EXPERIMENT NO.6

Objective: To verify Malus law

Apparatus: Optical bench with polarizer, analyser, lens and detector along with lamp, Multimeter, voltage stabiliser.

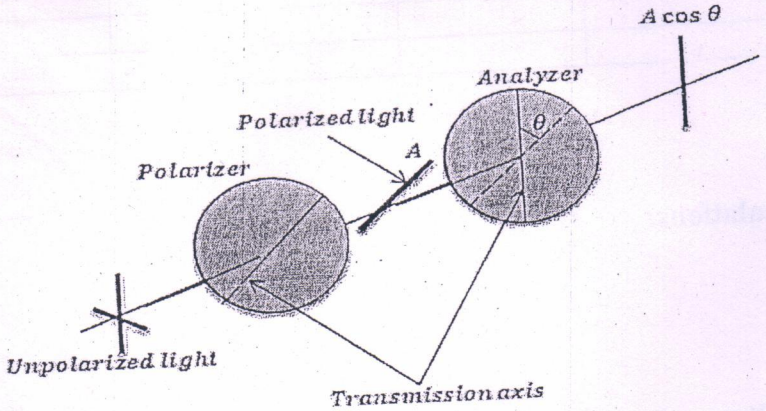

Figure Malus law set up

Procedure:

1. Set voltage at 16 V to achieve maximum lamp intensity.
2. Set lamp, polarizer, analyser, lens and detector in one line.
3. Set polarizer, analyser at zero position and look for current value. It should be maximum.
4. Change polarizer position in steps of 15° and note down the value of current.
5. Current values will correspond to I and position difference between polarizer and analyser as θ.
6. Record your observations in a suitable table.
7. Draw curve between I and $\cos^2\theta$; also between I and θ.

Formula used:

$$I = I_o \cos^2\theta$$

I_o = maximum intensity of light passing through analyser when angle between the plane of polarizer and analyzer is 0^o.
I = intersity of light when θ is not zero.
θ = ange between transmission axis of polarizer and analyzer.

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