FRICTION

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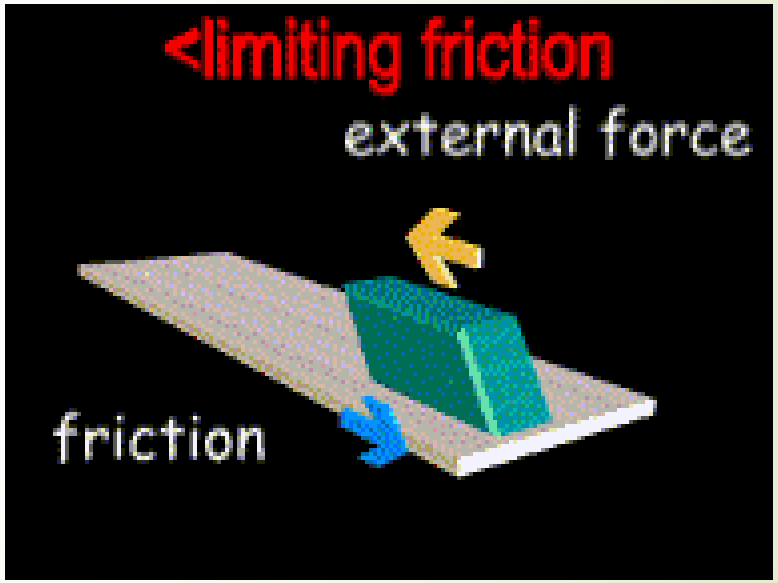
DEPARTMENT OF PHYSICS
MECHANICS 1 –FIRST SEMESTER
2021

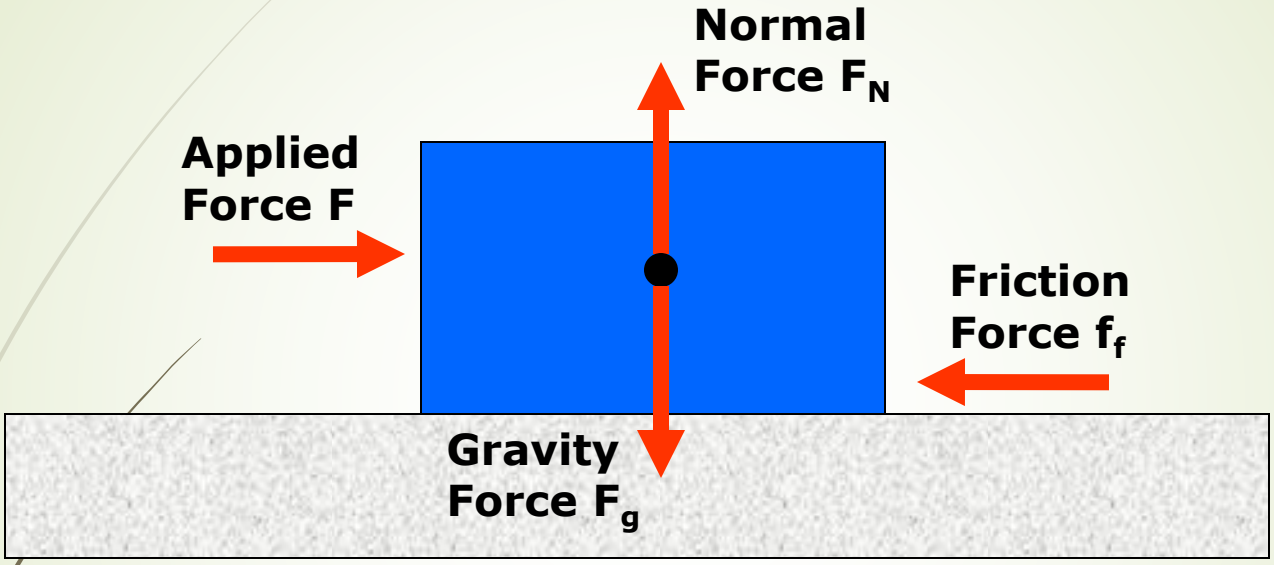
Static and Kinetic Friction

What is Friction?

- Force that acts oppose the relative motion of two surfaces
- High for dry and rough surfaces
- Low for smooth and wet surfaces



Free Body Diagram



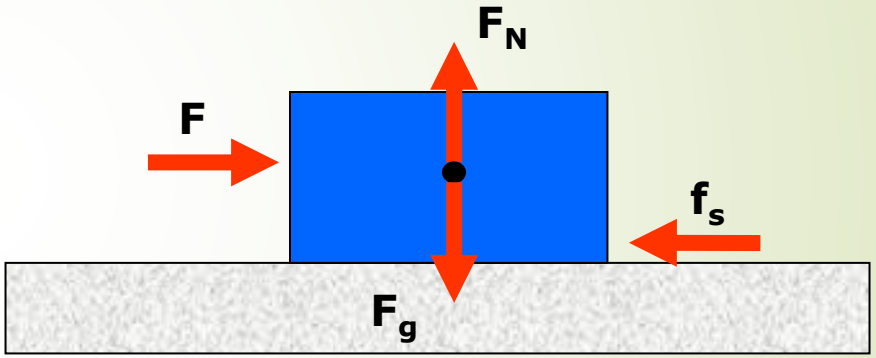
$F_g = mg$

$F_N = F_g$

$f_f = F$

Static Friction

The Force of Static Friction keeps a stationary object at rest!

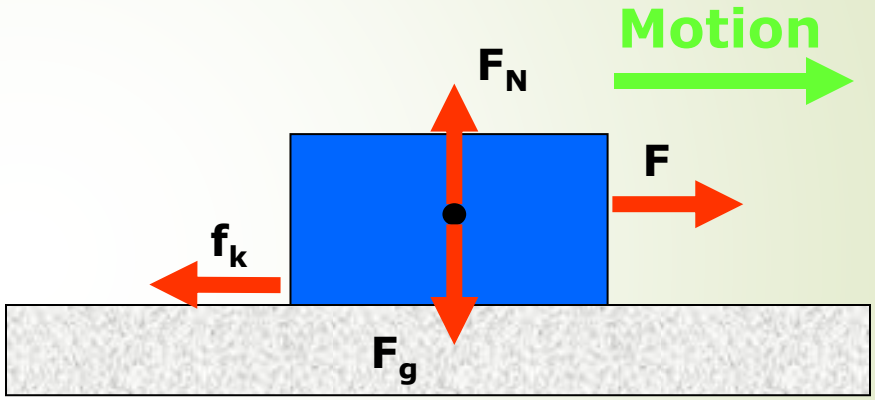


$$f_s = F_N \times \mu_s$$

$$\mu_s = coefficient\ of\ \ static\ \ friction$$

Kinetic Friction

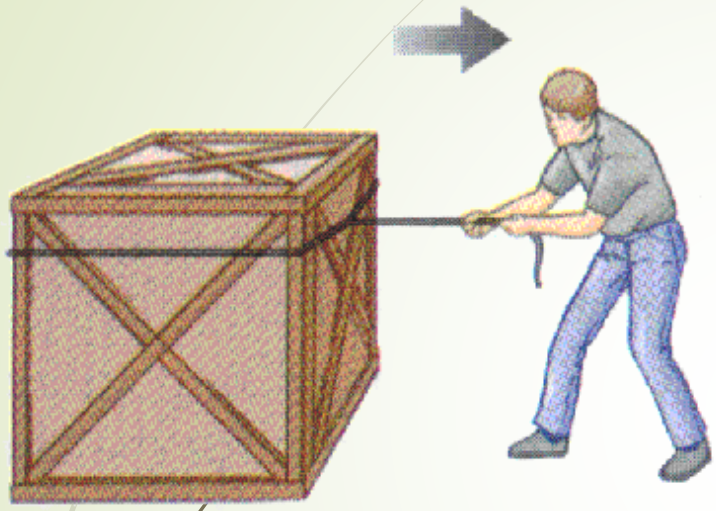
Once the Force of Static Friction is overcome, the Force of Kinetic Friction is what slows down a moving object!



$$f_k = F_N \times \mu_k$$

$$\mu_k = coefficient\ of\ \ kinetic\ \ friction$$

Types of Friction



To initiate motion of the box the man must overcome the Force of *Static Friction*

Upon sliding, the baseball player will come to a complete stop due to the Force of *Kinetic Friction*

Static VS. Kinetic Friction

THANKYOU