Notes for lecture 11

1. Date: June 23rd.
2. Reading: the lecture material is based on Sections 3.7 of Chapter 3 of the main textbook (refer to Chapter3.7.pdf file).
3. The lecture (see LectureNotes11.pdf file) introduces potential energy in relation to work done by potential (conservative) forces. The key points are as follows.
    a. Definition and calculation of potential energy.
        i. The work done by a conservative force is does not depend on the specific path, it depends on potential energy at the start and end-point on the path.
        ii. Potential energy for certain types of forces (constant force, gravity force, and spring force is calculated and illustrated by examples.
    b. Conservation of energy.
        i. For systems featuring conservative forces, we can define full mechanical energy as the sum of kinetic and potential energies. If there are only conservative forces, the total energy of the system is constant (is conserved).
4. Ch3D.swf file in the Resources is provided
    a. When playing the file please do not push Main Menu button; when returning please use Chapter Menu button.
    b. The content of Ch3D.swf file relevant to this lecture (yellow button corresponding to Potential Energy).
5. Additional Internet resources.
    a. Khan Academy https://www.khanacademy.org/science/physics/work-and-energy
    b. Work as a line integral https://www.khanacademy.org/math/multivariable-calculus/integrating-multivariable-functions/line-integrals-vectors/v/using-a-line-integral-to-find-the-work-done-by-a-vector-field-example
6. The deadline for submitting assignment (see Quiz11.pdf) is June 30.