

وزارة التعليم العالي والبحث العلمي

كلية المستقبل الجامعة

قسم الفيزياء الطبيه

مرحله اولى /مختبر الميكانيك2

Static Coefficient Friction

معامل الاحتكاك الساكن

كلية المستقبل الجامعة

OBJECTIVES: To measure the coefficients of static friction between a wooden block and a wooden plane.

APPARATUS: 1- Inclined plane.

2- Wooden block.

3- Triple beam balance.

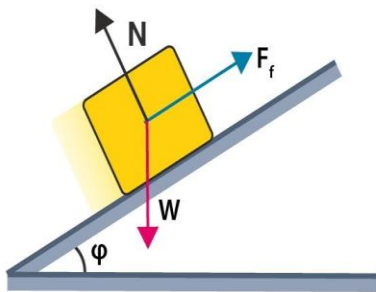
4- Masses.

5- Pulley.

THEORY: The maximum static friction force is sometimes referred to as starting friction.

We model static friction F_{static} , with the inequality $F_{\text{static}} \leq \mu_s N$, where μ_s is the coefficient of static friction and N the normal force exerted by a surface on the object. The normal force is defined as the perpendicular component of the force exerted by the surface. In this case, the normal force is equal to the weight of the object

$$\mu_s = F_s / F_N$$



Method:

1 - Calculate the mass of the wooden block using the scale, let it be (Kg).

2 - Place the wooden piece on the horizontal surface of the device

3-Increase the slope of the roof (or plank B) by an angle of θ until the wooden piece begins to move

At a constant speed on the plank (B), find the tangent of the angle ($\tan \theta$), according to the equation below

$$\mu_s = \tan \theta$$

4-Repeat the previous steps for different values of θ and find the arithmetic mean according to the law

$$\text{Average} = \frac{\theta_1 + \theta_2 + \dots}{N}$$

القراءات	θ
1	19
2	18
3	19