CAD 2

LEC 2

Drawing elbow joint by using solidworks

Steps to Drawing elbow joint

• Creating the Humerus (Upper Arm Bone)

• Step 1: Start a New Part for the Humerus

• Go to File > New > Part to create a new part file for the humerus.

• Save it as "Humerus".

• Step 2: Sketch the Humerus Shape

• Select the Front Plane to begin your sketch.

• Start by drawing a circle representing the cross-section of the humerus. The diameter can be around 30mm (you can adjust the dimensions depending on your scale).

• Use the Extrude Boss/Base feature to extrude the circle into a cylindrical shape, representing the length of the humerus (around 250mm for a simplified version).

• Step 3: Add the Elbow Joint Surface

• Add another circle at the end of the humerus where the elbow joint will connect.

• Use Extrude Boss/Base to create a flange or a more detailed shape that will be part of the joint surface where the ulna and radius will interact with the humerus

Creating the Ulna (Lower Arm Bone)

• Step 1: Start a New Part for the Ulna

• Create another new part for the ulna. Go to File > New > Part and save it as "Ulna".

• Step 2: Sketch the Ulna Shape

• Choose the Front Plane and start a new Circle for the cross-section of the ulna. The diameter can be around 20mm.

• Use Extrude Boss/Base to create a cylindrical body for the ulna. Its length should be around 250mm, similar to the humerus but slightly shorter.

• Step 3: Add the Ulna Joint Surface

• At the end of the ulna, sketch the shape that will form the joint with the humerus. Typically, this would be a concave shape (for the humerus to fit into).

• You can create a simple concave surface using Extrude Cut or Revolve to ensure the ulna

has the correct articulation surface.

Creating the Radius (Lower Arm Bone)

• Step 1: Start a New Part for the Radius

• Create another part for the radius by going to File > New > Part and save it as "Radius".

• Step 2: Sketch the Radius Shape

• Use the Front Plane to sketch a circle for the cross-section of the radius. The diameter could be around 15mm.

• Use Extrude Boss/Base to extrude the circle into a cylindrical shape. The length should be about 240mm, slightly shorter than the ulna.

• Step 3: Position the Radius Joint Surface

• The radius doesn't connect directly to the humerus but interacts with the ulna. Therefore, at the end of the radius, sketch the surface that will mate with the ulna.

• You can create a slight spherical shape or a flat surface with a Revolved Boss/Base to model the articulation surface