CAD 2

LEC 3

Drawing Ankle Foot Orthosis

by using solidworks

Steps to Drawing Ankle Foot Orthosis

- 1. Start with a Sketch:
- Begin a new part in SolidWorks.
- Create a 2D sketch on the front plane (or whichever plane fits the design of the AFO best).
- Sketch the outline of the AFO that would wrap around the ankle and foot.
  - The foot plate should cover the foot and arch, while the shin plate should extend up the lower leg.
- Consider the necessary angle for the foot in relation to the shin (typically about 90 degrees, but it depends on the type of AFO you’re designing).
- 2. Create the Basic Foot Plate:
- Once you have the outline, extrude the foot plate.
  - Extrude it to the desired thickness, which will depend on the material you're simulating (plastic, carbon fiber, etc.).
  - Add fillets or rounds to the edges where needed to smooth out the design

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- **3. Design the Shin Plate:**
- **Sketch the shin plate** on the same plane or a new plane to create the vertical part that will support the lower leg.
- Extrude the shin plate to the appropriate length and thickness.
- **Add holes or cutouts** where needed, like for straps or connectors.
- **4. Consider Contour and Comfort:**
- **Add contours** to the areas where the orthosis will contact the foot and leg. These may be **sweeps or lofts** to create smooth, ergonomic curves.
- You may want to add **shell features** to reduce the material thickness in certain regions.
- **5. Design Hinges (if needed):**
- If you're designing an AFO with motion, like a hinged version that allows for dorsiflexion and plantarflexion, **design the hinge mechanism**.
- This may involve **creating a revolved feature** for the hinge pin and **mate it** with the other parts.
- Consider creating **limit stops** or stops that restrict the movement to certain angles.