



# UNIT -II

# FORCE ANALYSIS

# Static Equilibrium

- A body or group of bodies is said to be in equilibrium if all the forces exerted on the system are in balance.

## Condition for Static Equilibrium:

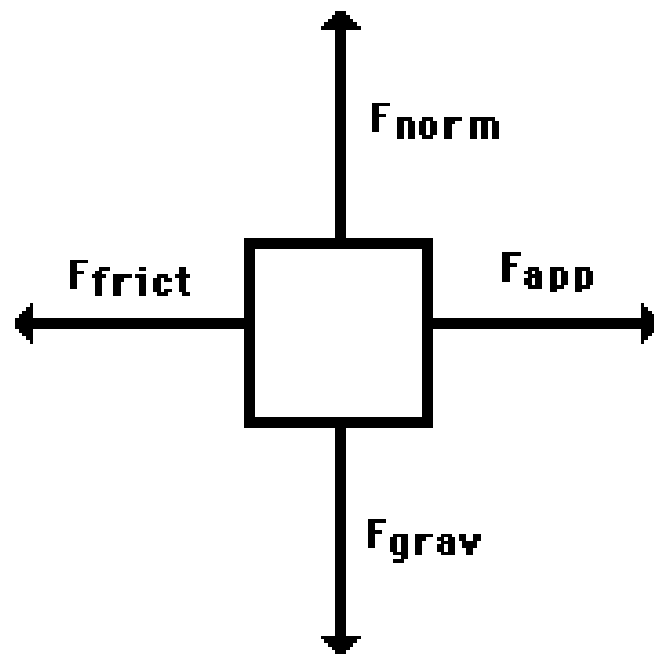
- The vector sum of all the external forces acting on the body is zero i.e.,  $\Sigma F=0$
- The vector sum of all the moments of all the external forces acting on the body any arbitrary point is zero i.e.,  $\Sigma M=0$

# Free Body Diagrams

A free body diagram is a sketch or drawing of the body , isolated from the rest of the machine and its surroundings, upon which the forces and moments are shown in action.

Or

A diagram which shows the forces and moments on the body free of to other bodies is called free body diagram (FBD)



Free Body Diagram

