Dynamics Review - Coordinate Systems

ME3050 - Dynamics Modeling and Controls
Tennessee Technological University

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Topic 5 - Coordinate Systems

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- Using Different Coordinate Systems
- Cartesian
- Circular or Cylindrical
- Spherical
- Others

Using Different Coordinate Systems

It is often convienent to use different coordinate systems as a reference for different types of problems.

You, the engineer and designer must choose the coordinate system.

Increase Compexity Incrementally

You cannot solve a complex problem in your head or all at once.

Engineers model and analyse complex systesm one peice at a time on a component level.

In system dynamics we study the system behavior by modeling the interations and responses of the different components involved.

Solid Mechanics and Dynamics

- Frictionless Sliding
- Pure Roll - No Slip
- Planar Motion
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Thermal and Fluid Systems

- Viscous Boundary Layer
- Insulated or Constant Flux Boundaries
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Electrical and Power Systems

- Zero Heat Loss or Generation
- Zero Resistance Conductors
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