

Consider a graph on four nodes v_1, v_2, v_3, v_4 in which there are edges (v_1, v_2) , (v_2, v_3) , (v_3, v_4) , (v_4, v_1) , of cost 2 each, and an edge (v_1, v_3) of cost 1.

Then every edge belongs to some minimum spanning tree, but a spanning tree consisting of three of the edges of cost 2 would not be minimum.