

LHP 510

HEFESTUS

Heavy Equipment Simulators



1. The Simulation Technology

While traditional computer-based aids can help trainers familiarize with heavy equipment, only 3D simulation technology can help in learning how to operate them.

3D Graphics and Sound

3D graphics means detailed models of simulated heavy equipment based on CAD data supplied and digital photographs. Audio feedback is provided by recording real machine sounds and then digitally enhancing them.



Objects in motion

Physics-based motion means making the simulated parts of heavy equipment interact in realistic ways with their simulated work environments in response to operator input at the simulator controls, including detecting and resolving collisions.



Virtual terrain

More impressive is the dynamic terrain modeling "technology", to support virtual training.

R.O.I. (Return on Investment)

Carefully balancing simulator sophistication against complexity, we achieve cost effectiveness and real Return on Investment. Taking advantage of the growing computer and graphics technology, authentic heavy equipment simulation is achieved at reasonable costs.

2. The Training Method

Until recently, the only way to train heavy equipment operators was on real machines, in real work environment, under supervision of experienced staff, with all the danger and associated costs. Since trainees must confront the full complexity of the heavy equipment right from day one, they learn slowly and the cost of maintaining equipment used for the training is extremely high. The Simulators are helping to change all that in the following ways.

Teach by showing: Watching movies of experienced operators at the controls of real equipment only goes so far. After a while you need to explain, starting with basic operating concepts. The simulator can help demonstrate the right and wrong ways of doing things, right in the classroom.

Learn by doing: By learning to do things right, and by gaining confidence in their skills, new operators will come up to speed faster once they graduate to the real equipment and reach production targets sooner, lowering the costs of maintaining the equipment during training.



Refresh or upgrade skills: Each Simulator features an innovative Instructional design, consisting of Simulation modules that are progressively harder. As a result, trainees begin with the first one, and then move on when they are ready.

Benchmark Performance: Now it becomes possible to evaluate the training, help improve it and with the help of experienced operators, set the performance indicators that determine the operator ability level. That can help potential employers make a more qualified decision when employing operators.

Instructional Design: Each heavy equipment simulator is carefully developed to ensure that the right tasks are simulated and that for each one, the simulated work is measured the right way.



3. The HEFESTUS Simulations applications

Software Simulations for operation of:

Bulldozer



Bulldozer Simulator puts students behind the controls of a medium-sized Bulldozer as they experience the reality of a typical construction site. The virtual work site features dynamic terrain with life-like dirt pushing and spreading.

Mobile Crane



Mobile Crane Simulator puts trainees at the controls of a typical mobile rough terrain hydraulic crane equipped with a telescoping boom with deflection, a jib, and a realistic dashboard. The virtual worksite is set in a typical construction environment with a variety of loads and hook blocks for training.

Drill Jumbo



Drill Jumbo Simulator puts trainees at the controls of a modern twin boom Drill Jumbo in an underground mining tunnel (drift).

Off Highway Truck



Off-Highway Truck Simulator puts students at the controls of a modern, sophisticated rock truck with life-like driving dynamics in interaction with a built in Wheel Loader. The virtual quarry site features challenging driving scenarios, and interactive dumping and loading zones.

Fork Lift

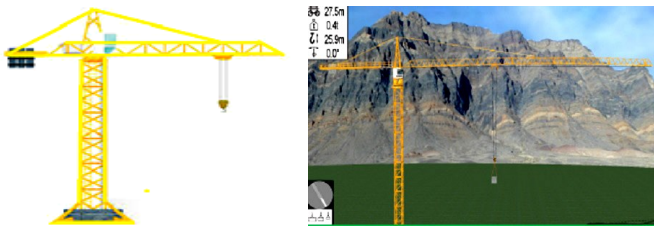


The FL - Forklift trainer is an electric forklift simulator, triple mast with free lift. Its design is meant for training personnel that needs to learn to drive a forklift with ease and precision. But also for professionals who want to upgrade their skills.



3.1 Software Simulations for operation of:

Tower Crane



Tower Crane Simulator puts trainees at the controls of a modern freestanding top-slewing tower crane with trolley jib. The virtual worksite is set in a typical construction environment and features terrain with a variety of loads and hook blocks for training.

Hydraulic Excavator



Hydraulic Excavator Simulator puts students at the controls of a modern, sophisticated machine in interaction with an articulated dump truck. The virtual work site features dynamic terrain with life-like material.

Wheel Loader



Wheel Loader Simulator puts students at the controls of a modern Wheel Loader in interaction with a built-in Off-Highway Truck. The virtual quarry features challenging driving scenarios, and dynamic terrain with life-like boulders in the digging zones.

PC-BASED SIMULATORS

All modules of the simulation applications are PC based and offer:

- Pre-screen trainees for operator aptitude.
- Prepare students for real seat - time.
- Upgrade skills to meet higher standards.
- Promote the trade to aid recruitment.

Training efficiency is delivered through a modular Instructional Design that teaches real skills for productive and safe equipment operations in the field.

AUTOMATIC PERFORMANCE MEASUREMENTS

For each Simulation Module, comprehensive Performance Indicators measure the quality and productivity of students' work. The simulation software automatically tracks and reports Simulation Results. Students can train unsupervised and learn at their own pace!

These results are based on specific indicators of evaluations as for example:

- Execution time;
- Truck loading accuracy;
- Maximum tilt angle while bench climbing/ descending;
- Number of slams; bucket over-opened / over-closed;

and many more which are specific per module and significance set per industry standards as:

- Crane/Construction Industry;
- Forest Industry;
- Quarry and Mining Industry;
- School/Training Providers;
- Machine Owner & Operators.