Notes for lecture 12

1. Date: June 30th.
2. Reading: the lecture material is based on Sections 3.9 and 3.12 of Chapter 3 of the main textbook (refer to Chapter3.9.pdf and Chapter3.12.pdf files).
3. The lecture (see LectureNotes12.pdf file) introduces the linear impulse-momentum principle as a method to solve dynamic equations. The key points are as follows.
    a. Definition and linear impulse and momentum.
        i. Linear impulse is simply the integral of force over time, while the linear momentum is the product of mass and velocity. They are related by the linear impulse-momentum principle, which, on the surface, is just another way to write Newton equation.
    b. Impact.
        i. When constraints are imposed the velocity changes impulsively (not continuously). To establish the velocity when the period of motion (and force action) is relatively short, it is not enough to employ only Newton's equations. In these situations, empirical models, featuring the so-called restitution coefficient, are introduced.
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 – Momentum Methods (yellow button corresponding to a) Linear Impulse and Momentum, and c) Impact).
5. The deadline for submitting assignment (see Quiz12.pdf) is July 7.