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Editorial

Applied Theories on Machines: An Overview

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EDITORIAL

Mechanism and Machine Theory acts as a bridge between engineers and scientists working on research and development in the fields covered by the International Federation for the Promotion of Mechanism and Machine Science (IFToMM).

The main topics are:

- Robotics, Mechatronics and Micro-Machines**;**
- Applications to Bioengineering and Molecular Chemistry
- Design Theory and Methodology;
- Kinematics, Dynamics, and Control of Mechanical Systems;

Theoretical, experimental, and/or historical methods, as well as their practical implementation, such as schooling, are all included in this methodology.

In terms of content, the journal aspires to cover all aspects of mechanisms and machines in general, including design theory and methodology, system kinematics, human-machine interfaces, and haptics, among others.

Applied mechanics is a branch of mechanics that bridges the gap between physical theory and its implementation in technology. It is used in many fields of engineering, especially mechanical engineering and civil engineering; in this context, it is commonly referred to as engineering mechanics. Most of modern applied or engineering mechanics is based on Isaac Newton's laws of motion, with Stephen Timoshenko being credited as the father of modern engineering mechanics.

Applied mechanics is useful in formulating new ideas and theories, finding and understanding phenomena, and improving experimental and analytical methods within the practical sciences.

The study of heat and, more broadly, energy, as well as electromechanics, the study of electricity and magnetism, were said to be complementary to mechanics in the application of natural sciences.

Applied Mechanics developments and studies have a wide range of applications in a variety of fields of study. Mechanical engineering, construction engineering, materials science and engineering, civil engineering, aerospace engineering, chemical engineering, electrical engineering, nuclear engineering, structural engineering, and bioengineering are some of the specialties that apply the subject.

"Mechanics is the study of bodies in motion or at rest under the action of forces," said Prof. S. Marichamy.

Major topics:

Computational mechanics: Computational mechanics is the branch of mathematics concerned with the application of computational methods to the study of phenomena controlled by mechanical principles. 1st Computational mechanics was generally regarded as a sub-discipline of applied mechanics prior to the advent of computational science (also known as scientific computing) as a "third path" besides theoretical and experimental sciences. It's now regarded as a sub-discipline of computational science.

Contact mechanics:

Contact mechanics is the analysis of how solids deform as they come into contact with each other at one or more points.The difference between stresses acting perpendicular to the contacting bodies' surfaces (known as the normal direction) and frictional stresses acting tangentially between the surfaces is a key distinction in contact mechanics.

Continuum mechanics:

Continuum mechanics is a branch of mechanics concerned with the mechanical behaviour of materials that are described as a continuous mass rather than discrete particles. In the nineteenth century, Augustin-Louis Cauchy, a French mathematician, was the first to formulate such models.

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