Academic Software Bundle

For motion and systems simulation

The Academic Software Bundle for Motion & System Simulation (or Academic Motion Bundle, for short) provides several related software products focused on kinematics, rigid & flexible multibody dynamics, and schematic (block-diagram) simulations. Representative systems to simulate with this bundle include rotating & translating linkages; gear sets; cams; cables, belts & pulleys; as well as various actuators as found in machinery, latches & closures, mechatronic devices, robots, ground vehicles, aircraft landing gear & flaps, etc.

Build: Create simple graphical representations of systems using block diagrams, primitive geometries, or sophisticated geometries imported from CAD.

Test: Perform single simulations manually or parameterize your virtual prototypes and perform automated design sensitivity & optimization studies.Review: Calculate displacements, velocities, & accelerations of parts & points in your system; motor forces & torques; hydraulic or pneumatic pressures; momentum; energy; frequencies; even dynamic stresses & fatigue hot spots. Visualize system behavior using animations and plots.

Targeted users and goals

- Professors striving to bring engineering principles to life and teach courses that are more dynamic, fun, and effective
- Researchers seeking innovative engineering solutions
- Students taking courses, doing research, or working on projects or competitions in search of the best possible engineering education... through motion & systems simulation!

Benefits

- Affordable - schools can obtain numerous licenses on a reasonable budget
- Conveniently accessible - run this software in a computer lab at school or on your own computer
- Easily scalable to industrial-strength - start with small models and progressively increase complexity and realism without hitting walls based on model size (Crawl-Walk-Run); do the same scale of simulations done by commercial companies.
- Unrestricted simulation capability - our academic licenses provide the same capabilities as commercial licenses for the software products in this bundle
- Tailored licensing - “academic user packs” are available based on your intended usage scenario
- Complement engineering theory & textbooks for a richer education

Understand the motion behavior of mechanical systems

Visualize stresses due to motion-induced loads
### Applications in engineering coursework, research, and student projects

- Dynamics
- Mechanism Analysis
- Vibrations
- Robotics
- Computer-aided Engineering
- Mechanics of Machinery
- Capstone Design
- Vehicle Engineering
- Mechatronics & Controls
- Advanced Dynamics
- Hydraulics & Pneumatics
- Wind Turbines
- Biomechanics
- Flexible-body Dynamics
- Formula SAE, Baja, Solar Car, Human Powered Vehicle, autonomous vehicles, etc.

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### Product families and modules

This bundle contains software targeted at finite-element analysis (FEA) to assess the structural, thermal, crash- or impact-related characteristics of mechanical components & systems. The lists below identify which MSC products are currently included with this bundle and which optional 3rd-party products are currently available for an additional fee.

*To learn more about the detailed analysis capabilities of any of these products, see the associated datasheets.*

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Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

MSC Software, part of Hexagon’s Manufacturing Intelligence division, is one of the ten original software companies and a global leader in helping product manufacturers to advance their engineering methods with simulation software and services. Learn more at mscsoftware.com. Hexagon’s Manufacturing Intelligence division provides solutions that utilise data from design and engineering, production and metrology to make manufacturing smarter.

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