Modelling Steps

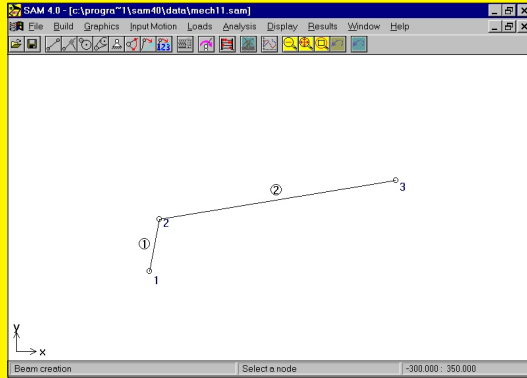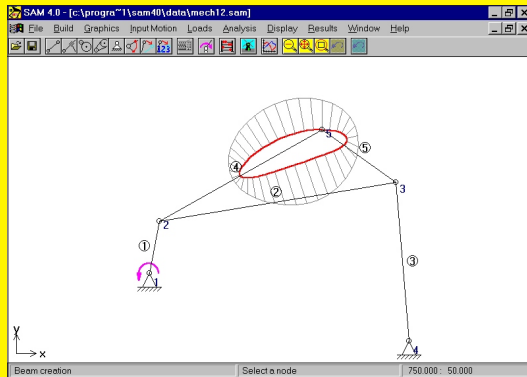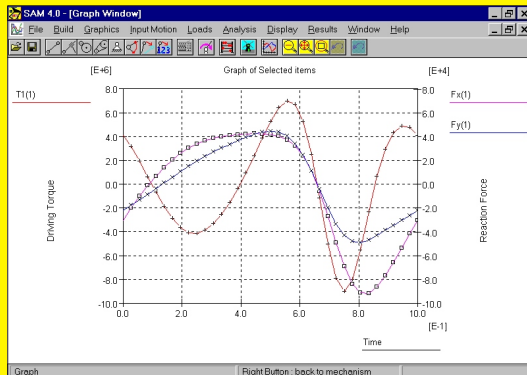**1.**

Build mechanism by clicking and dragging.

2.

View path and velocity hodograph

3.

Plot driving torque and bearing forces that result from inertia effects.

Specifications

Learning Time
Learning time is very short (<30 min)

Modelling Features
- Open, closed or multiple loop mechanisms are treated identical
- Element types include :
  beam, slider, gear, belt
  spring, damper, friction (translational and rotational)
- Design Wizards to automatically generate often-used mechanisms

Input Motion
- Multiple inputs can be defined independently
- Various standard input motions available
- Arbitrary functions can be defined in tabular format

Analysis Results
- Nodal position, displacement, velocity, acceleration
- Angles, angular velocity and acceleration
- Driving torque/force, reaction forces, required driving torque, ...

Results Display
- Unlimited number of variables can be displayed in x/y plots
- Any variable can be plotted against any other variable
- Two different scalings can be used in one graph

Mechanism Display
- User-taylored animation of mechanism
- Path, velocity hodograph, evolute, centrode, ...

Optimization Module
- Function and path optimization
- Combination of *Evolutionary Algorithm* and *Simplex Method*.

CAD Interface
Import/Export of DXF-data

System Requirements
Any PC running Windows

SAM

The Ultimate

Mechanism Designer

ARTAS - Engineering Software

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Artas
Engineering Software

SAM lets you design, analyse and optimize mechanisms within minutes.

It's the ultimate tool for any engineer involved in conceptual mechanism design, offering powerful design, motion/force analysis and advanced optimization.

Zero Learning Time
No specialistic knowledge is required due to *Design Wizards* and the CAD-like mechanism editor, which lets you define, modify and delete mechanisms by clicking and dragging with the mouse.

Unique Modelling Approach
SAM's unique theoretical foundation, developed by the University of Delft (Netherlands), crushes the problems of traditional mechanism programs. Open, closed or multiple loop mechanisms and even the most complex configurations, including planetary gear trains, can be modelled with ease, using the library of basic elements (beam, slider, belt, gear, spring, damper and friction).

CAD Interface
The DXF import/export facility lets you exchange data with your CAD software.

Analysis Results
Once a mechanism has been designed any motion or force quantity can be calculated (e.g. angles, positions, displacements, velocities, accelerations, reaction forces, required motor torque/force, driving power, ...)
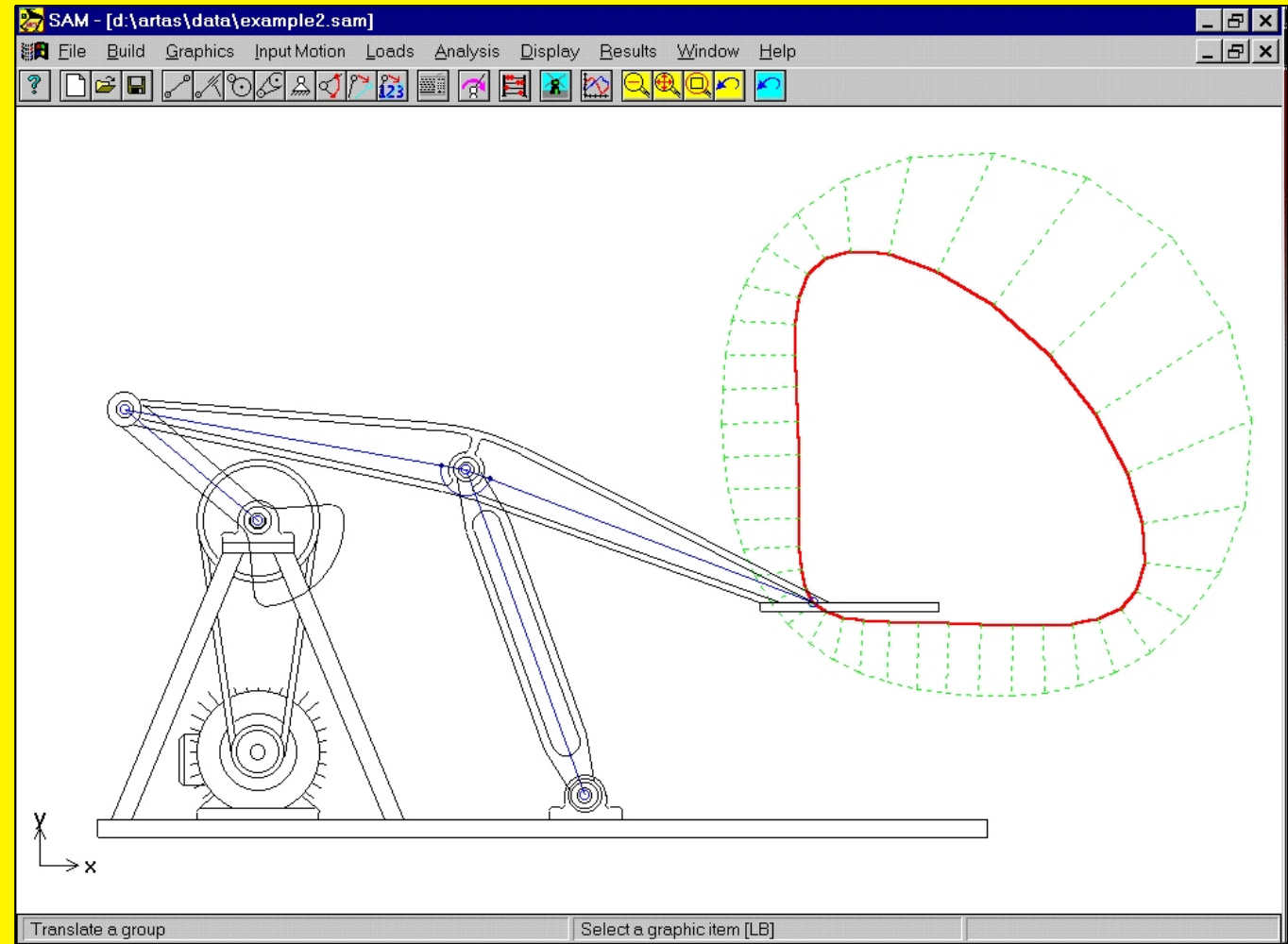
Optimization Module
A global exploration of the design space based on an *Evolutionary Algorithm* in combination with a local optimization based on a *Simplex Method* allows you to further improve the performance of your design.

Full-featured toolbox and pull-down menus makes the design, analysis and optimization of any 2D-mechanism a piece of cake.

Multiple independent inputs can be defined as a combination of standard input laws, such as linear, cycloidal and polynomial.

Just in case you get lost - which is very unlikely - we have provided extensive help facilities.

SAM - [d:\artas\data\example2.sam]

File Build Graphics Input Motion Loads Analysis Display Results Window Help

Translate a group   Select a graphic item [LB]

Select the motor based on the calculated driving torque and driving power.

Track the path and velocity hodograph of any number of moving points.

Determine reaction forces and choose the proper bearing.

Plot any variable against time or any other variable and combine an unlimited number of functions into one plot.

What do the users say ?
"SAM has become an important tool in my daily engineering practice.", "... straight forward, comprehensive and very effective.", "No unnecessary and confusing features."

What do the journals say ?
"SAM is a very useful mechanism design program ..., the price can't be the problem !" (Mikroniek - Journal of the Dutch federation on precision engineering)

SAM reached two successive finals of the "European Academic Software Award". This is what the expert jury says :
"SAM is a robust and versatile software program with an excellent user-interface, which makes the program very easy to operate".