6}{l^2} \\ -\frac{6}{l^2} & \frac{4}{l} & \frac{6}{l^2} & \frac{2}{l} \\ -\frac{12}{l^3} & \frac{6}{l^2} & \frac{12}{l^3} & \frac{6}{l^2} \\ -\frac{6}{l^2} & \frac{2}{l} & \frac{6}{l^2} & \frac{4}{l} \end{bmatrix};$$

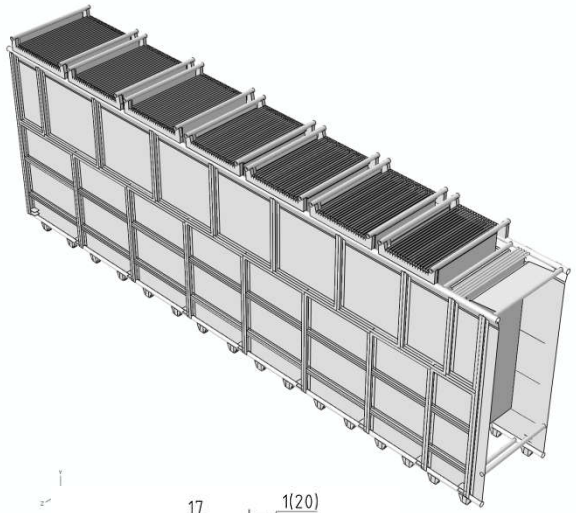


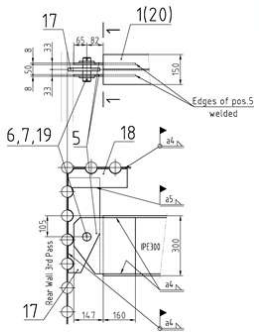
- **Numerical Modelling and Simulation**



- **Design Optimisation**

Previous work:





Section 1-1:

Calculating temperature: $t_s = 328\,^{\circ}C$

Material: 16Mo3 ® $R_{p0,2} = 183$ MPa ® $s_{all} = \frac{R_{p0,2}}{1,5} = 122$ MPa

Loads: $F = 18$ kN

$M_1 = 0,5 \times 18 \times 10^3 \times 0,082 = 738$ N×m

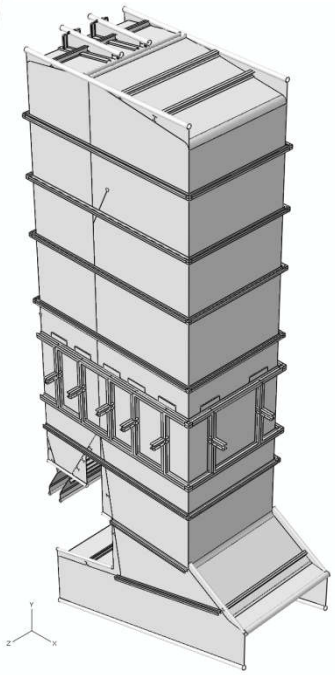
$W_w^{t-1} = \frac{0,8 \times 27,8^2}{6} = 103,1$ cm^3

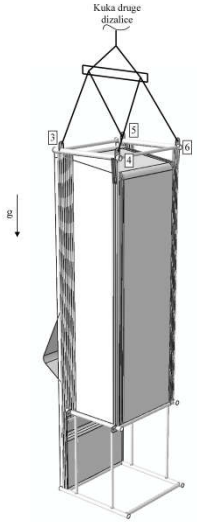
$A_w^{t-1} = 0,8 \times 27,8 = 22,24$ cm^2

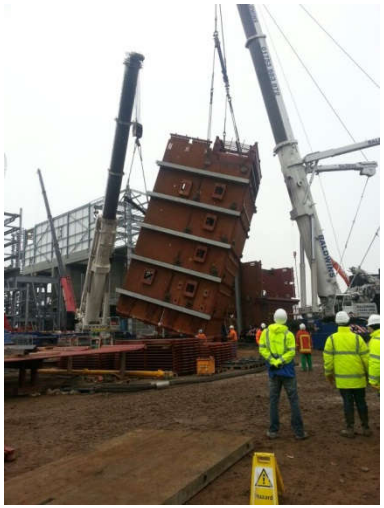
$s_w^{t-1} = \frac{M_1}{W_w^{t-1}} = 7,2$ MPa

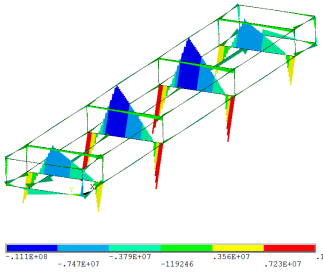
$t_w^{t-1} = \frac{0,5 \times F}{A_w^{t-1}} = 4,1$ MPa

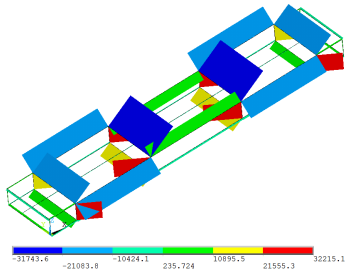
$s_{ea}^{t-1} = \sqrt{\left(s_w^{t-1}\right)^2 + \left(t_w^{t-1}\right)^2} = 8,3$ MPa $< s_{all-v} = s_{all} \times 0,8 = 97$ MPa

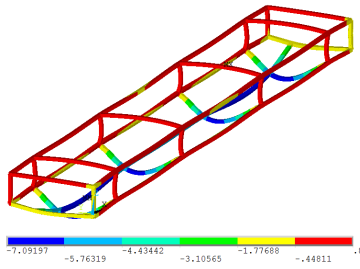


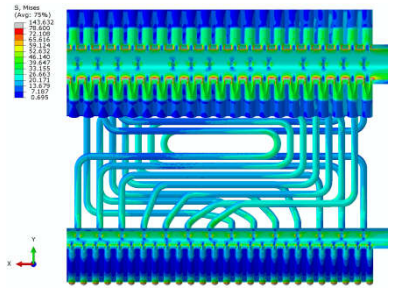


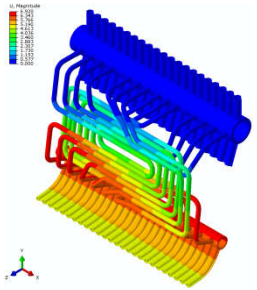












Postgraduate doctoral study:

- Mechanical design
- Numerical simulations (FEM: Static/Dynamic)
- Fracture Mechanics
- **Fatigue**

Thank you for your attention!