



# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE GWALIOR

## Department of Mechanical Engineering

### REPORT OF SKILL BASED MINI PROJECT

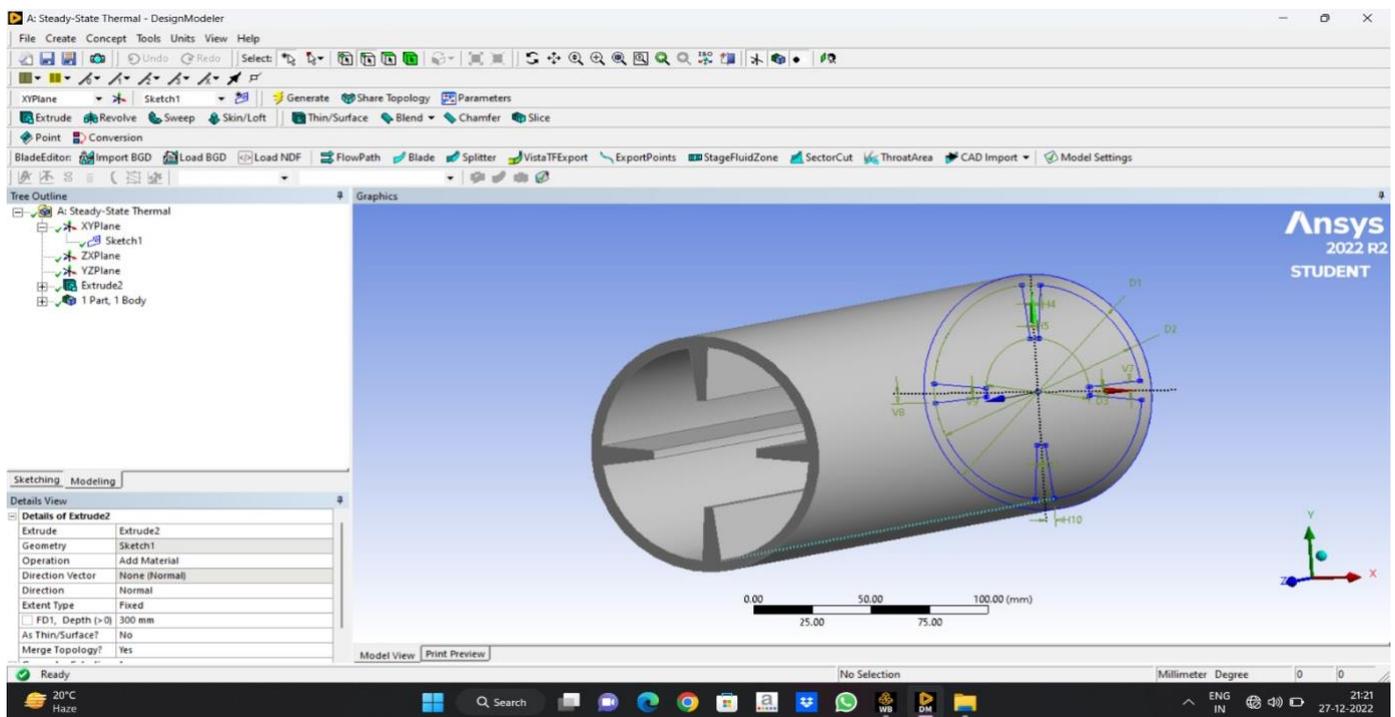
Heat and Mass Transfer (120513)

**Title of Project:** THERMAL ANALYSIS OF HEAT PIPE

#### Introduction:

In this project we did thermal analysis of heat pipe in ansys workbench and find temperature difference and total heat flux

#### Heat transfer pipe Model



#### Engineering data:

1. Material = copper alloy
2. Length of pipe = 300 mm
3. Poisson ratio = 0.34
4. Young's modulus = 110Gpa
5. Thermal expansion Coefficient =  $1.8 \times 10^{-5}/C$
6. Thermal conductivity = 380W/moc
7. Film coefficient interior = 100W/(m<sup>2</sup>c)
8. Film coefficient exterior = 30W/(m<sup>2</sup>c)
9. Density = 8330 kg / m<sup>3</sup>
10. Specific heat = 385 j/oc/kg

#### Boundary condition :

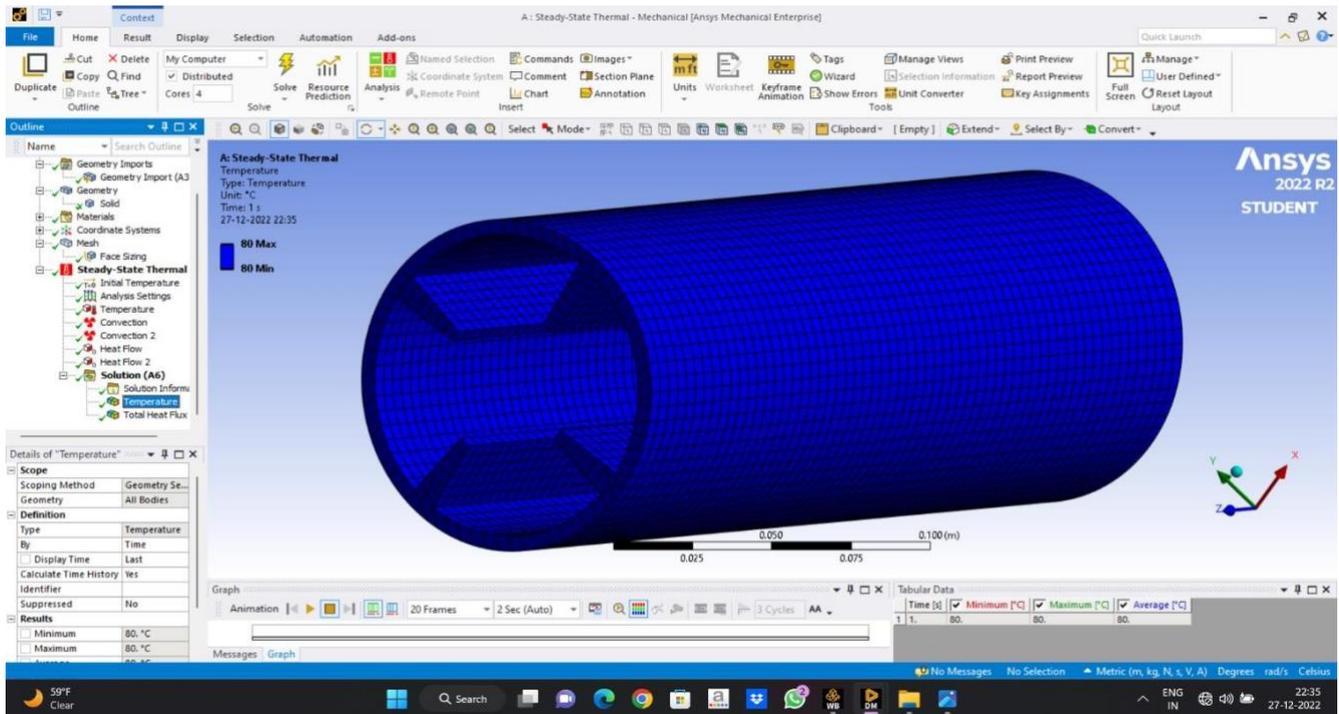
Both end insulated and fixed

Internal temperature = 80C

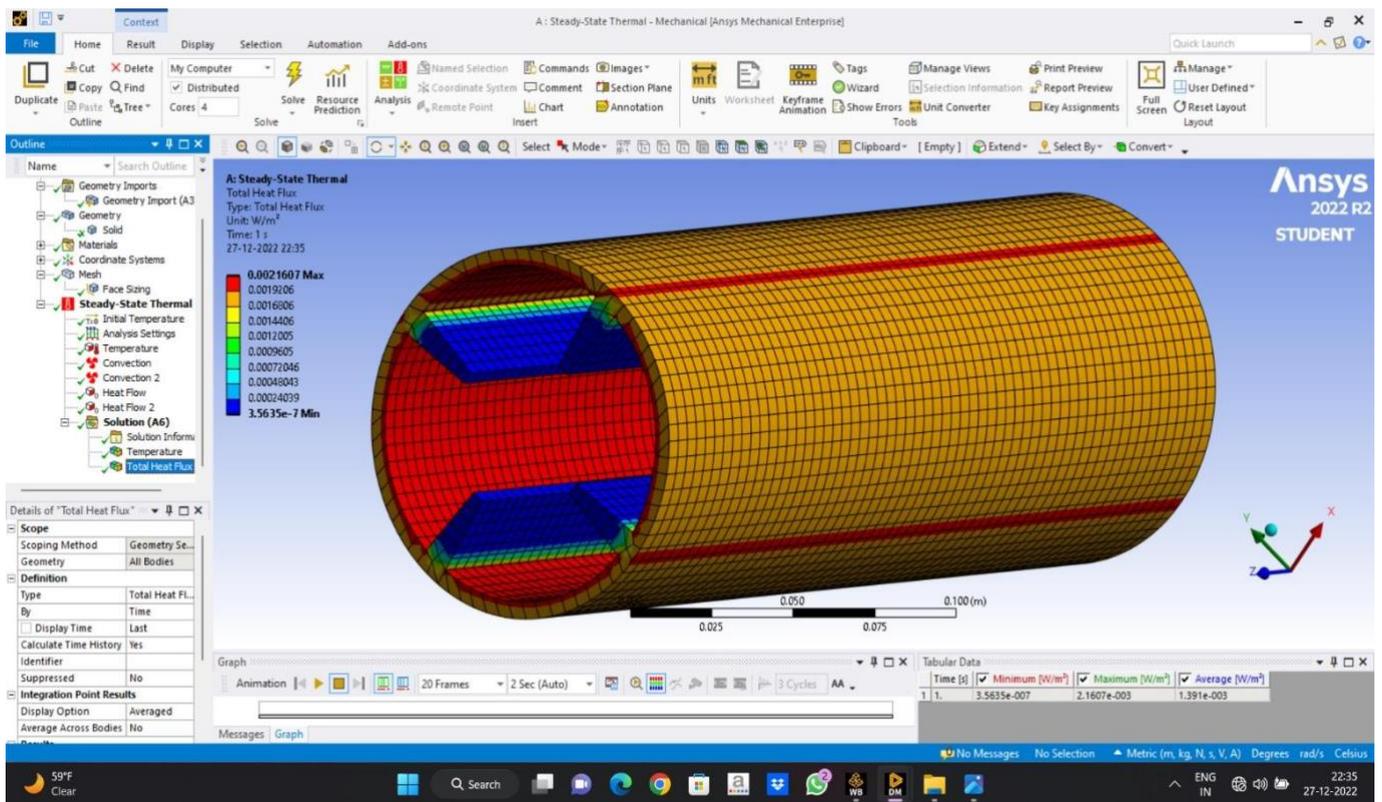
External temperature = 20C

## Result:

temperature difference-



total heat flux-



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