ROBOTICS – STATICS AND MECHANICS

INTRODUCTION

Robots, which were once seen only in fantasy and science fiction movies and literature, have become commonplace in today's world. Robotics is one of the fastest growing fields in today's world, with applications in almost every field or domain.

Most robots are able to move in some way. Some robots are used to explore dangerous places or places where humans cannot survive. These places may be planets in the solar system, or active volcanoes. An understanding of the statics and mechanics involved in building robots is essential to start learning robotics.

Learners begin by understanding basics of building robots and apply the concepts and skills acquired to solve a real world problem.

Learners exit this module with an understanding of the principles of Robotic statics and mechanics.

This module is a part of "APPLY - SCIENCE FOR A BETTER WORLD" series.

MODULE DETAILS

- **Series 2: Apply - Science For A Better World**
- **Module 2: Robotics – Statics And Mechanics**
- **Student Accomplishment Level: 3**

Grade Group : 6-8 Number of Sessions: 8 Session Duration: 60 min

SESSION EXPERIENCE

1. **Tuning In:** Understand the module structure and goals. Learn the use of tools such as engineering manipulatives, robotic motors and sensors.
2. **Wheeled Robotic Vehicle:** Create a robotic chassis.
3. **Explore Explorer:** Integrate brains into the robotic models.
4. **Programming The Brain:** Explore the software used in robotic programming. Learn to code in a GUI based on Visual Logo.
5. **Controlling Robotic Movements:** Understand the programming needed for the robot to move.
6. **Robot Design Challenge 1:** Design a prototype of an original robot that displays some form of locomotion.
7. **Robot Design Challenge 2:** Build and evaluate the robot designed in the previous session.
8. **How Did I Do?:** Reflect on the learnings from the module: Different types of robotic locomotion, motors and sensors. Present work to peers.

Learning Objectives:

Learners will:

1. Be able to incorporate statics and mechanics in building Robots.
2. Be able to program robotic locomotion using visual logo.
3. Follow instructions, think critically, solve problems and create tangible engineering artifacts.
4. Engage in active collaboration, communication and design thinking.

creya beyond school