

**Uslovi ravnoteže proizvoljnog prostornog sistema sila**

$$\begin{aligned}
 (\vec{F}_1, \vec{F}_2, \dots, \vec{F}_n) &\sim (\vec{F}_R, \vec{M}_o) \sim 0 \\
 \vec{F}_R = \sum_{i=1}^n \vec{F}_i &= 0 \quad \vec{M}_o = \sum_{i=1}^n \vec{M}_o(\vec{F}_i) = 0 \\
 \sum_{i=1}^n X_i &= 0, \quad \sum_{i=1}^n M_{ox}(\vec{F}_i) = 0, \\
 \sum_{i=1}^n Y_i &= 0, \quad \sum_{i=1}^n M_{oy}(\vec{F}_i) = 0, \\
 \sum_{i=1}^n Z_i &= 0, \quad \sum_{i=1}^n M_{oz}(\vec{F}_i) = 0.
 \end{aligned}$$

**Uslovi ravnoteže proizvoljnog prostornog sistema sila i spregova sila**

$$\begin{aligned}
 \vec{F}_R = \sum_{i=1}^n \vec{F}_i &= 0, \quad \vec{M}_o = \sum_{i=1}^n \vec{M}_o(\vec{F}_i) + \sum_{j=1}^m \vec{M}_j = 0 \\
 \sum_{i=1}^n X_i &= 0, \quad \sum_{i=1}^n M_{ox}(\vec{F}_i) + \sum_{j=1}^m M_{jx} = 0, \\
 \sum_{i=1}^n Y_i &= 0, \quad \sum_{i=1}^n M_{oy}(\vec{F}_i) + \sum_{j=1}^m M_{jy} = 0, \\
 \sum_{i=1}^n Z_i &= 0, \quad \sum_{i=1}^n M_{oz}(\vec{F}_i) + \sum_{j=1}^m M_{jz} = 0.
 \end{aligned}$$

**Uslovi ravnoteže ravnog sistema sučeljnih sila**

$$\begin{aligned}
 \sum_{i=1}^n M_{ox}(\vec{F}_i) &\equiv 0 \\
 \sum_{i=1}^n Y_i &= 0, \quad \sum_{i=1}^n Z_i = 0
 \end{aligned}$$

**Sistema kolinearnih sila**

$$\sum_{i=1}^n Y_i = 0.$$