University of Anbar   Physics
College of Engineering   Dr. Ghassan S. Jameel
Dams & Water Resources Eng. Dept.   Phase:1

Semester I (2019-2020)

CHAPTER NINE
ENERGY AND ENERGY TRANSFAR

Kinetic Energy and The Work-Kinetic Energy Theorm

$\Sigma W = (1/2) (V_f)^2 - (1/2) (V_i)^2$

$K = (1/2) mV^2$

$K = $ kinetic energy, $m = $ mass, $v = $ speed

$W = k_f - k_i = \Delta k$

H.W: A particle moves from point (5, -3, -4)m to (-1, 3, 4)m under the influence of a force $F = (-3i-j+2k)$ N. Calculate the work done by the force?

H.W: A force of $(3i+4j)$ N makes a body moves on a rough plane with a velocity $(6i+5j+2k)$ m/s. Clculate the power in watt?

H.W: A body of mass (30 kg) is at rest. A force of (5 N) is applied on it. Calculate the force done in third second?

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H.W: The force displacement-graph of a body moving under the influence of a variable force is as shown if figure. Calculate the work done displacing the body from (A) to (B)?

H.W: A force $(F = 4X^3 + 2X + 1)$ N, acts on a body in x-direction. Calculate the work done if the particle moves from $(x=0)$ m to $(x=2)$ m?

H.W: A bullet of mass (0.05 kg) is moving with a velocity of (100 m/s). It just penetrates a wall (10 cm) thick. Calculate the resistive force of the wall on the bullet?

H.W: A bullet weighting (10 g) is fired with a velocity of (800 m/s). After passing through a mud wall (1 m) thick, its velocity decreases to (100 m/s). Find the average resistance offered by the mud wall?