Journal of
Applied Mechanical Engineering

OPEN ACCESS Freely available online

Editorial

Editorial on Strength of Materials

Evanjali Pradhan

Department of Microbiology, Utkal University, University in Bhubaneswar, Odisha, India

EDITORIAL

The area of materials strength, often known as materials mechanics, is concerned with various methods for computing stresses and strains in structural parts such as beams, columns, and shafts. The properties of the materials, such as yield strength, ultimate strength, Young's modulus, and Poisson's ratio, are taken into account in the methodologies used to forecast the response of a structure under loading and its susceptibility to various failure modes. The macroscopic qualities (geometric properties) of the mechanical element, such as its length, width, thickness, boundary limitations, and sudden changes in geometry, such as holes, are also taken into account. The ability of a material to bear an applied load without failure or plastic deformation is referred to as its strength in material mechanics. The field of material strength is concerned with the forces and deformations that occur when they act on a material. When forces are stated on a unit basis, a load applied to a mechanical part will create internal forces called stresses within the part. The forces acting on the material lead it to deform in a variety of ways, including breaking completely. When the deformations of the material are placed on a unit basis, the deformations are referred to as strain. To determine a mechanical member's load capacity, the stresses and strains that form within it must be calculated. This necessitates a detailed explanation of the member's geometry, constraints, loads applied to the member, and the properties of the material from which it is made.

This necessitates a detailed explanation of the member's geometry, constraints, loads applied to the member, and the properties of the material from which it is made. Axial (tensile or compressive) or rotational loads may be applied (strength shear). The level of stress and strain at every position within the member can be estimated using a detailed description of the loading and the geometry of the member. The member's strength (load carrying capability), deformations (stiffness attributes), and stability (ability to preserve its original configuration) may all be determined if the condition of stress and strain within the member is understood. After that, the estimated stresses can be compared to a measure of the member's strength, such as its material yield or ultimate strength. The member's computed deflection can be compared against deflection criteria based on the member's usage. The applied load and the calculated buckling load of the member can be compared. The member's dynamic response can be computed using the calculated stiffness and mass distribution, and then compared to the acoustic environment in which it will be employed. The point on the engineering stress–strain curve (yield stress) beyond which the material undergoes deformations that will not be totally reversed when the loading is removed, resulting in a permanent deflection of the member. The ultimate strength of a material refers to the utmost stress that can be applied to it.

Correspondence to: Evanjali Pradhan, Department of Engineering, Utkal University, Bhubaneswar, Odisha, India, E-mail: eva.p@gmail.com

Received: May 09, 2021, **Accepted:** May 16, 2021, **Published:** May 23, 2021

Citation: Pradhan E (2021) Editorial on Strength of Materials. J Appl Mech Eng. 10:364.

Copyright: © 2021 Pradhan E. This is an open access article distributed under the term of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.