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What is Engineering Basics

Discover the exciting world of engineering basics!

DEFINITION

Engineering basics are the fundamental principles that guide the design and creation of structures and systems. It involves problem-solving and creativity to build solutions for real-world challenges.

KEY CONCEPTS

Design Process

The design process is a series of steps engineers follow to solve problems, including defining the problem, brainstorming, and testing solutions.

Materials Science

Materials science studies different materials and their properties to choose the best ones for building projects.

Mechanical Systems

Mechanical systems involve the use of machines and tools to perform tasks, like levers, pulleys, and gears.

Electrical Engineering

Electrical engineering focuses on the design and application of electrical systems, such as circuits and power supplies.

Structural Engineering

Structural engineering ensures that buildings and bridges are safe and can withstand forces like gravity and wind.

EXAMPLES

- Building a bridge using popsicle sticks.
- Designing a simple robot with motors and sensors.
- Creating a water filtration system using household materials.

MEMORY TIPS

- ★ Remember 'DREAM' for the design process: Define, Research, Experiment, Analyze, Make.
- ★ Use 'M&M' to recall materials and mechanics: Materials and Machines.
- ★ Think of 'E' for electrical and 'S' for structural to remember engineering branches.

COMMON MISTAKES

- ✗ Ignoring the importance of testing prototypes.
- ✗ Choosing materials without considering their properties.
- ✗ Overcomplicating designs instead of keeping them simple.

QUICK RECAP

Engineering basics involve understanding how to design and build effective solutions. Key areas include the design process, materials science, and various engineering fields like mechanical and electrical engineering.