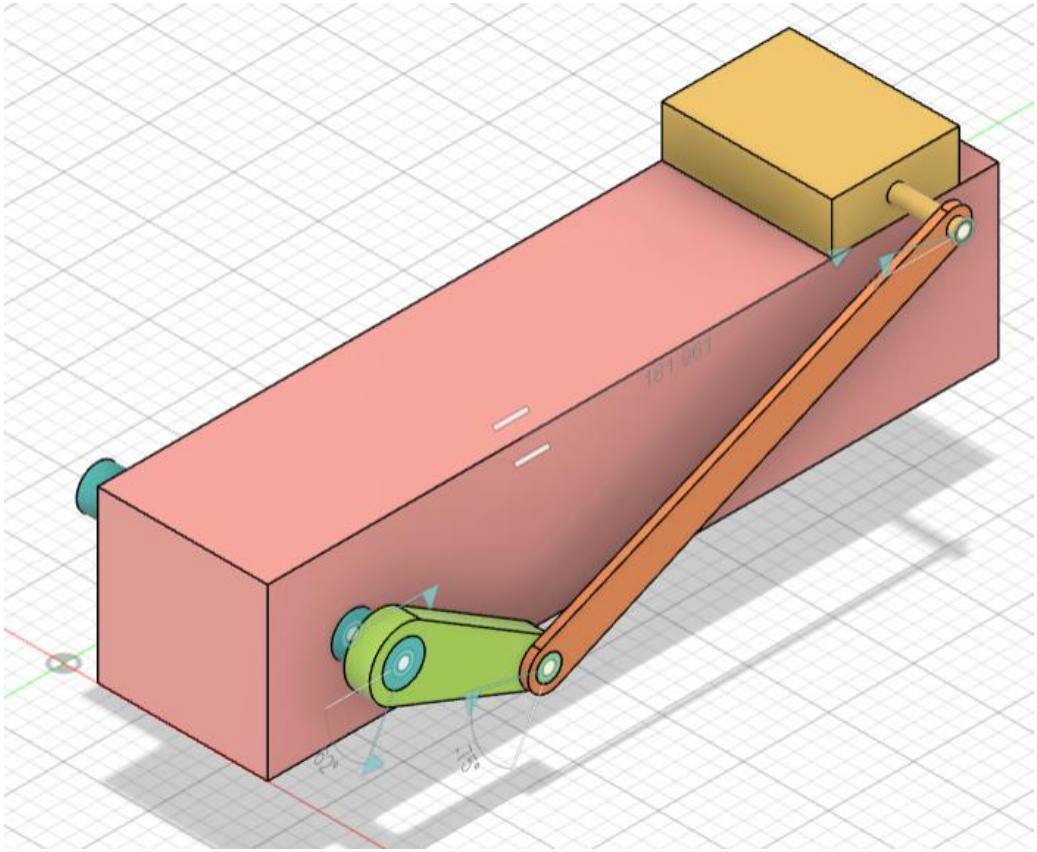
MS 101
Fusion360

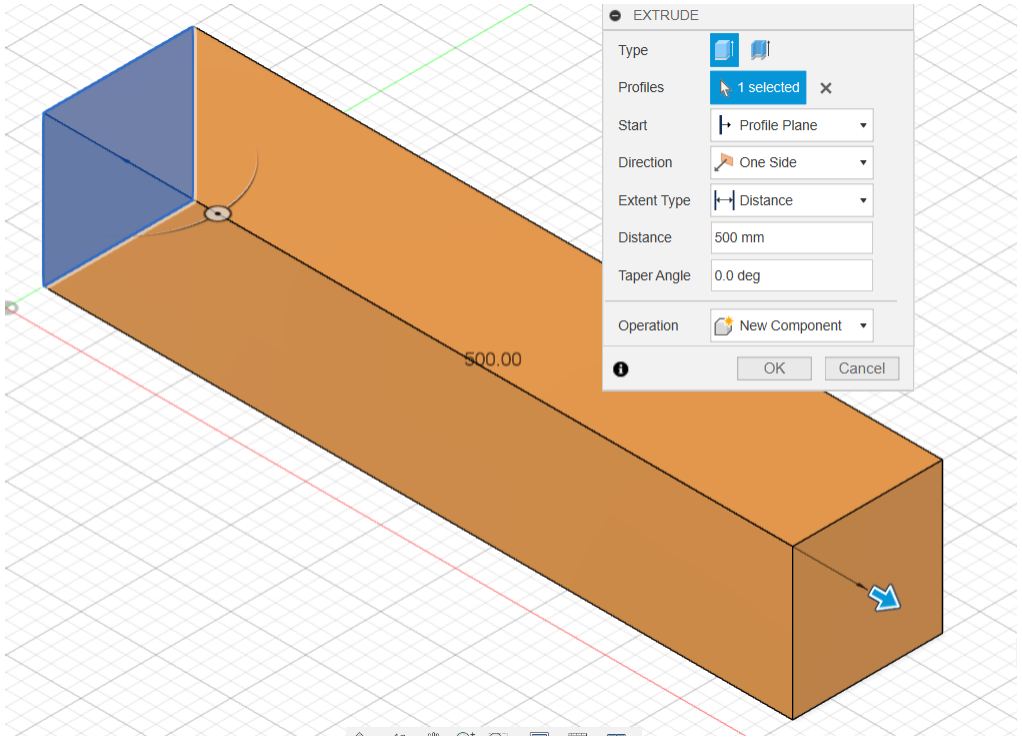
Assembly of components

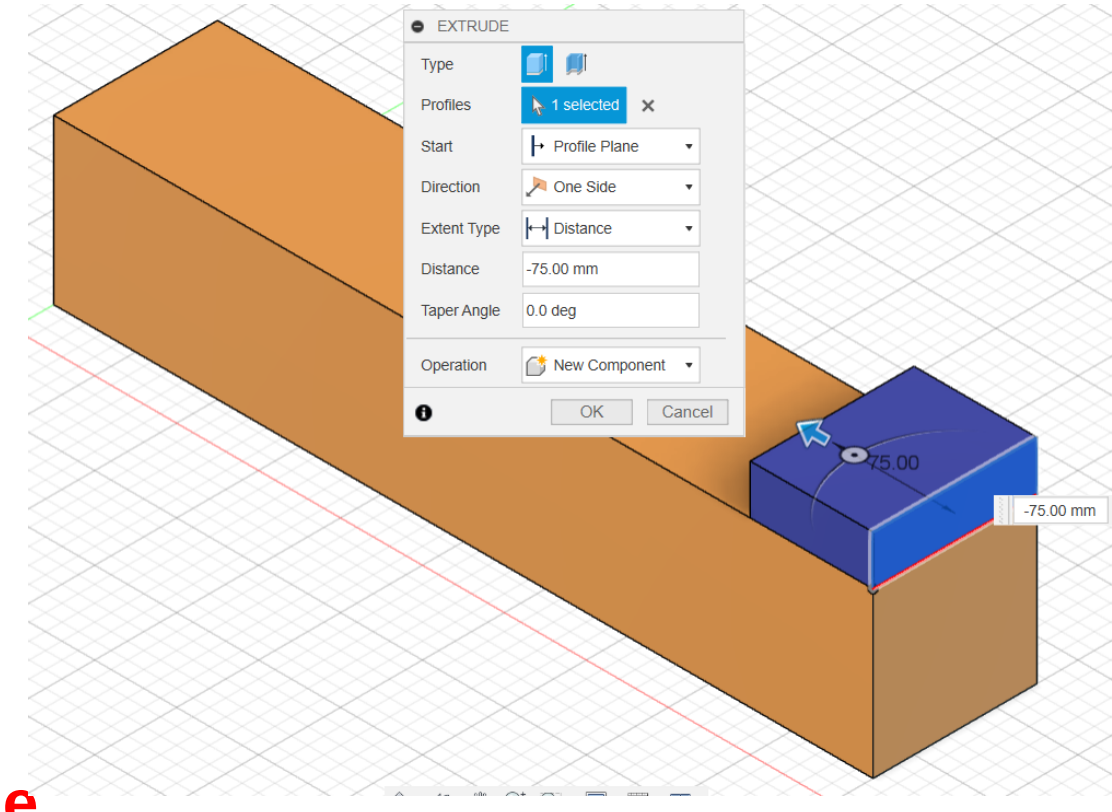
ASSEMBLY IN FUSION 360

Slider crank mechanism



Slider crank mechanism

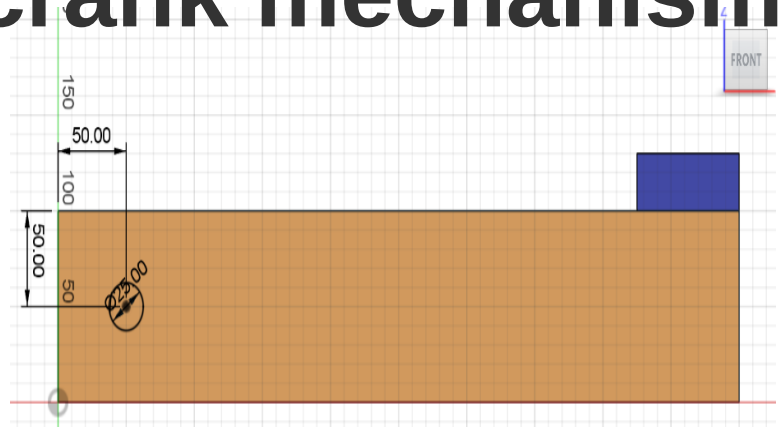


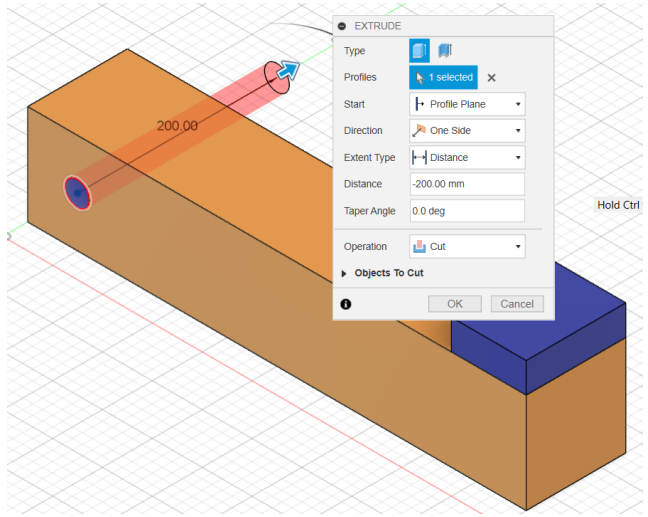


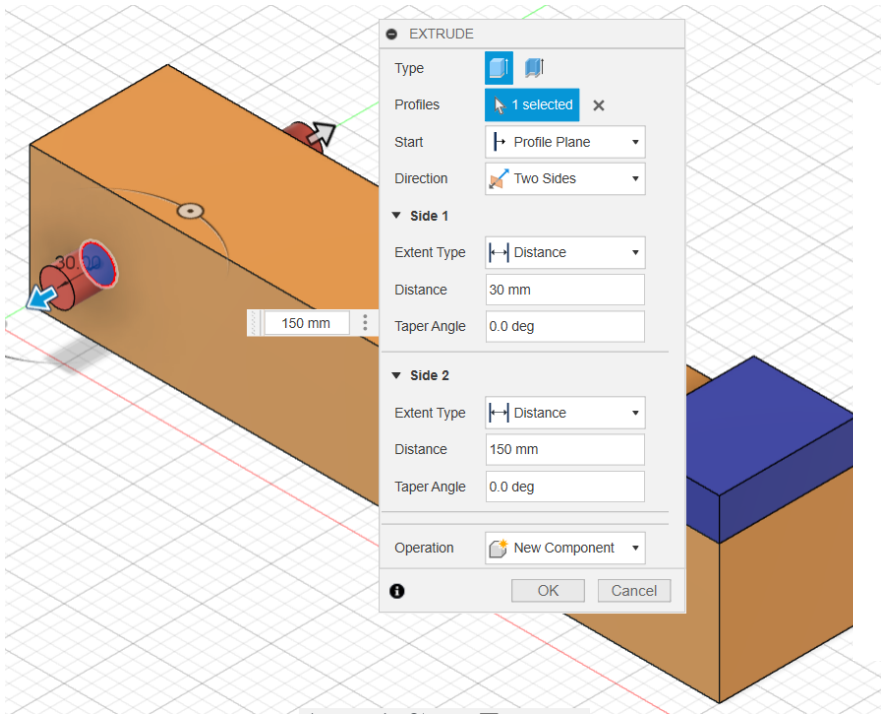
- **Sketch** a **100x100** **rectangle**.
- **Extrude** it to 500 mm.
- Save as **new component**.
- On the **right face sketch rectangle** 100x30.
- **Extrude** by -70 and save as **new component**.

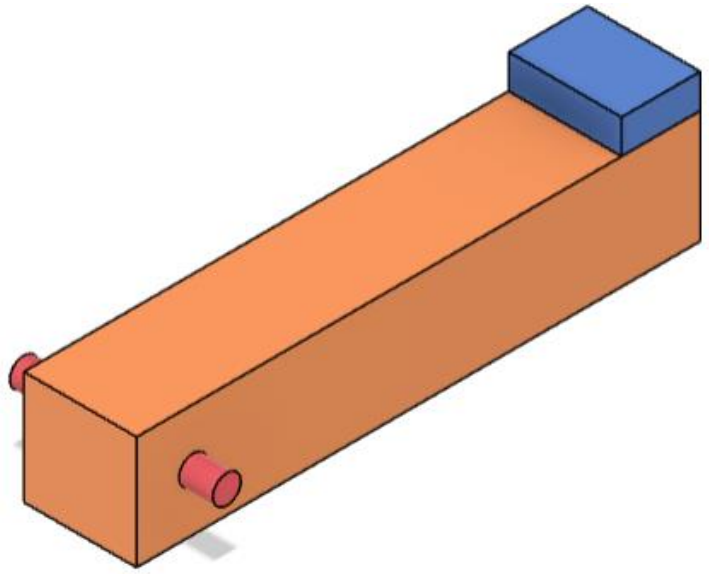
Slider crank mechanism

- **Sketch** a 25 dia **circle** on the **front face**, 50 from the **edges**.
- **Extrude** it to -150 to make hole, **operation: cut**
- Select the **same sketch** and **extrude** to **30** and **150** on **either side** and save as **new component** pin.



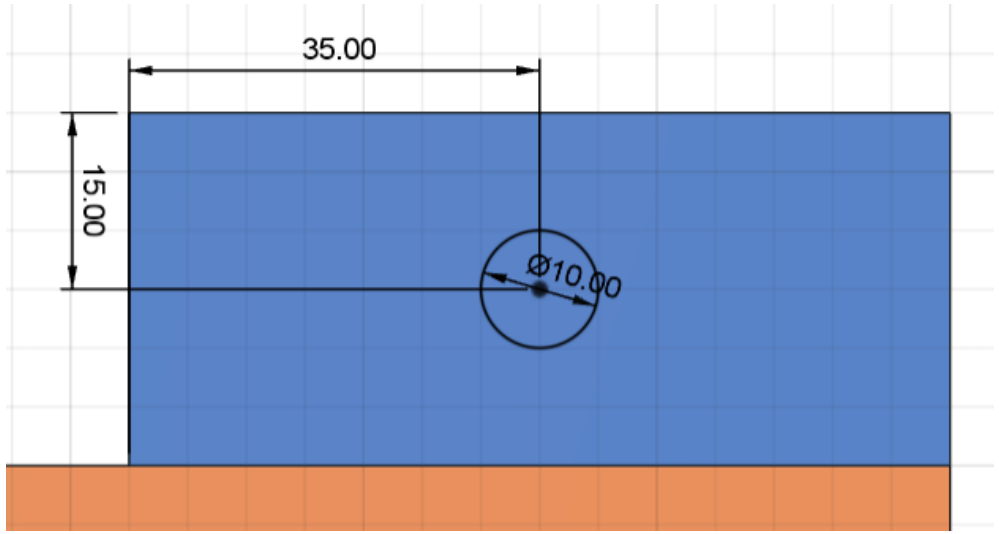


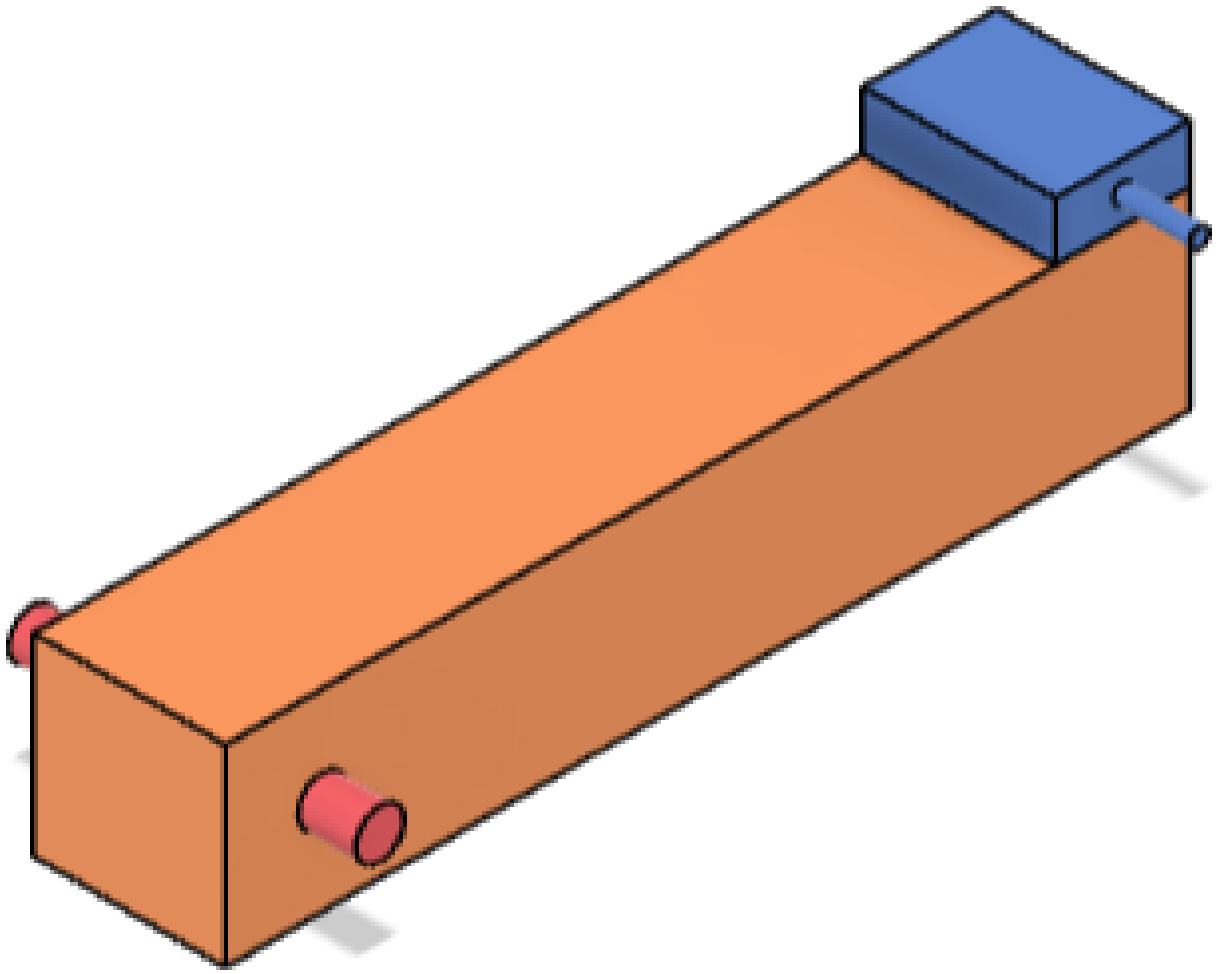




Slider crank mechanism

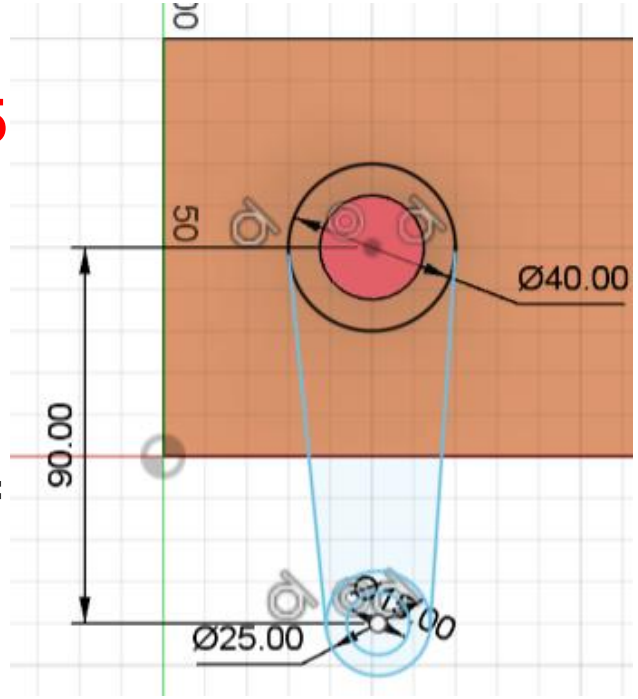
- Sketch a 10 mm dia. circle on the front face of the slider, 15, 35 from the edges.
- Extrude it to 35 to make a pin on the slider: operation: join.

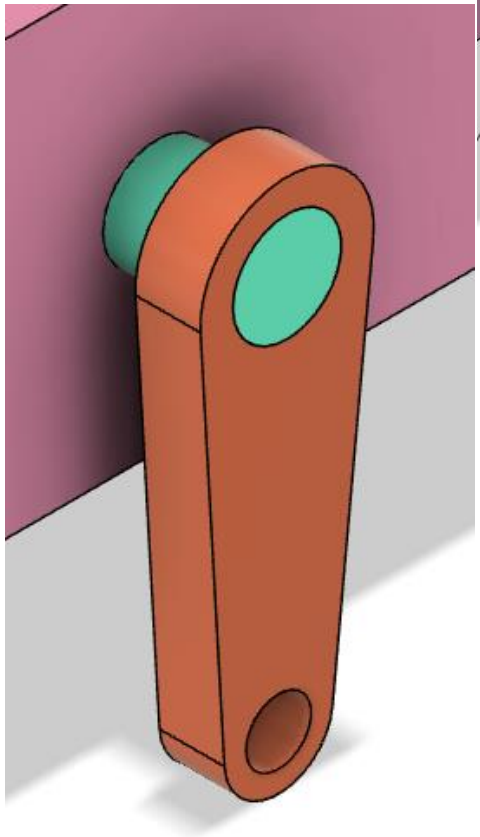


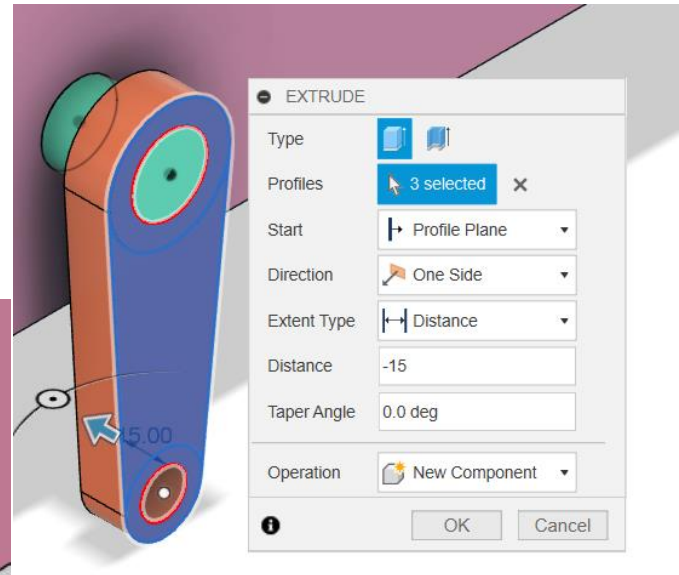


Slider crank mechanism

- On the face of the 25 dia pin
- Sketch concentric circle of 40 dia.
- Below it sketch concentric circles of 25, 15 dia.
- Sketch tangent lines exterior to the circles.
- Center to center distance 90.
- Extrude it to -15 as new component crank.

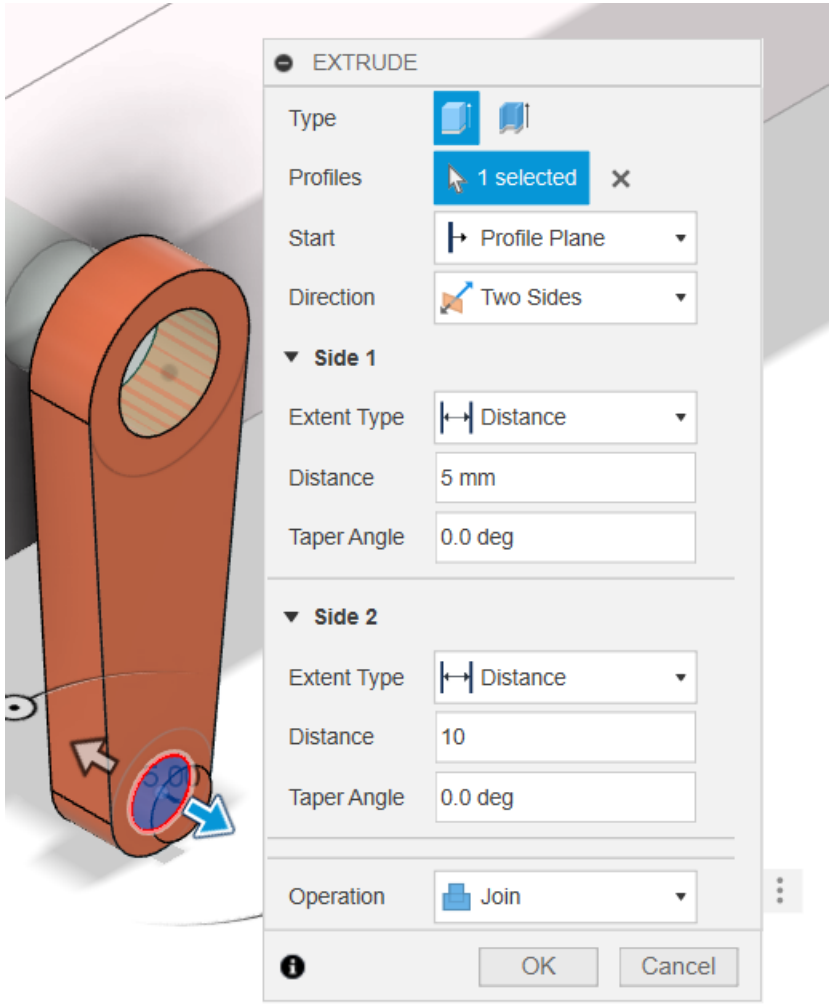


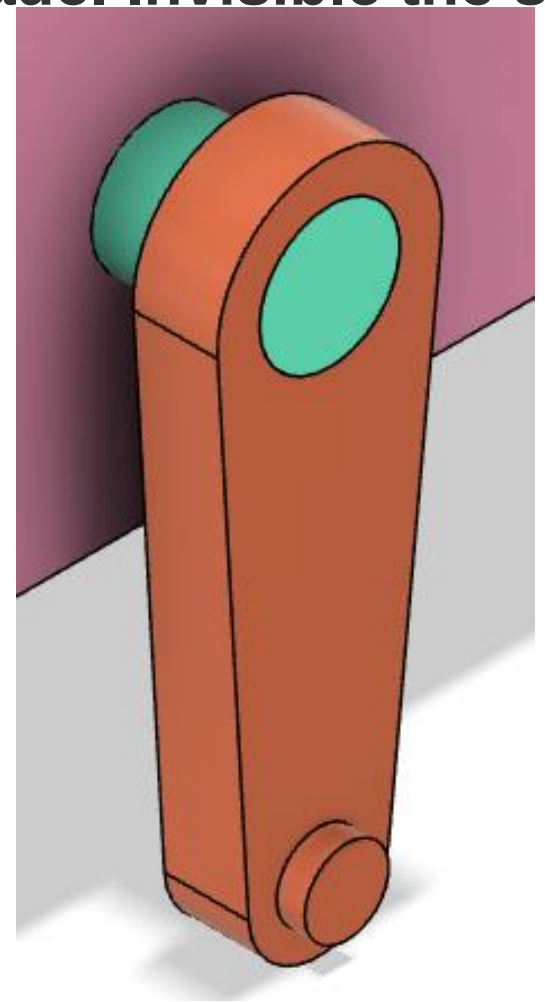




Slider crank mechanism

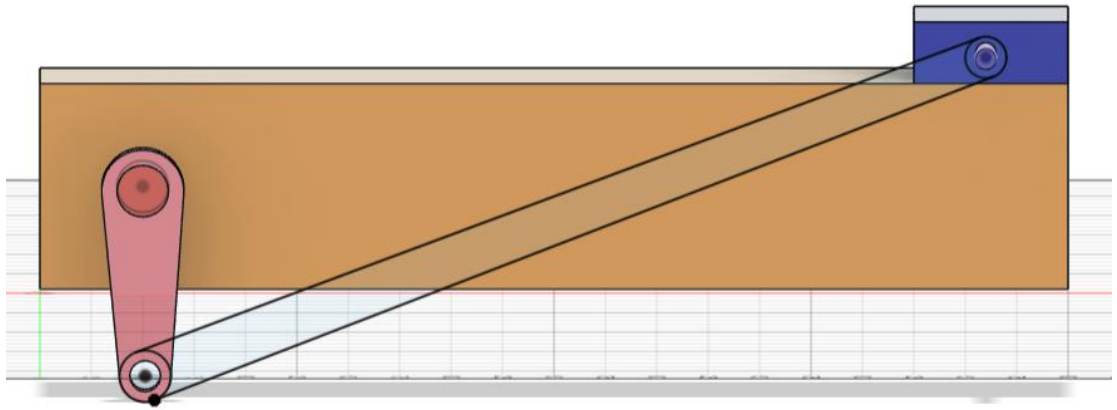
- Activate **crank sketch**
- Select the **bottom inner circle of the crank hole** and **extrude** 5 and 10 on either side. Operation: **join**: **bar pin** is made. Invisible the sketch.

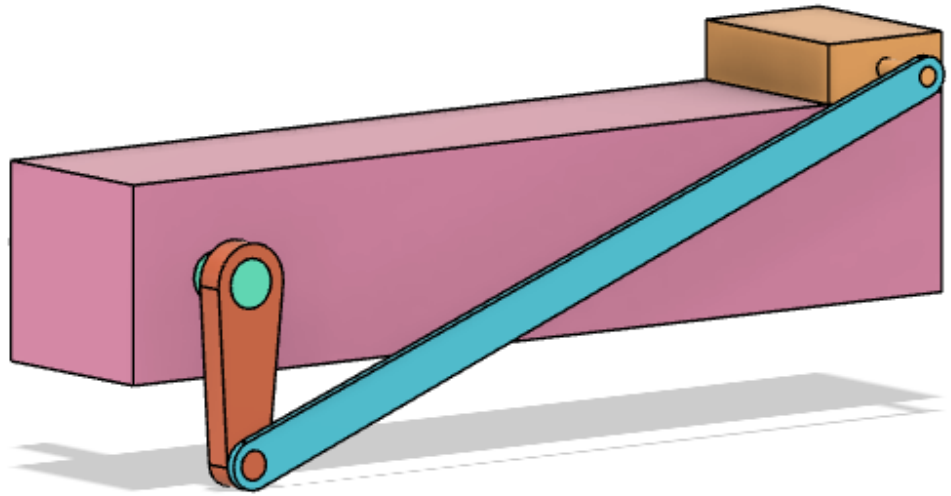


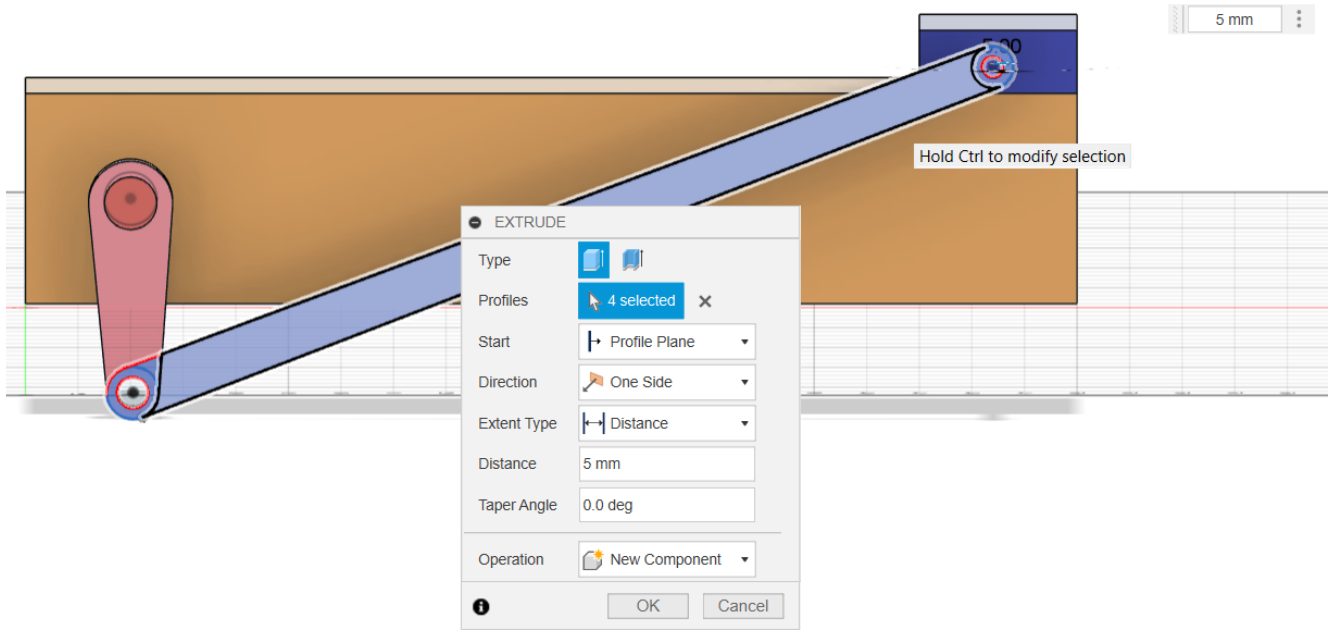


Slider crank mechanism

- Select the **crank pin face** plane Sketch concentric **circle** of 25 dia on the **crank** and 20 dia on the **slider pin**.
- Sketch **lines tangent** to the **outer circles**.
- **Extrude** it by -5 and save as **new component**.

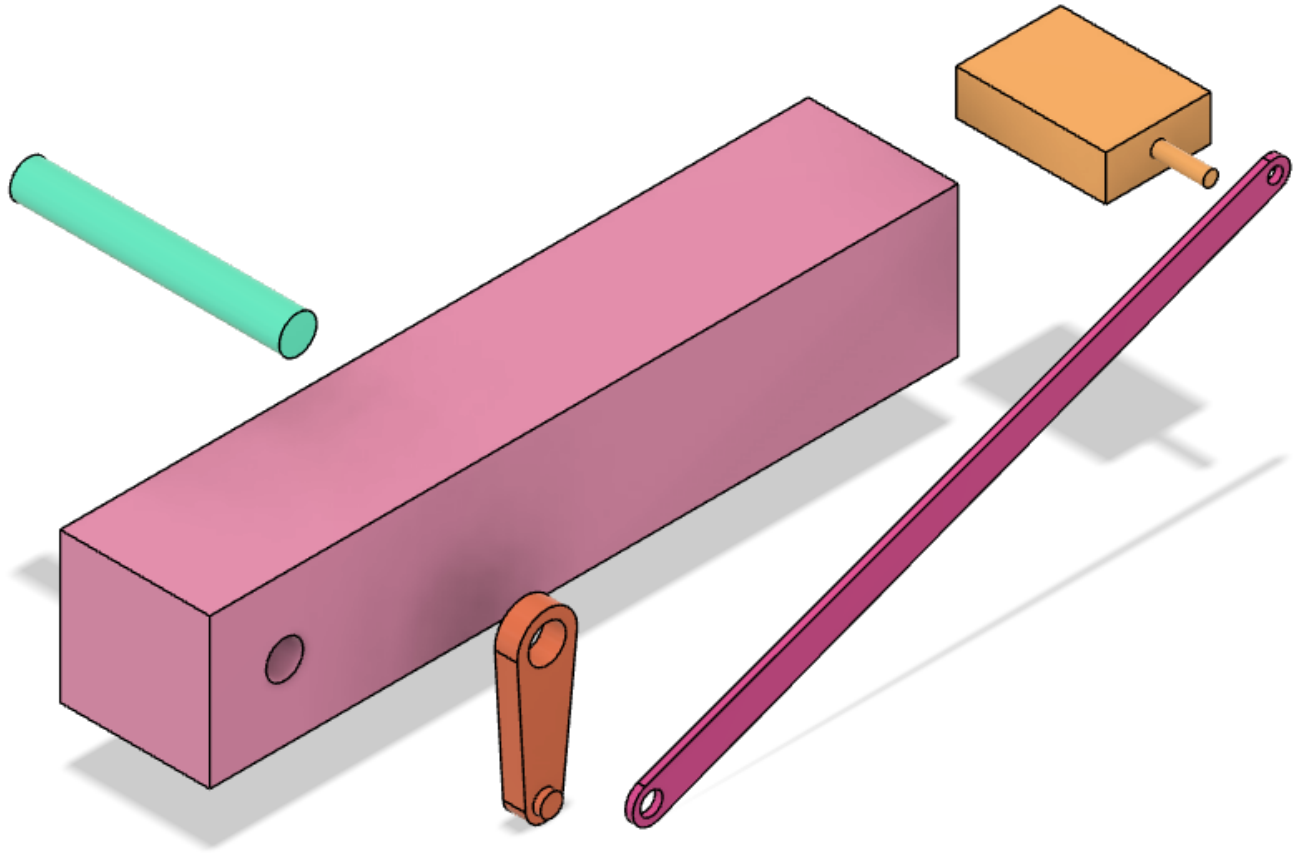






Slider crank mechanism

- Right click **component1** and **ground** it.
- All other **components** can be **separated**.

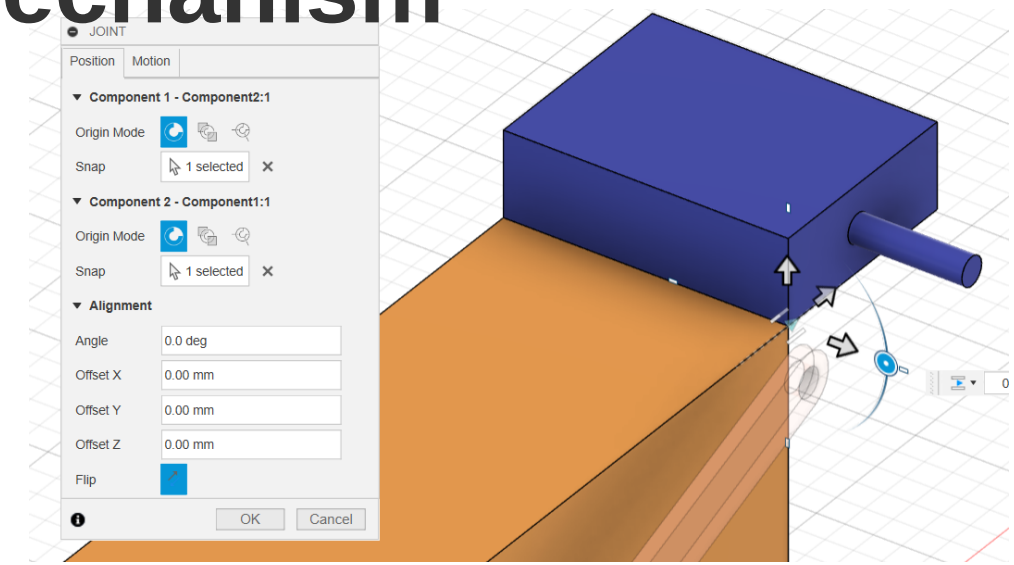


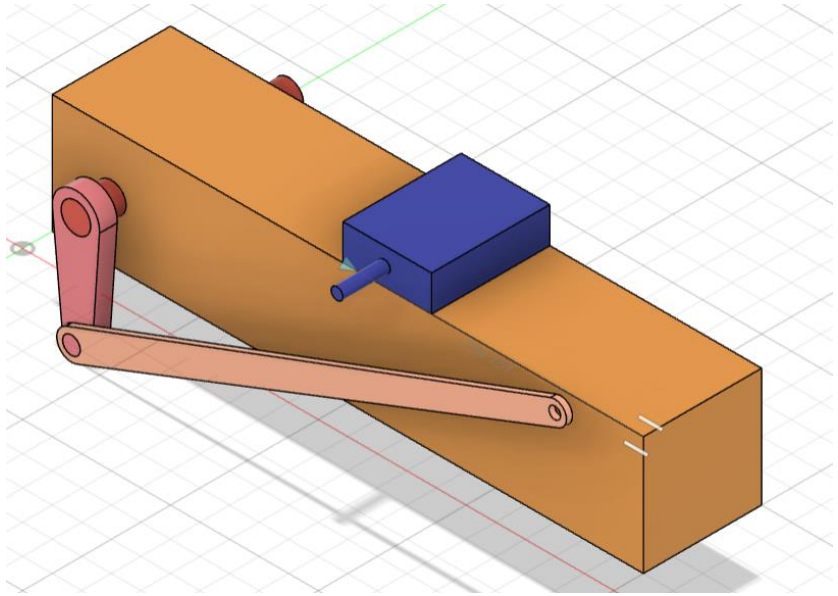
Joints

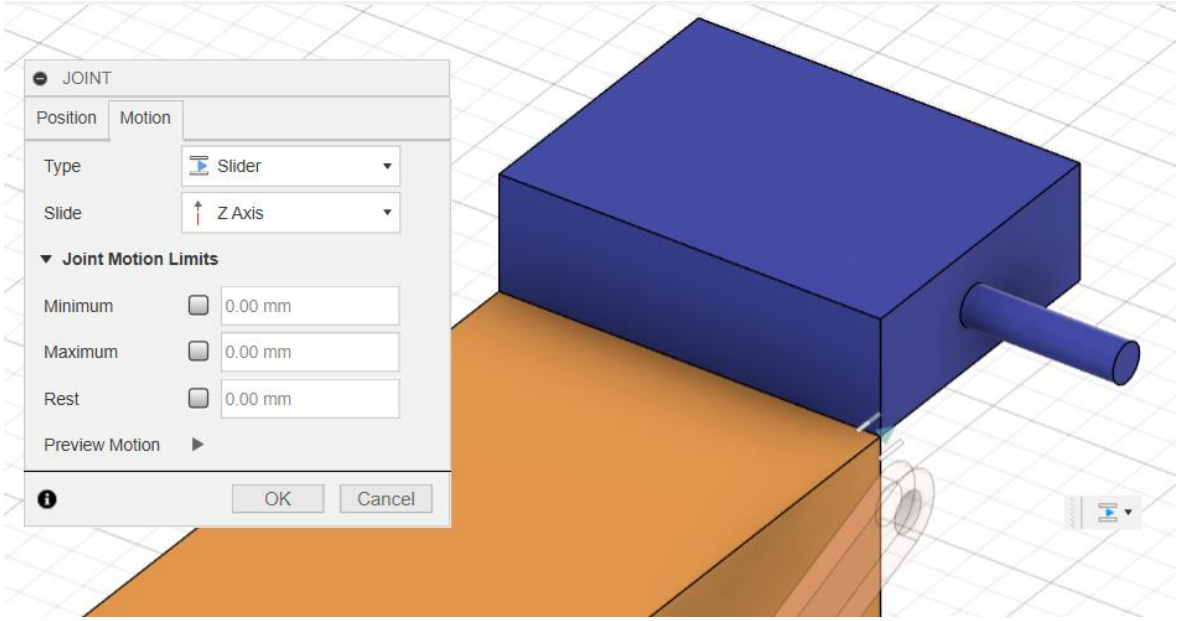
1. Slider(slide) & body.
2. Pin(revolute) & body.
3. Cam(revolute) & pin
4. Bar (revolute) & slider pin
5. Bar (revolute) & cam

Slider crank mechanism

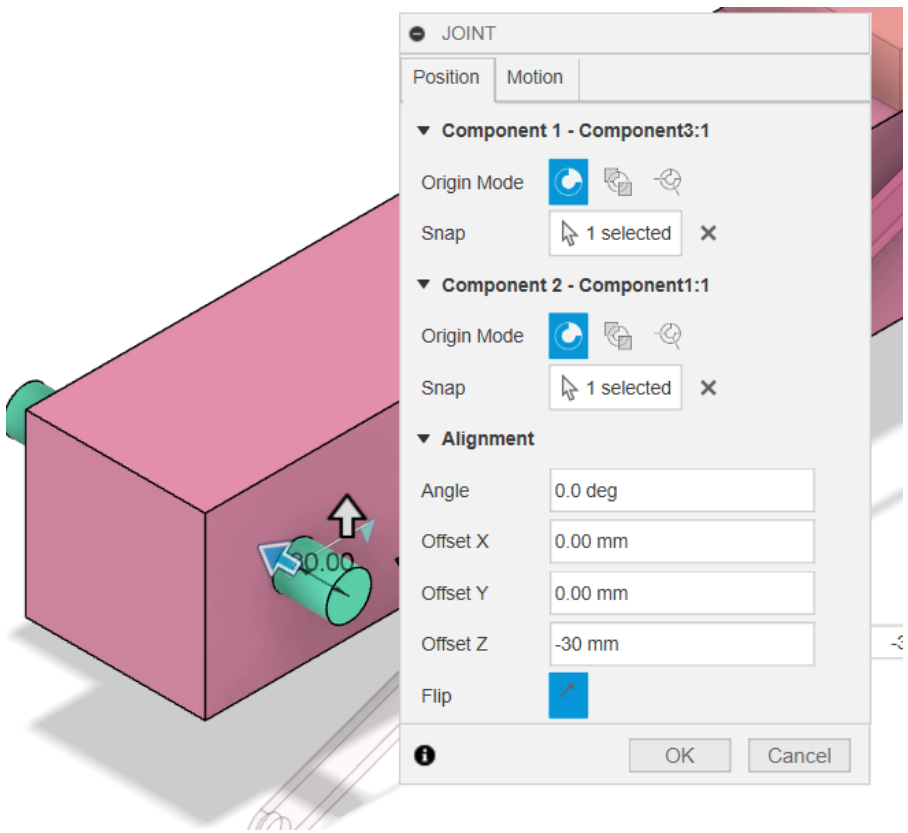
- Joint from assemble.
- Snap parallel edges of component2 (slider) & 1.
- Motion as slider.
- Click the slider, move the mouse to slide on the block.

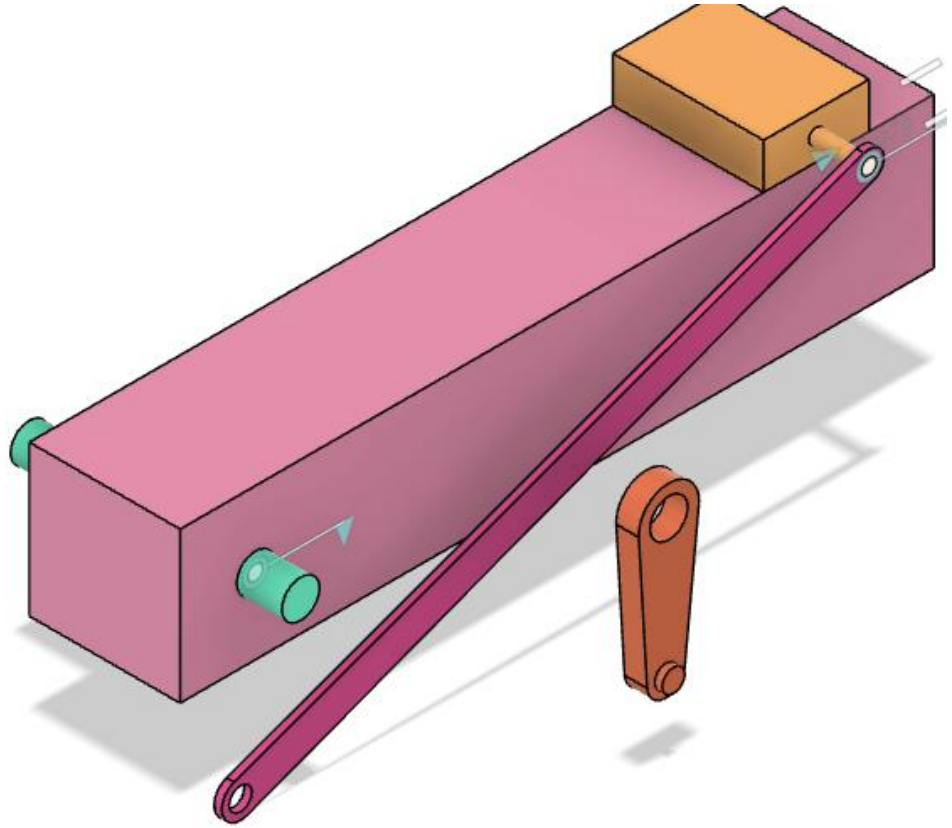






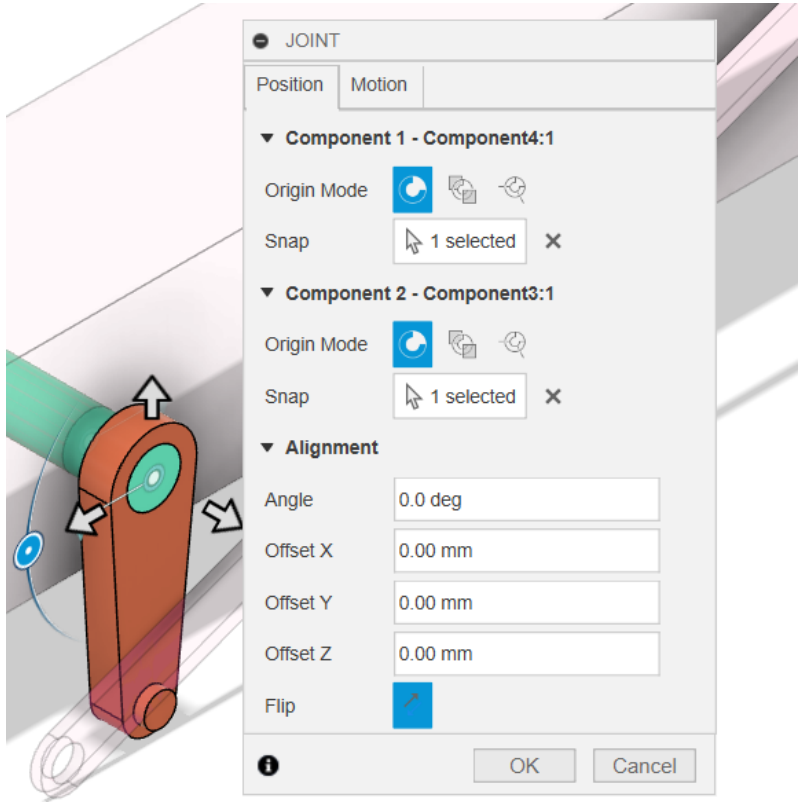
Slider crank mechanism

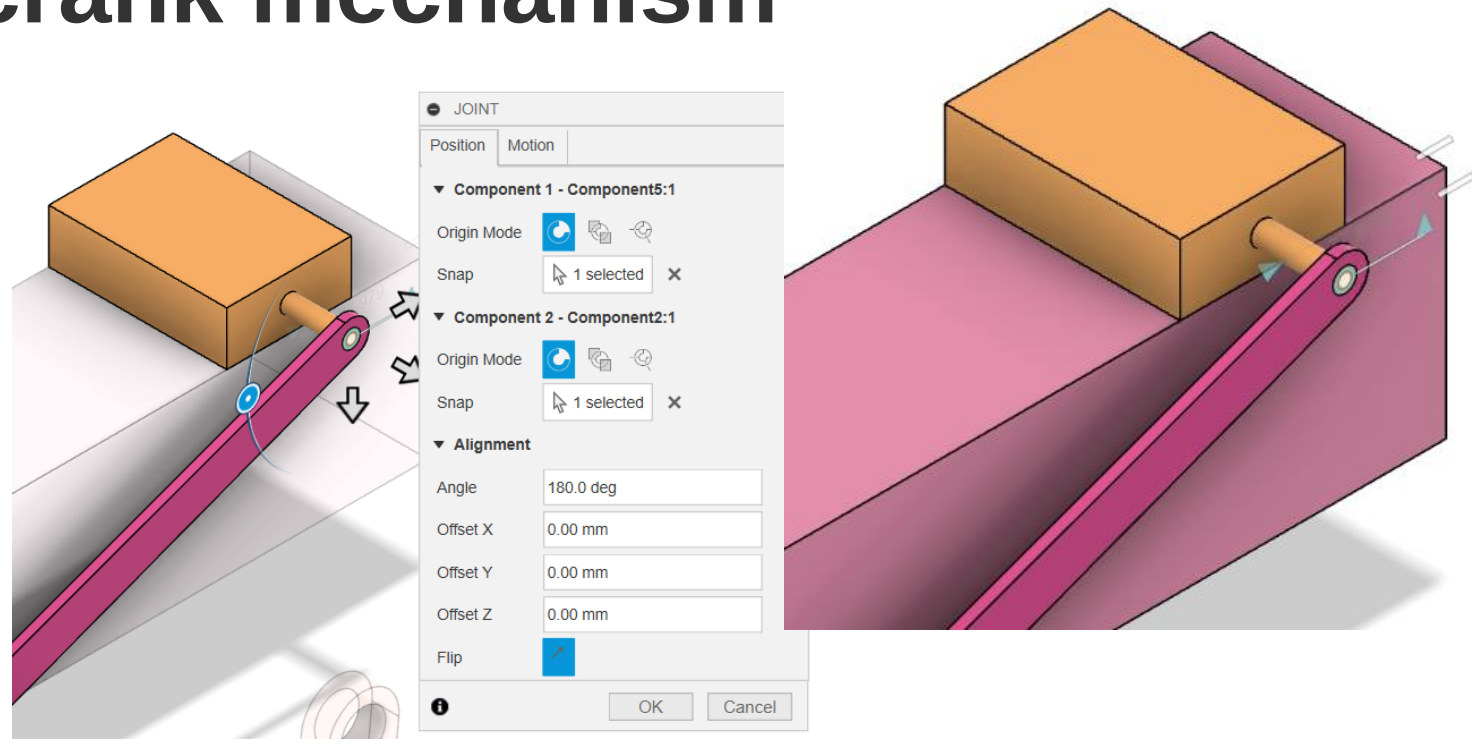




- Select **outer edge of the pin** and **edge of the circle** on the block.
- Select motion **revolute** and **offset z by -30mm**.

Slider crank mechanism

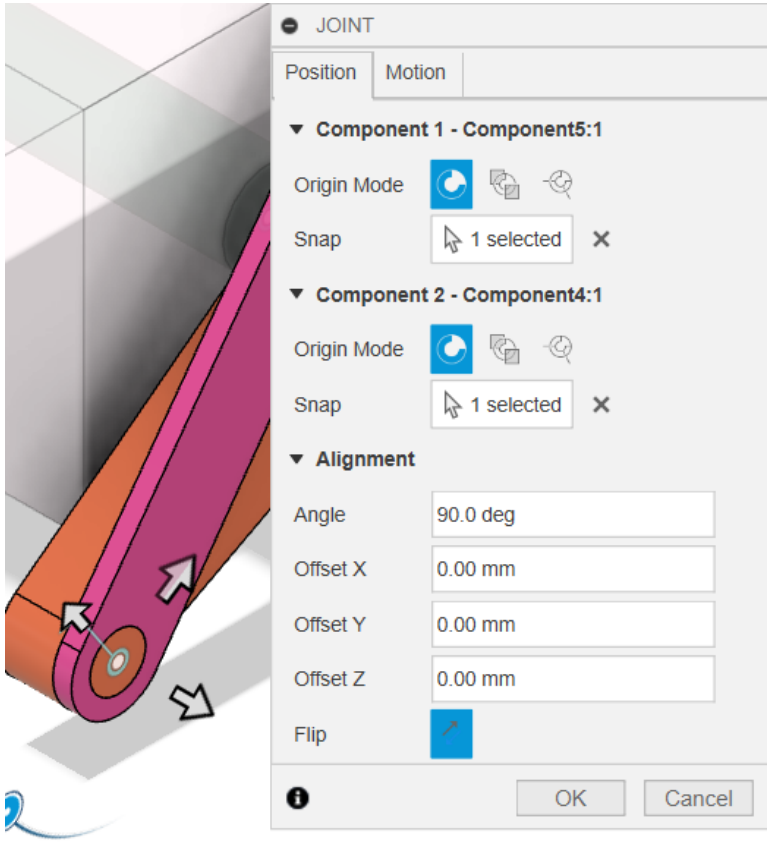




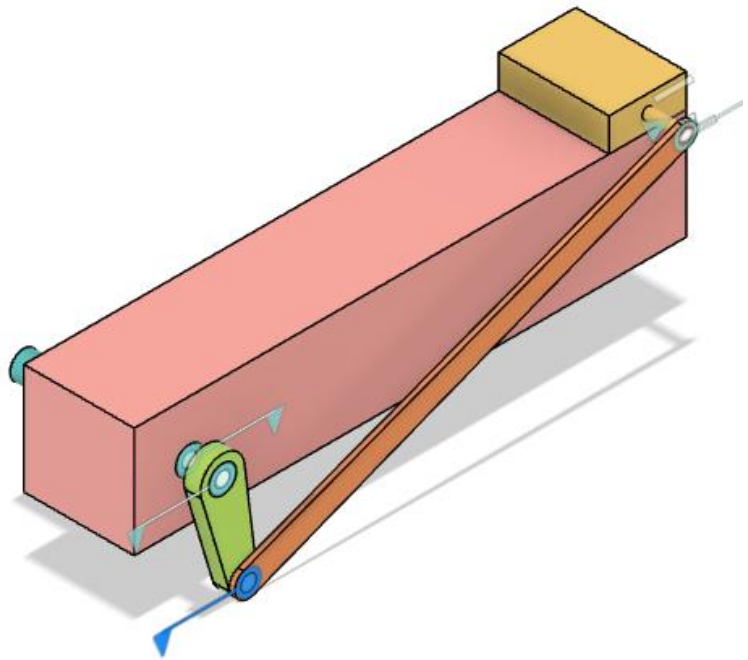
- **Joint** between **crank & pin** select **crank circle outer edge** and **outer edge of the pin.**
- Motion: **revolute**

- **Joint** between bar & slider pin.
- Snap the **outer edge of circle** on the **bar** and **outer edge of slider pin**
- Select motion: **revolve**.

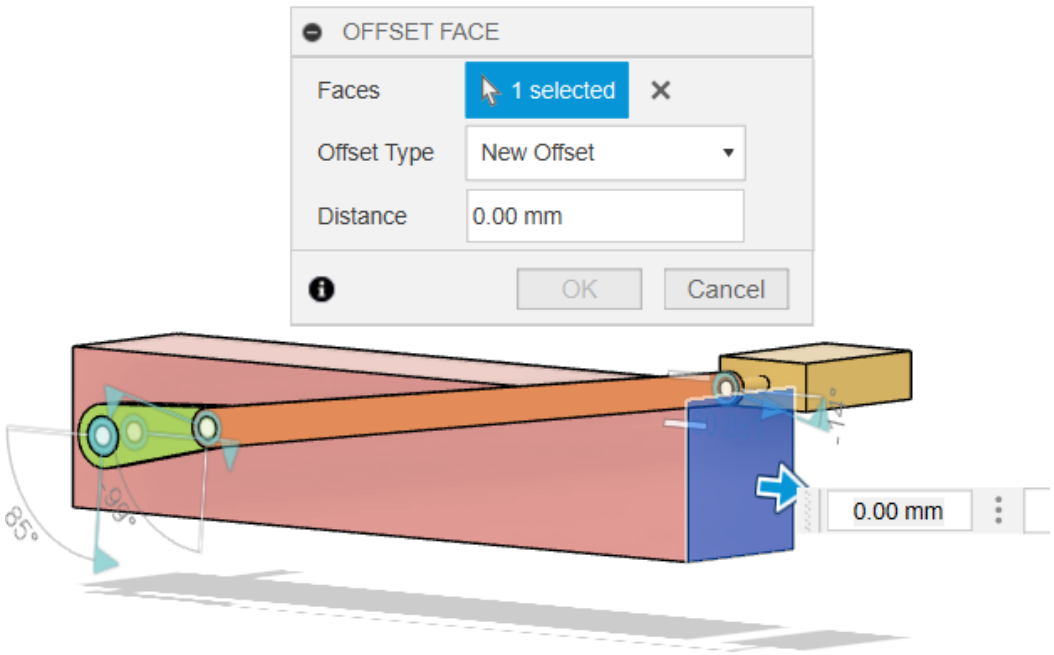
Slider crank mechanism

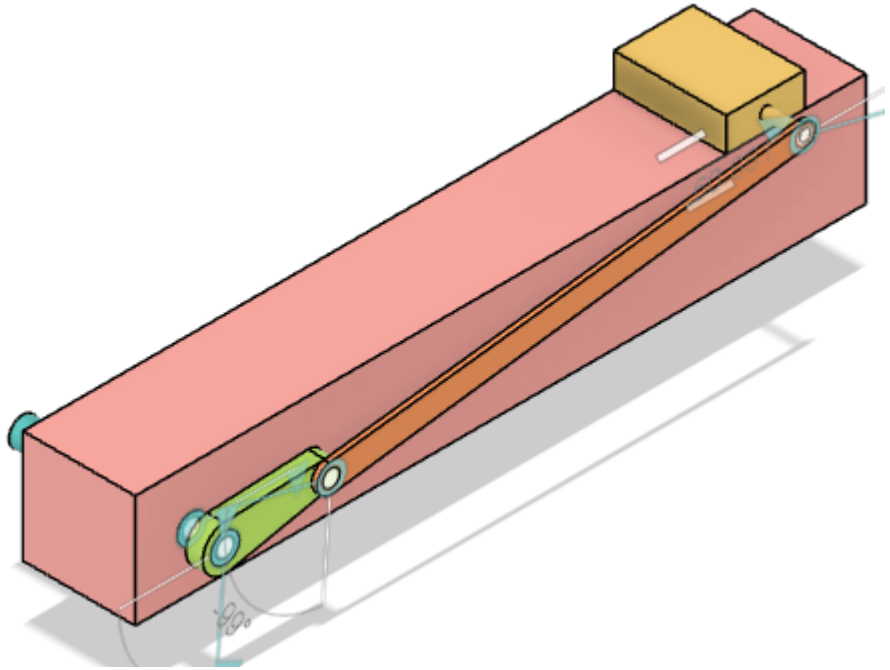


- **Joint** between **crank pin** and the **bar**.
- Select **outer circle edge of the bar** and **outer edge of the crank pin**. Motion: **revolute**



Slider crank mechanism





- **Press pull the face to increase the body length to cover the slider for the extreme position**

Exercise

- **Geneva Mechanism**
- **Quick return mechanism**
- **Parallelogram mechanism**
- **Angular transmission mechanism**
- **scotch-yoke mechanism**
- **Oldham coupling**

Thank you