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## 4.0> Drape Analysis I (“drapeintro”)

**This example introduces the main features of draping using a simple but doubly-curved surface.**

- Open new database drapeintro.db.
  - Play session file drapeintro\_geom.ses. to create geometry and mesh
  - Play session file materials.ses. to create materials
  - Set angles to “0 0 0” to obtain default view
  - Go into Laminate modeler, creating a new file
    - Create a scissor drape material with default values
    - Create a scissor drape ply with start point in the middle of the surface, the reference direction in the Global X direction, covering the entire surface
      - Note that shear strain increases away from the starting point and the principal axes, which are geodesic lines by default
      - Use the graphics control form to plot and hide the draped pattern, element angles, flat pattern, maximum strain value and starting point
    - Change the reference angle of 30 degrees and create another scissor drape ply
      - Note that this results in lower shear
      - Also, change in ply orientations is not necessarily equal to 30 degrees on individual elements, as a consequence of the nonlinearity of the draping process
    - Change the view direction to <0 0 1> (set in Additional Controls, Geometry) and create another scissor draped ply
      - rotation opposite than if starting point selected from above surface
      - when creating a layup, this ply will be added to the structure in the view direction, by default

- Change the start point to the middle of the lower edge (e.g. Node 11) and create another scissor draped ply
  - note the increased shear due to greater distances from the start point
- Change the step length to Implicit, 2 (set in Additional Controls, Geometry) and create another scissor draped ply
  - the default step length is calculated as a function of the area of the surfaces of the model
  - this multiplies the default step length by 2
- Change the step length to Explicit, 2 (set in Additional Controls, Geometry) and create another scissor draped ply
  - this changes the step length to exactly 2 units
  - note that for small step lengths, the pattern may not cover the entire surface because the number of possible steps is limited
- Close the LAMINATE MODELER

**If you have difficulty with this exercise, examine or play the session file `drapeintro.ses` after opening a new database.**