Notes for lecture 5

1. Date: May 12th.
2. Reading: the lecture material is based on Sections 2.6 of Chapter 2 of the main textbook (refer to Chapter2.6.pdf file).
3. The lecture (see LectureNotes5.pdf file and also LectureNotes5_add.pdf for detailed derivation and illustrative examples) communicates the following issues
   a. Polar coordinates.
      i. The position of a particle is now measured not with respect to a path along which the particle is traveling (see previous lecture), but with respect to a fixed coordinates systems (frame of reference). However, it is measured not by x and y coordinates, but by curvilinear coordinates r and θ.
      ii. Velocity and acceleration vectors are represented not with respect to some fixed coordinate system but with respect to some moving (changing) coordinate system (e_r, e_θ). That is the most important point of the class.
4. Ch2D.swf file in the Resources (same as before) 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 Ch2D.swf file relevant to this lecture (yellow button corresponding to Coordinate Systems-> Two-dimensional->Polar)
5. To learn more about polar coordinates, you can refer to Wikipedia
   https://en.wikipedia.org/wiki/Polar_coordinate_system#:~:text=In%20mathematics%2C%20the%20polar%20coordinate,angle%20from%20a%20reference%20direction
   and (Khan Academy resources)
   https://www.khanacademy.org/math/multivariable-calculus/integrating-multivariable-functions/double-integrals-a/v/polar-coordinates-1?form=MY01SV&OCID=MY01SV
6. The deadline for submitting assignment (see Quiz5.pdf) is May 19.