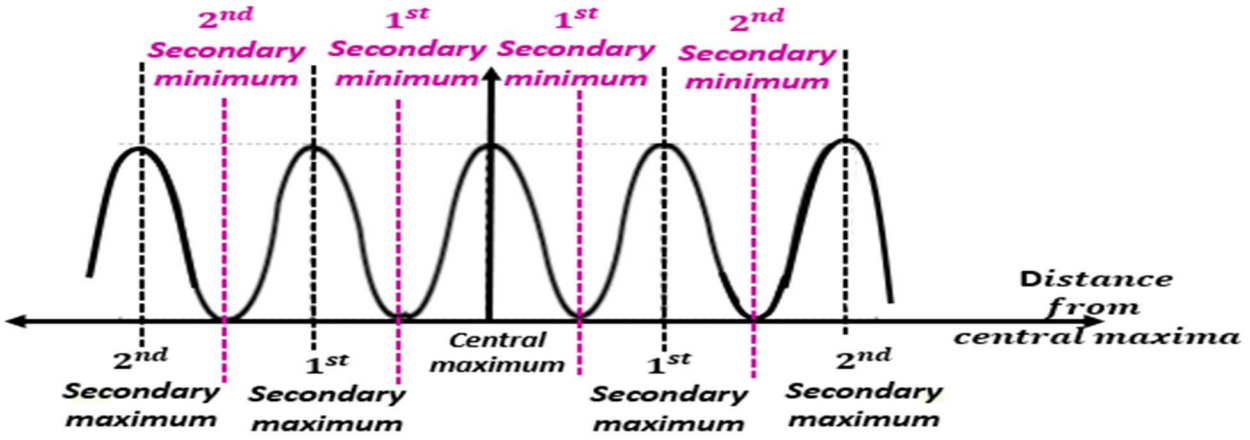



*Figure: Intensity variation graph in Young's Double Slit Experiment*

## Width of central maximum:

**1. Angular width:**

The angle subtended between 1st secondary minima on either side of central maxima at center of slit is the angular width of central maxima.

Angular width of central maxima, $\theta = 2\theta_1$

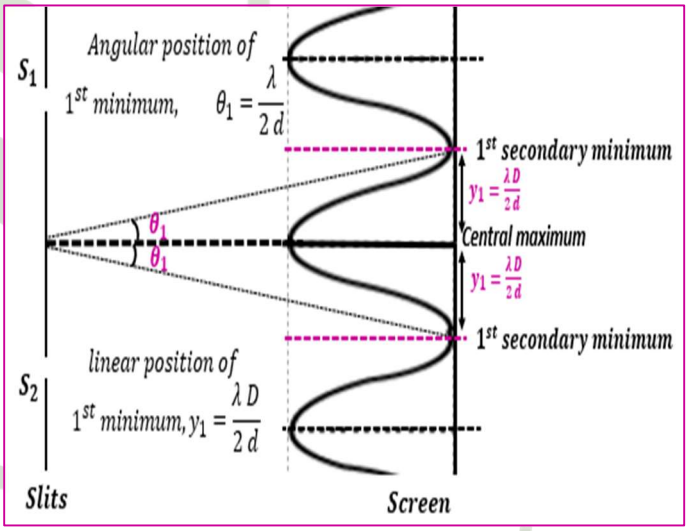
$$\boldsymbol{\theta = \frac{\lambda}{d} = \frac{\beta}{D}}$$

**2. Linear width:**

The linear distance between 1st secondary minima on either side of central maxima is the linear width of central maxima.

Linear width of central maxima, $L = 2y_1$

$$\boldsymbol{L = \frac{\lambda D}{d} = \beta}$$






**SUM UP:**

- **For central maximum, $path\ difference = 0$ and $phase\ difference = 0$.**
  - Angular width of central maximum $= \frac{\lambda}{d} = \frac{\beta}{D}$ (in radians)
  - Linear width of central maximum $= \frac{\lambda D}{d} = \beta$

**Secondary minima:**

Linear position: $y_n = (2n-1) \times \frac{\lambda D}{2d}$ $[n = 1, 2, 3, \ldots]$

**Secondary maxima:**

Linear position: $y_n = n\,\frac{\lambda D}{2d}$

Fringe width, $\beta = \frac{\lambda D}{d}$ { for both bright and dark fringes}