SNS COLLEGE OF TECHNOLOGY

23MCT204 – SOLID MECHANICS

UNIT I -SIMPLE STRESSES AND STRAINS

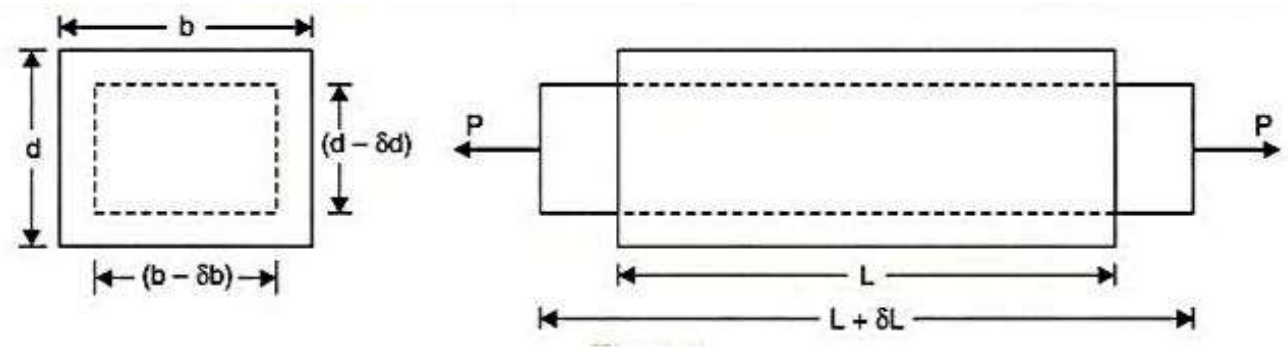
Poisson's Ratio

POISSON'S RATIO

The ratio of lateral strain to the longitudinal strain is a constant for a given material, when the material is stressed within the elastic limit. This ratio is called Poisson's ratio and it is generally denoted by μ or ν or 1/m. Hence mathematically,

$$\text{Poisson's ratio, } \mu = \frac{\text{Lateral strain}}{\text{Longitudinal strain}}$$

Longitudinal strain & Lateral strain:



$$\text{Longitudinal strain} = \frac{\delta L}{L}$$

$$\text{Lateral strain} = \frac{\delta b}{b} \text{ or } \frac{\delta d}{d}$$