

TAM 674

Applied Multibody Dynamics

Spring Term 2003, Mon & Wed 10:10-11:00, 202 Thurston Hall, 3 credits.

Homework assignment 6

Redo assignments 2a–f and 4a–c but now use the principle of Virtual Power, the principle of D'Alembert and the transformation of the coordinates of the cm's of the bodies x_i in terms of the independent generalized coordinates q_j as in $x_i = F_i(q_j)$, to derive the equations of motion for the constrained system. Compare your results with *all* the results from assignments 2a–f and 4a–c. Again, as in assignment 5, this is not so easy for the constraint forces (or the constraint impulses) since by using independent generalized coordinates you have eliminated these.

Bonus Question: Again, try to think of a general method to determine *one* arbitrary constraint force after having solved for the accelerations of the independent generalized coordinates.