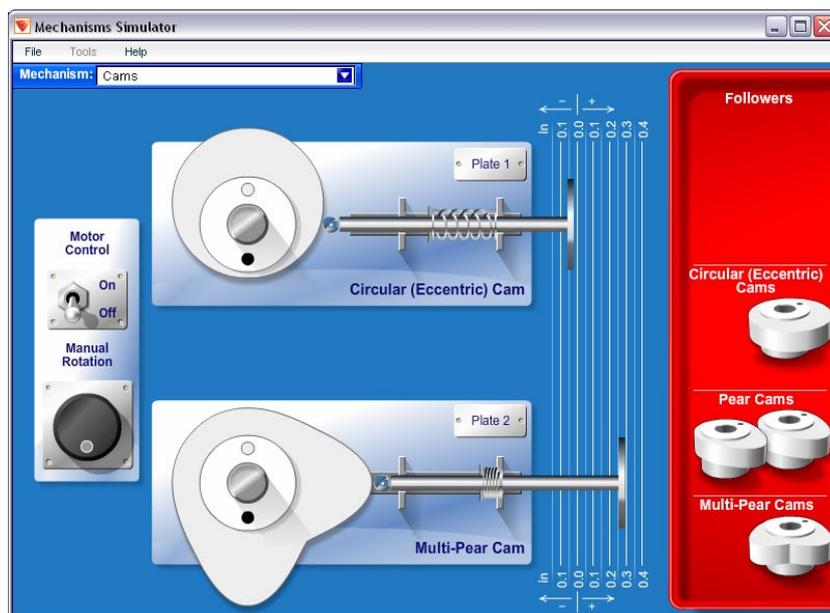
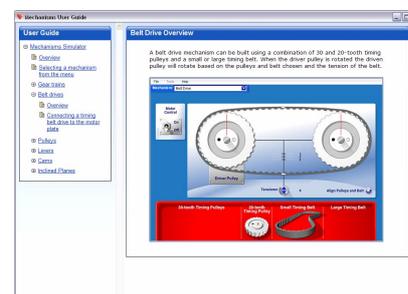




# Virtual Mechanisms Trainer



## User Guide



The simulator includes a user guide, which explains how to access and use each of the mechanisms.

This interactive simulator enables students to explore six of the fundamental mechanisms used in engineering.

Gear trains, belt drives, pulleys, levers, cams and inclined planes can all be built and manipulated.

Each mechanism has its own suite of tools for measuring distances and angles.

### Gear Trains

Simple and compound gear trains can be built using a combination of 30, 50 and 60-tooth gears. A drive gear can be rotated manually or automatically and subsequent driven gears rotate based on the gears and locations chosen. A ruler can also be used to measure the distance between gears.

### Belt Drives

A belt drive mechanism can be built using a combination of 30 and 20-tooth timing pulleys, and a small or large timing belt. When the driver pulley is rotated the driven pulley will rotate based on the pulleys and belt chosen and the tension of the belt.

### Pulleys

Pulley systems ranging from one to four pulleys can be set up and manipulated. Masses can be connected to the system and raised and lowered by pulling a handle. Rulers can be used to measure and compare the distances moved by the mass and the handle. Spring scales can be used to measure the forces present within each cord of the pulley system.

### Lever

The lever mechanism allows small and large masses to be attached to a lever at various distances from its fulcrum. A spring scale enables balancing forces to be investigated. The fulcrum position can be changed to allow first, second and third class levers to be explored.

### Cams

Circular, Pear and Multi-Pear cams can be mounted onto posts and then rotated manually or automatically. Followers can be used to see how the rotational movement of each cam is translated into linear motion. Cams can be modified to investigate how their profile affects the follower displacement.

### Inclined Planes

A plane can be positioned at five different angles, and small and large masses can be placed on the plane. A motor and clutch are used to raise or lower a mass up or down the plane. The pulling force of the motor can be set in order to investigate the forces necessary to pull the masses up the different slopes. Rulers and a protractor can be used to measure the distances and angles involved for each slope.

### Minimum Computer Requirements

- Windows® 2000 or later
- 50 MB free hard disk space
- Flash Player v9 or later (supplied on CD)

### Languages Supported

- English (US)
- English (GB)
- Spanish

### Order as:

VMECH1/SL Virtual Mechanisms Trainer  
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