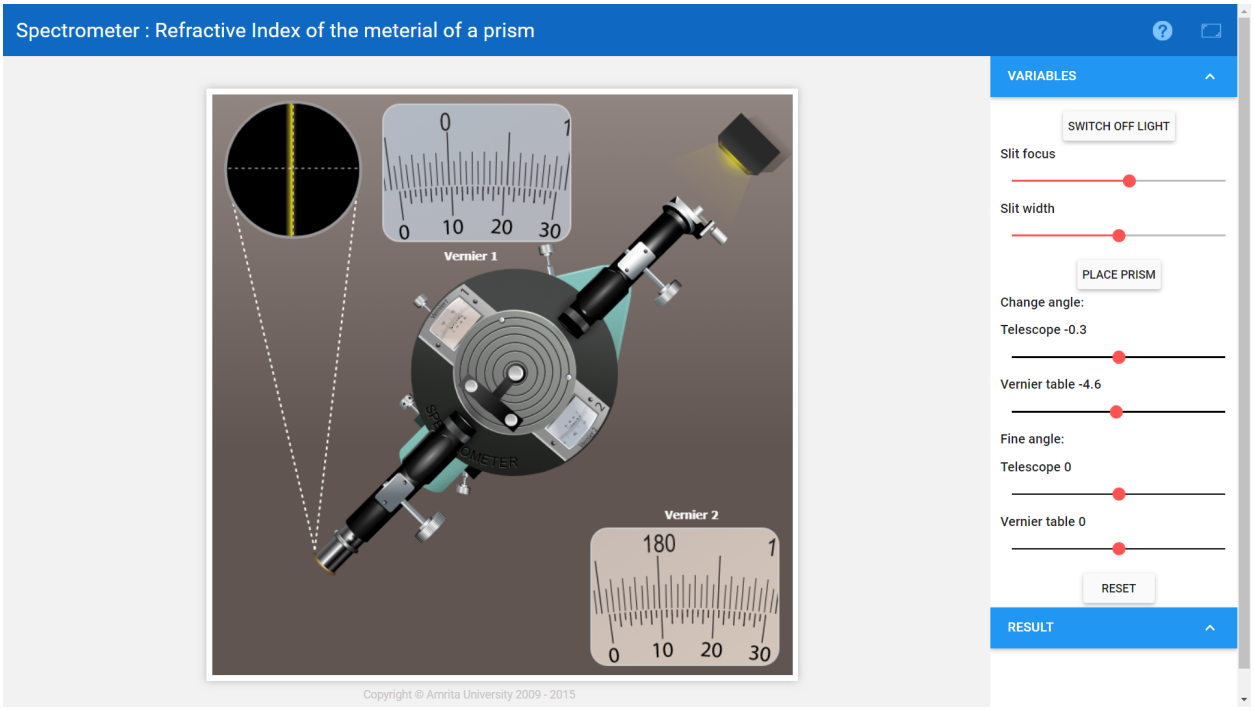
Observations and Calculations (IMT2019084 Shrey Tripathi)

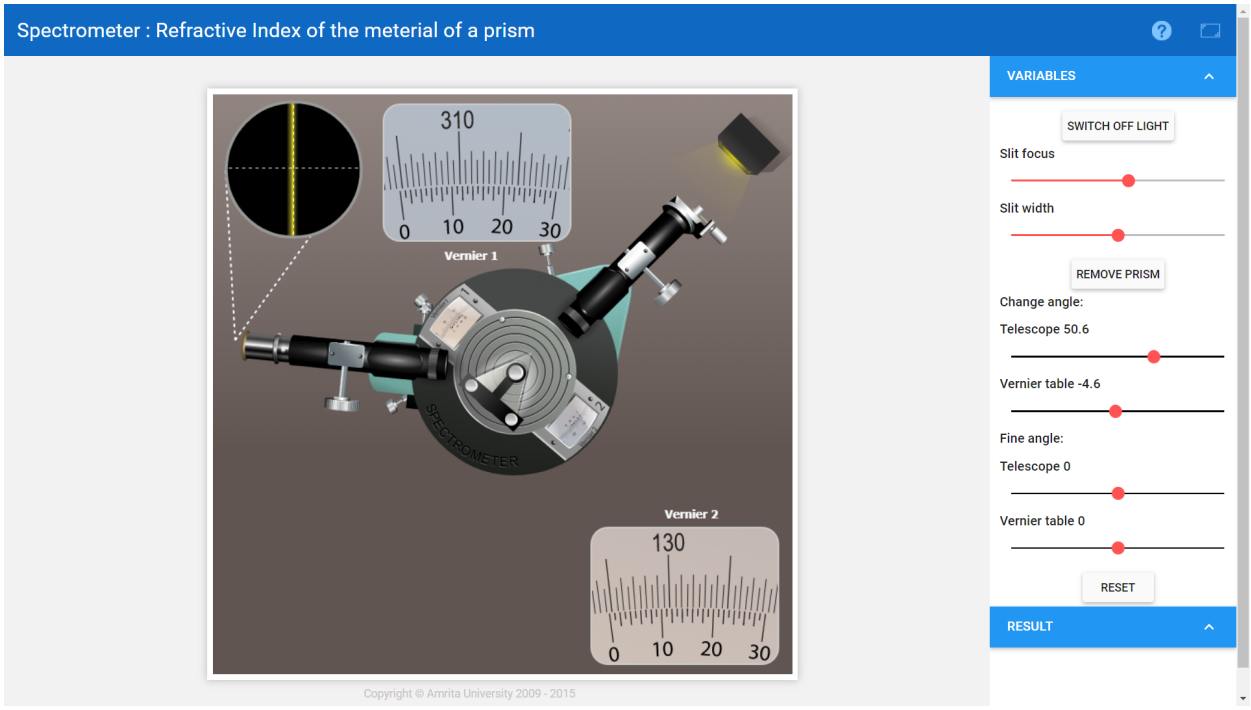
1. Preliminary Adjustments



One main scale division (N) = 30°
Number of divisions on vernier (v) = 20
Least Count (L.C.) = N / V = 1.5°

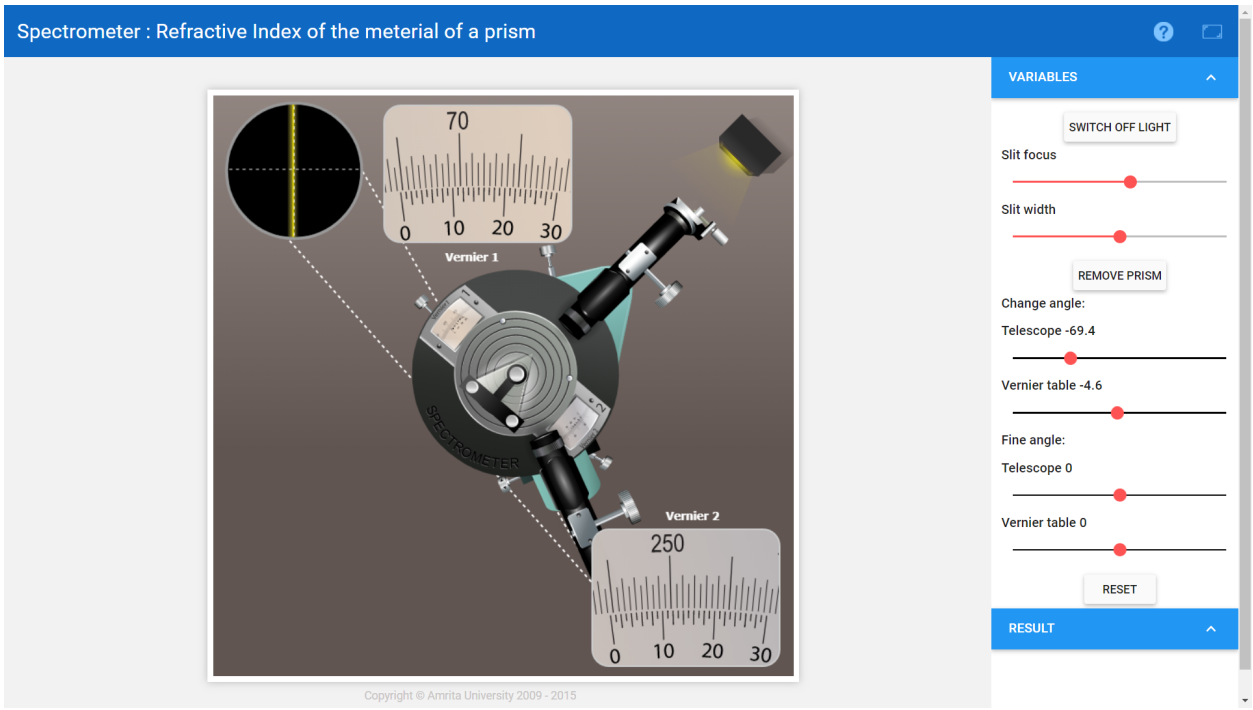
2. Angle of Prism:

a. Face 1:



V_1 = 310°6’
V_2 = 130°6’

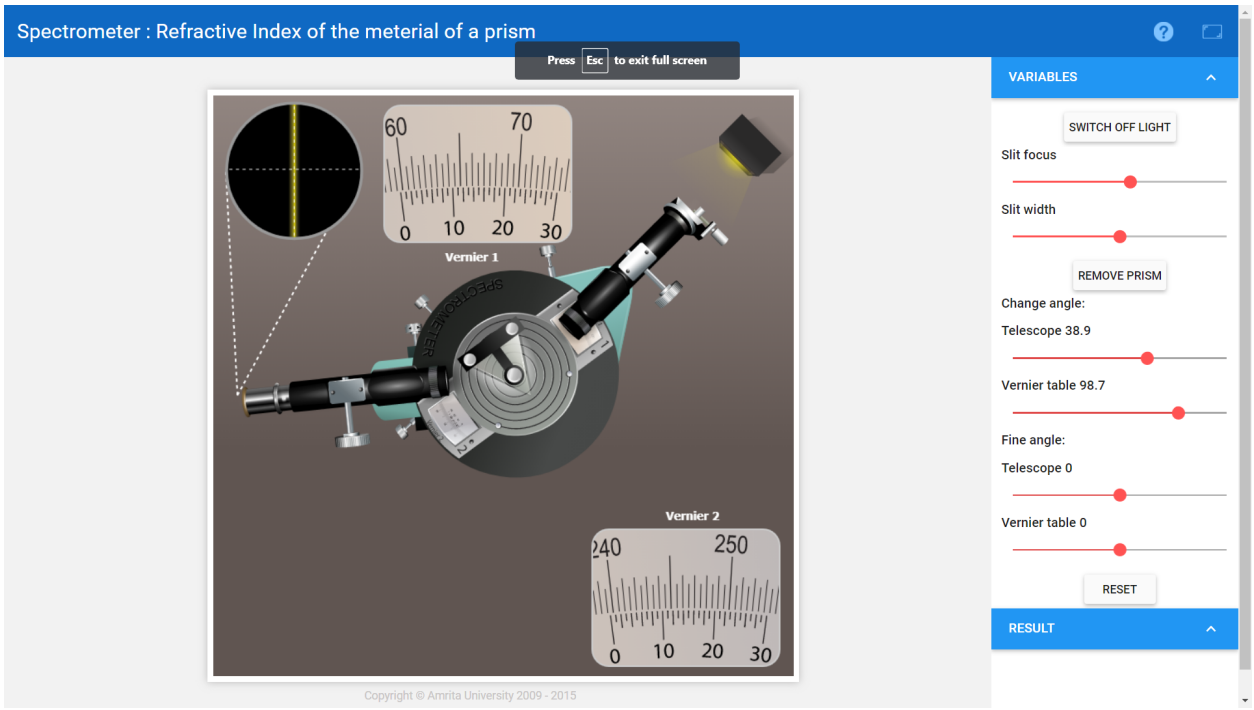
b. Face 2:



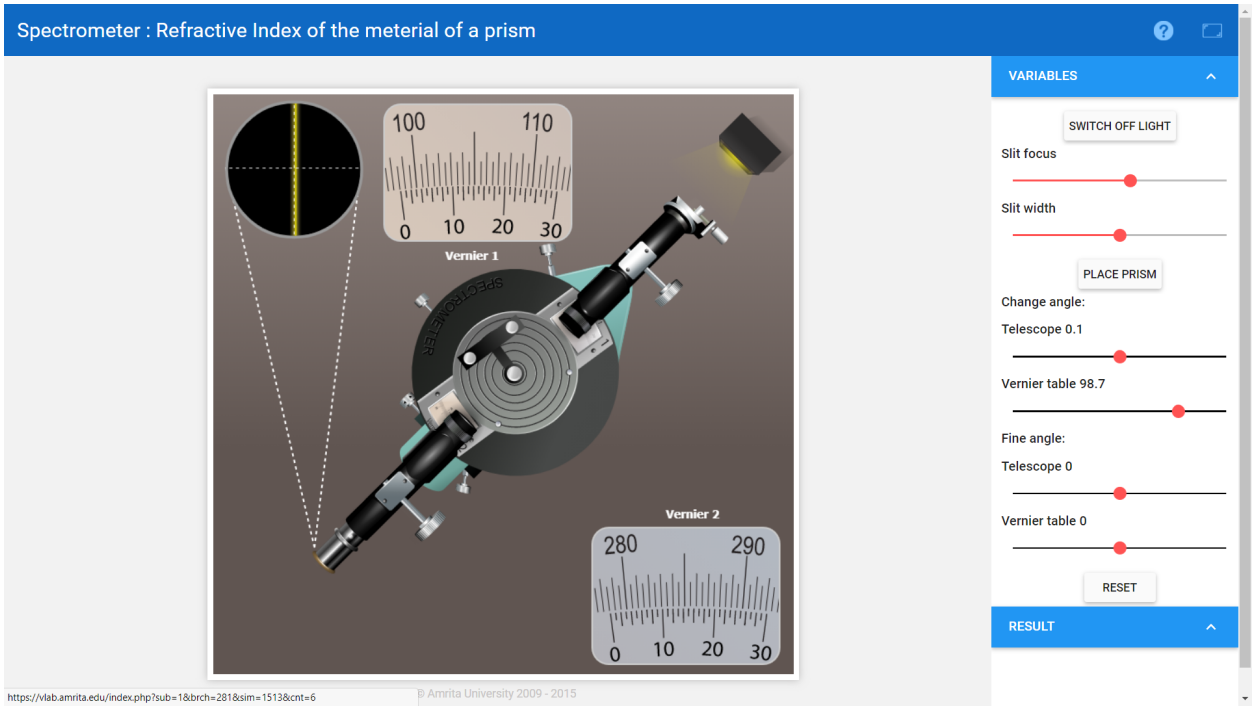
$V_3 = 70°9'$
$V_4 = 250°6'$

Angle of Prism, $A = ((V_4 - V_2) / 2 + (V_3 - V_1 + 360°) / 2) / 2$
$= ((250°6' - 130°6') / 2 + (360° + 70°9' - 310°6') / 2) / 2$
$= (60° + 60.02°) / 2$
$A = 60.01°$

3. Angle of Minimum Deviation:



Angle of Refraction (θ_1) = 60°9'



Angle of Incidence (θ_2) = 100°9’

Hence, Angle of Deviation (□) = $\theta_1 - \theta_2$
= 60°9’ - 100°9’
= - 40°

Taking absolute value, □ **= 40°**

4. Refractive Index:

μ = sin(A/2 + □/2) / sin(A/2)
= sin(30.005° + 20°) / sin(30.005°)
= 0.766 / 0.5000
= 1.5317

Hence, **μ = 1.5317**