

IMPORTANT TOPICS FROM STATICS THAT ARE NEEDED TO STUDY DYNAMICS:

- VECTOR MANIPULATION: ADDITION, CROSS PRODUCT
- VECTOR REPRESENTATION OF FORCES, MOMENTS
- FREE-BODY DIAGRAMS ~~FREE-BODY~~
- FRICTION
- MASS MOMENTS OF INERTIA

IMPORTANT TOPICS TO BE LEARNED IN DYNAMICS:

- NEWTON'S 2ND LAW:  $\Sigma \vec{F} = m\vec{a}$  AND  $\Sigma \vec{M} = I\vec{\alpha}$
- ~~KINEMATICS~~ <sup>KINEMATICS</sup>: RELATES TIME, DISPLACEMENT, VELOCITY AND ACCELERATION WITHOUT CONSIDERING THE FORCES OR MOMENTS CAUSING THE MOTION.
- ~~KINETICS~~ <sup>KINETICS</sup>: RELATES FORCES, MOMENTS, MASS OF THE BODY, AND SHAPE OF THE BODY TO PREDICT THE MOTION OF THE BODY.
- LINEAR MOMENTUM AND ANGULAR MOMENTUM:
 
$$\Sigma \vec{F} = \dot{\vec{L}}, \quad \Sigma \vec{M} = \dot{\vec{H}}$$
- KINETIC ENERGY AND WORK DONE:
 
$$U_{1-2} = T_2 - T_1$$
- PRINCIPLE OF CONSERVATION OF ENERGY:
 
$$T_1 + V_1 = T_2 + V_2, \quad V = \text{POTENTIAL ENERGY}$$