Lecture 15: Friction

- Two kinds of friction are of interest:

  1. **Static friction**: Friction which tends to oppose motion in the absence of motion. The magnitude of this force is \( f_s \leq \mu_s n \), where \( \mu_s \) is the (dimensionless) coefficient of static friction and \( n \) is the magnitude of the normal force. As long as the component of the applied force in the direction of (eventual) motion is less than \( \mu_s n \), the object does not move.

  2. **Kinetic friction**: Friction which tends to oppose motion between two bodies in relative motion. The magnitude of this force is \( f_k = \mu_k n \), where \( \mu_k \) is the (dimensionless) coefficient of kinetic friction and \( n \) is the magnitude of the normal force.

- In most cases, \( \mu_k < \mu_s \), so that once an object starts to move it tends to accelerate (unless the applied force is reduced).