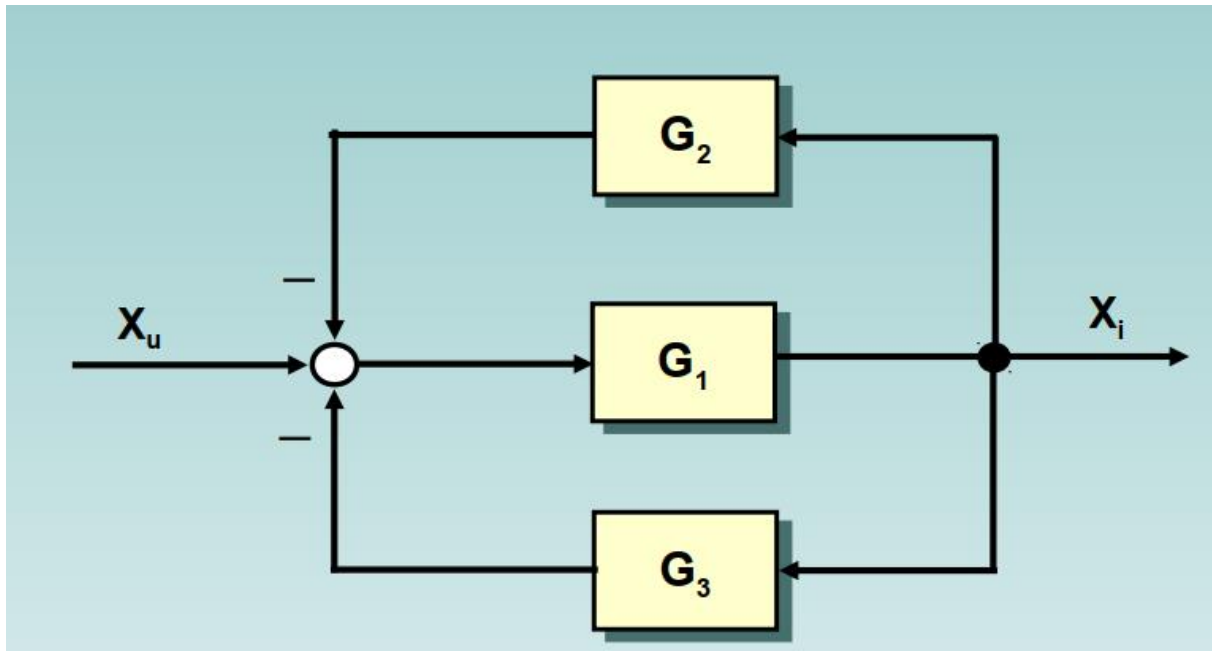
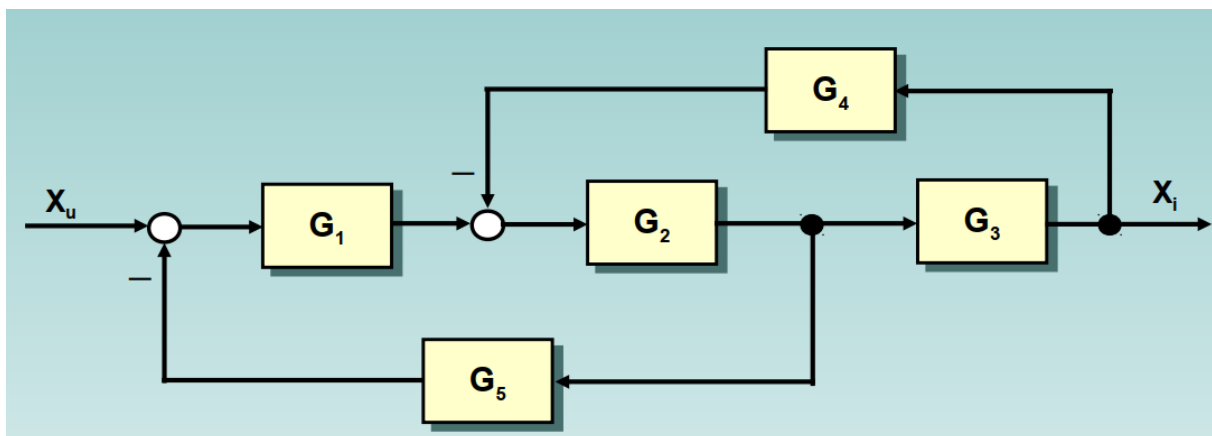


DOMAĆA ZADACA

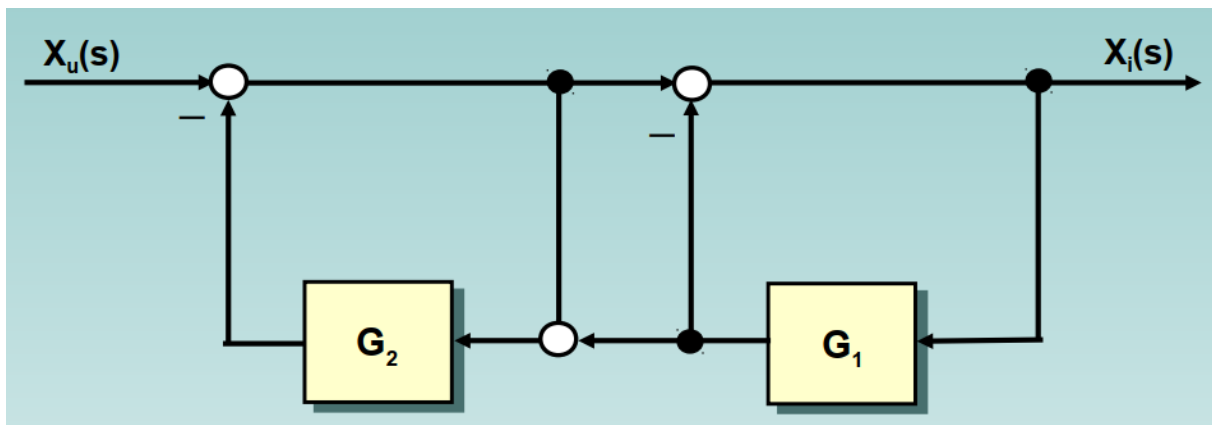
1. Odredi prijenosnu funkciju $G(s)$



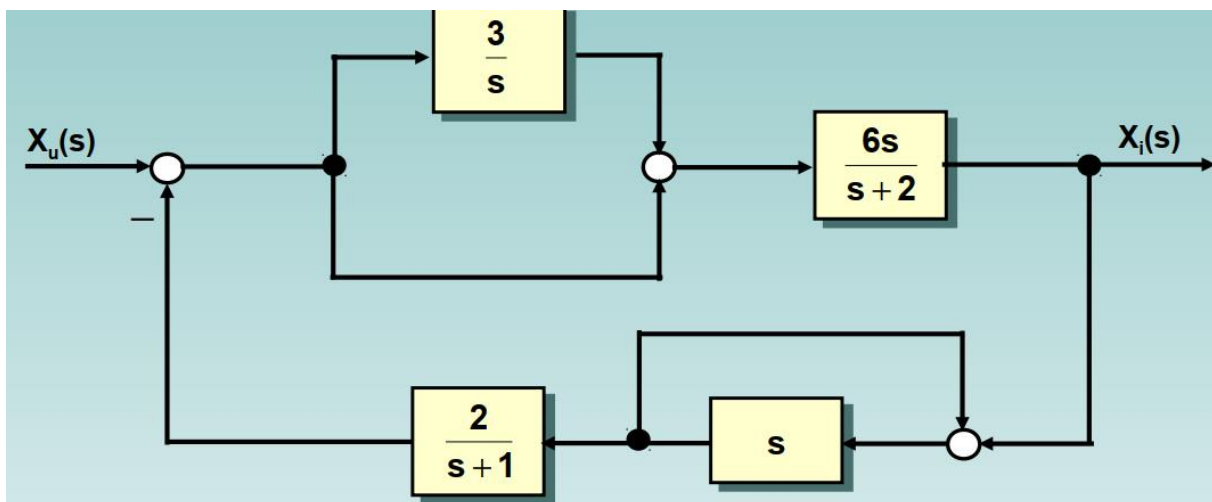
2. Odredi prijenosnu funkciju $G(s)$



3. Odredi prijenosnu funkciju $G(s)$

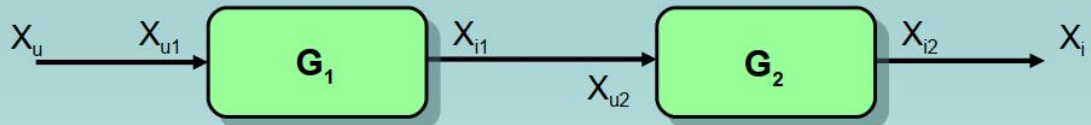


4. Odredi prijenosnu funkciju $G(s)$



UPUTE ZA RJEŠAVANJE ZADATAKA

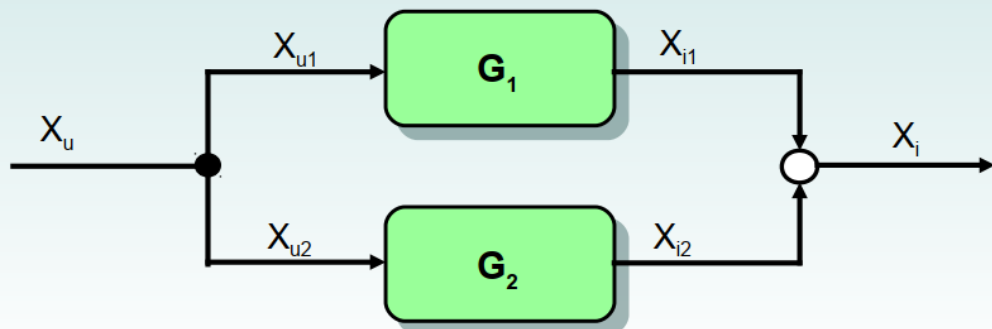
1. SERIJSKI SPOJ



$$G(s) = \frac{X_i(s)}{X_u(s)} = G_1 G_2 = \frac{X_{i1}(s)}{X_{u1}(s)} \frac{X_{i2}(s)}{X_{u2}(s)}$$

- za više blokova u seriji vrijedi : $G(s) = G_1 G_2 \dots G_n = \prod_{i=1}^n G_i$

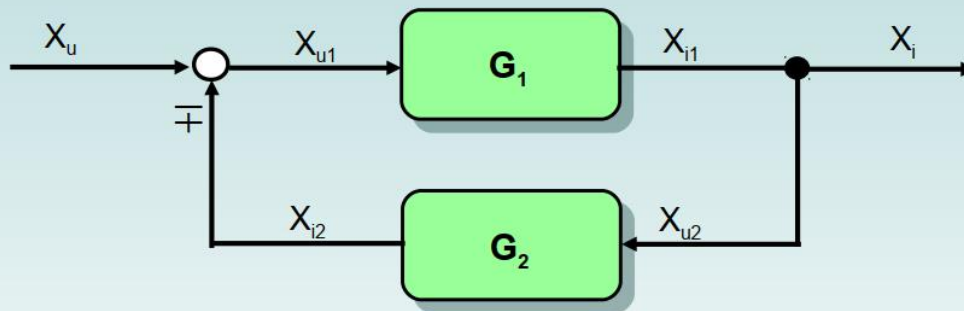
2. PARALELNI SPOJ



$$G(s) = \frac{X_i(s)}{X_u(s)} = \frac{X_{i1} + X_{i2}}{X_u} = \frac{X_{i1}}{X_u} + \frac{X_{i2}}{X_u} = G_1(s) + G_2(s)$$

- za više paralelnih blokova vrijedi : $G(s) = G_1 + G_2 \dots + G_n = \sum_{i=1}^n G_i$

3. POVRATNI SPOJ

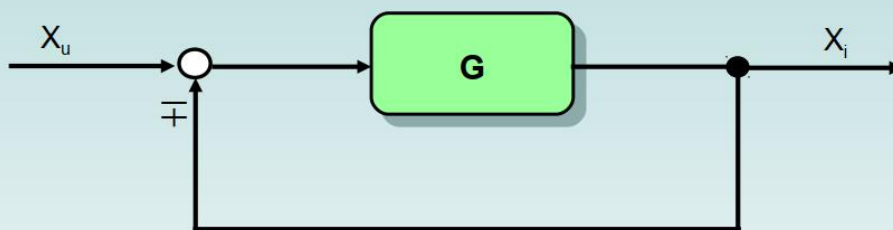


$$G(s) = \frac{X_i(s)}{X_u(s)} = \frac{X_i}{X_{u1} \pm X_{i2}} = \frac{\frac{X_i}{X_{u1}}}{1 \pm \frac{X_{i2}}{X_{u1}}} = \frac{\frac{X_{i1}}{X_{u1}}}{1 \pm \frac{X_{i2} X_{i1}}{X_{u2} X_{u1}}} = \frac{G_1}{1 \pm G_1 G_2}$$

- povratna veza može biti pozitivna ili negativna ovisno o tome da li povratni signal djeluje pozitivno ili negativno u odnosu na signal X_u ,

- u regulacijskom krugu je neophodno da povratna veza bude **NEGATIVNA**

- posebno za $G_2=1$ (blok sa zanemarivnom dinamikom):



$$G(s) = \frac{X_i(s)}{X_u(s)} = \frac{G}{1 \pm G}$$

PRAVILA ALGEBRE BLOKOVA

OPERACIJA	PRVOBITNI SKLOP	IZVEDENI SKLOP
<p style="color: red;">Točka račvanja u desno</p> <p>$x_2 = G x_1$</p>		
<p style="color: red;">Točka račvanja u lijevo</p> <p>$x_2 = G x_1$</p>		
<p style="color: red;">Točka zbrajanja u desno</p> <p>$x_3 = G(x_1 \pm x_2)$</p>		
<p style="color: red;">Točka zbrajanja u lijevo</p> <p>$x_3 = G x_1 \pm x_2$</p>		