Appendix H

Figure H-1. Components of a particle (Velocity) that experiences curvilinear motion

First thing first, at any instant a particle experiencing a curvilinear motion will have a magnitude of velocity, which we also call speed.

Figure H-2. Components of a particle (Acceleration) that experiences curvilinear motion

Secondly, provided that the velocity of the particle is known at any two instant points, the acceleration, of the curvilinear motion could be calculated as well.

Figure H-3. Components of a particle (Coordinates – Part 1) that experiences curvilinear motion

Ok then, another expression of curvilinear motion that we need to consider is the polar coordinate, which extends from the fixed point origin O to the particle.

Figure H-4. Components of a particle (Coordinates – Part 2) that experiences curvilinear motion

The angle is generally measured in degrees or radians, where 1 rad = 180°/pi. There are 2 types of coordinates: Radial Coordinates and Transverse Coordinates. We'll discuss them in tutorial session.
Figure H-5. Components of a particle (Position) that experiences curvilinear motion