# MANUFACTURING TECHNOLOGY 1

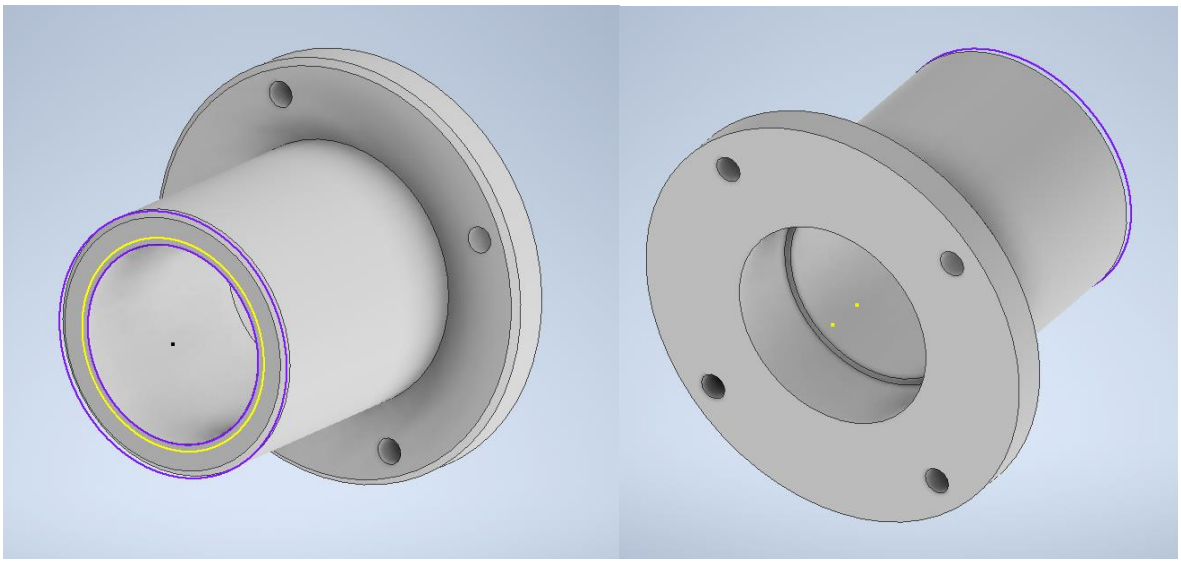
## Micro Project 2

(Harshit Verma - 302601)

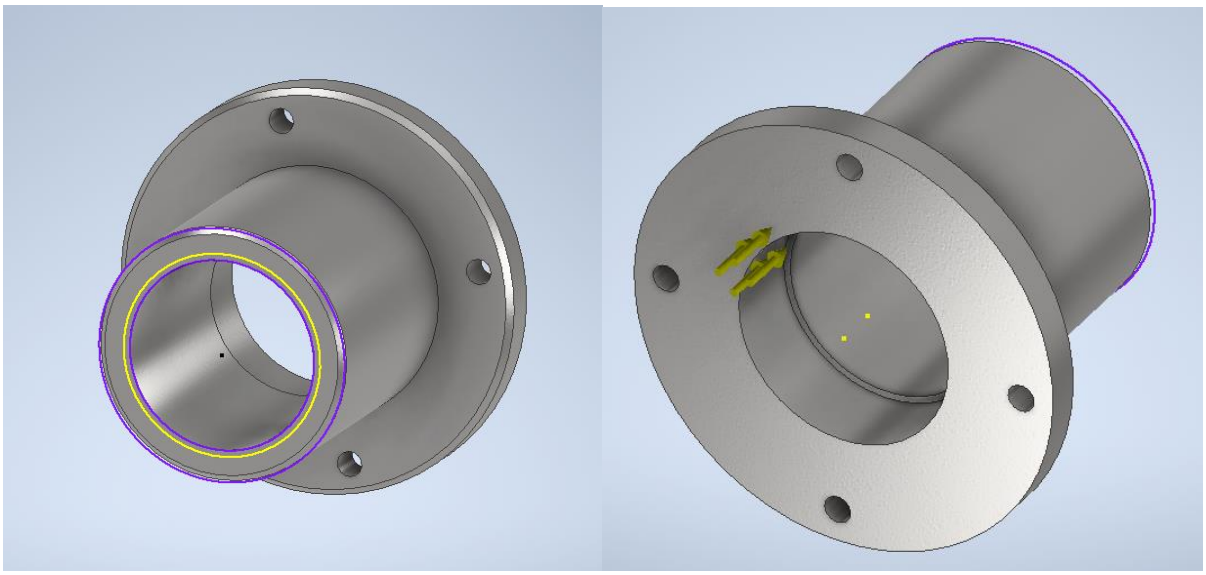
I will be preparing a simple milling product. External Pipe part joint.

Material Used: Galvanized Steel

3D Version:

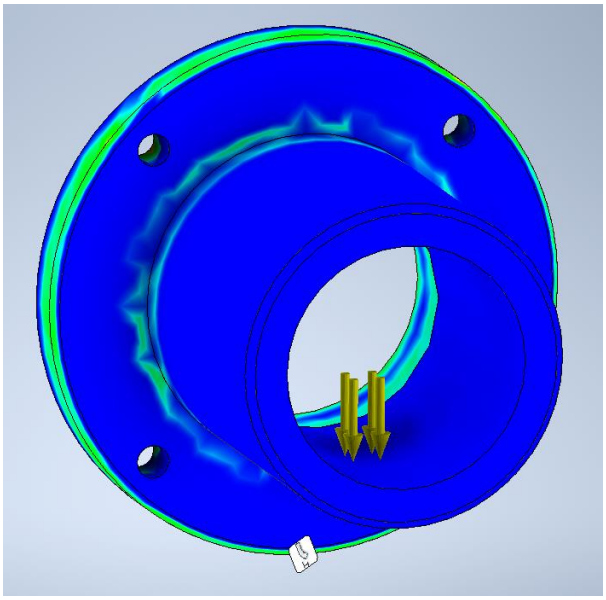


*Galvanized Metallic Version:*



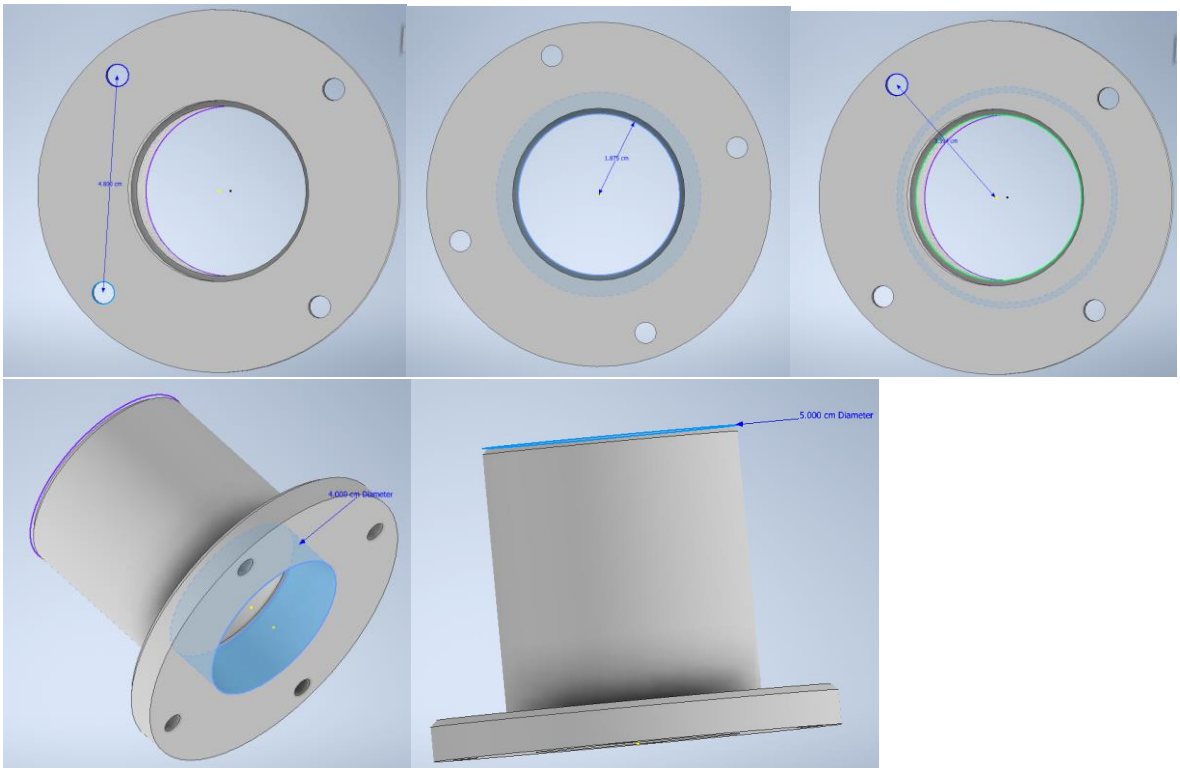
# Stress Analysis:

Blue color shows that pressure from inside when the joint is fixed, is very less over the whole part, but the max stress is between the joints, it could be reduced by having a fillet area, but it is difficult for milling process, so I have made the part as simple as possible.



Dimensions:

Thickness - 10 mm; Holes – 0,8 mm; Height – 60 mm; Wider radius – 80 mm




# Tips Used:

- **One Surface Finish** – This part needs one surface because the whole part is made with Galvanized Steel

- **Choosing Material Wisely** – Galvanized Steel is used for External pipes to avoid corrosion and make them durable

- **Minimize Tool Changes** – This needs the minimum tool usage, Design could have been perfect with curved joint parts, But the parts are still more or less workable to a high efficiency what we can see from the stress analysis, so there is no need for more complex tools for such a small change giving such a small change.

- **Avoid designing excessively thin walls** – This part does not have thin walls, 10 mm thickness according to the height and structure is reliable, can be seen in stress analysis.

- **Avoid Creating Holes That Can't Be Threaded** – All the holes can be drilled and grinded and are possible.
- **Tool Accessibility –** Features are simple and can be accessed by tools easily