Lecture-8
ME 1020

26/4/22

Moment: The moment of a force is a measure of its tendency to cause a body to rotate about specific axis.

M_o = Force * distance

units (Nm) (N) (m)

3D

$$\underline{M}_O = \underline{r} \times \underline{F}$$

$$= M_x\hat{i} + M_y\hat{j} + M_z\hat{k}$$

$$\begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ x & y & z \\ F_x & F_y & F_z \end{vmatrix}$$

$$M_x = yF_z - zF_y$$
$$M_y = zF_x - xF_z$$
$$M_z = xF_y - yF_x$$

$\underline{r} = x\hat{i} + y\hat{j} + z\hat{k}$

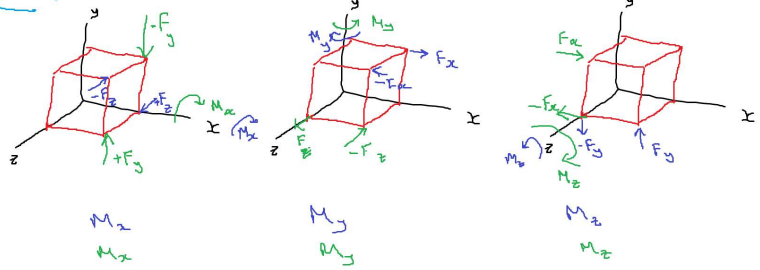
$F = F_x\hat{i} + F_y\hat{j} + F_z\hat{k}$

$$M_A = \underline{r}_{B/A} \times \underline{F}_B$$

$$\underline{r}_{B/A} = \underline{OB} - \underline{OA}$$

$M_B = 0$? why

Couple:



M_z M_y M_x