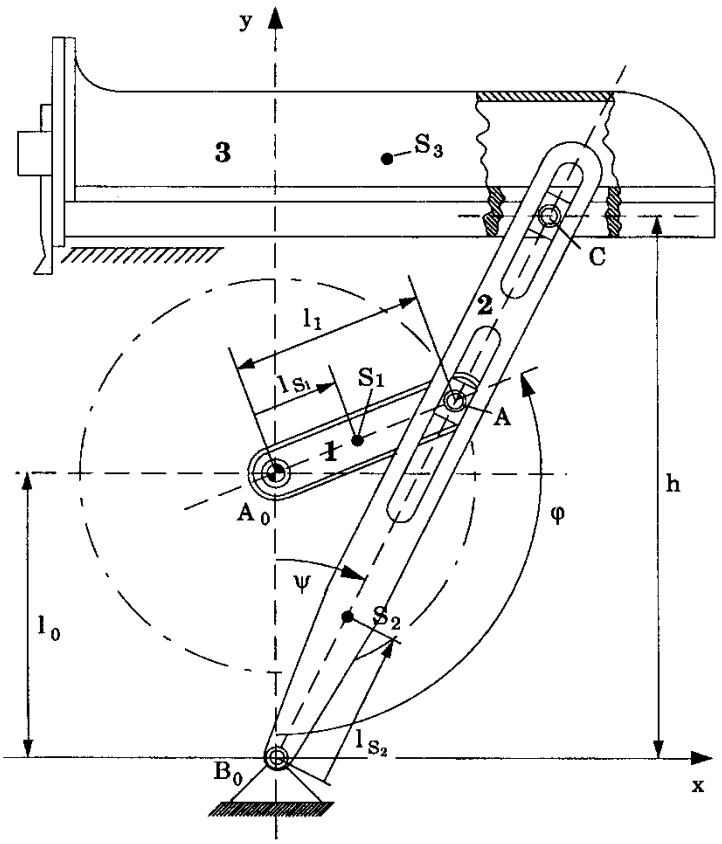
Task 2 Shaping Machine (Whitworth Mechanism)

Task

The shaping machine in Task 1 is reconsidered. The masses of the sliders are negligible. The shaft rotates with constant rpm n_1.

a) The frame torque should be analytically determined. The centre of gravity S_3 has the distance h to the x-axis.

b) For the external dead position and for the position $\varphi = 38°$ the frame torque should be numerically determined ($J_{B0} = 1{,}6\ \mathrm{kgm}^2$).



m_1	=	15	kg
m_2	=	30	kg
m_3	=	50	kg
l_0	=	400	mm
l_1	=	150	mm
l_{S1}	=	40	mm
l_{S2}	=	150	mm
h	=	650	mm
n_1	=	100	U/min