



SNS COLLEGE OF ENGINEERING

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AN AUTONOMOUS INSTITUTION



Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

UNIT – I PROPERTIES OF MATTER

TOPIC – III FACTORS AFFECTING ELASTICITY

Factors Affecting the Elasticity

The following are the factors which affect the elastic properties of solids.

- Change in temperature
- Effect of hammering and rolling
- Effect of annealing
- Effect of impurities

Change in temperature

Increase in temperature reduces the elastic properties. For example, carbon filament is elastic in nature at room temperature however, it is converted into plastic state when it is heated.

Effect of hammering and rolling

Operations like hammering and rolling increases the elastic property of solids.

Effect of annealing

When the solids are subjected to annealing, it results in uniform crystalline structure of the solid and hence, larger crystal grains are formed. This results in the reduction of its elastic property.

Effect of impurities

The addition of impurity like carbon and potassium in small quantities to molten iron and gold enhances their elastic property.

Types of Modulus

Corresponding to the three types of strains, there are three elastic modulus:

1. Young's modulus : It corresponds to linear or tensile strain.
2. Bulk modulus : It corresponds to volumetric strain.
3. Rigidity modulus: It corresponds to shearing strain.