3D TRAINING SIMULATION SOLUTION
SIMGENICS 3D PACT

SIMGENICS 3D PACT AND 3D PACT FOR LEICA TRUVIEW

3D-BASED TRAINING SOLUTION USING 3D MODELS OR LASER SCANS

Staff training is an essential element to ensure safe, sustainable production on any operating facility. Many experienced facility workers are reaching the end of their working careers, so the need for staff training is rapidly increasing. But how can owner operators effectively transfer knowledge to new staff members?

Simgenics 3D PACT is a 3D-based training simulation solution that provides a uniquely engaging, interactive training experience that has been proven to offer better knowledge retention than traditional classroom training approaches. Real-world scenarios enable trainees to step through operating and commissioning procedures, maintenance tasks, inspections, and isolations. Trainees can respond to emergency situations by interacting with 3D models or photo-realistic laser scans as if they were actually on the facility floor. This approach offers many benefits, such as:

- Complex or safety-critical tasks can be practiced even before the physical plant is ready for operations.
- Plant designs can be verified for safe, practical, and effective operations.
- Staff can be trained and rehearsed on hazardous operations in complete safety until they are certified to perform the work in the real facility.

Simgenics is the respected leader in providing engineering and training simulators to the process and power industries. Simgenics 3D PACT is available through Hexagon PPM.

BUILDING TRAINING SCENARIOS

3D PACT provides an immersive, highly intuitive training experience in a standard Microsoft® Windows® environment. Subject matter experts can quickly construct training scenarios through an intuitive user interface. No programming or scripting is required.

3D CAD models from Hexagon PPM, a third party, or Leica TruView provide the basis for the 3D PACT training simulation environment. 3D CAD models can be enhanced by applying lighting effects, textures, and backgrounds for enhanced

OBJECTIVE STARTED: A Fire has Started!!!
Take the Appropriate Action

realism. Internal views, such as the inside of vessels or furnaces, may be included to allow trainees to see what is happening within equipment.

Items not normally included in the original 3D model or TruView, such as local push button stations, lights, locks, or portable welding equipment, can be added as "props" to training scenarios. The escape of fluids, steam, smoke, and fire are simple to incorporate to further enhance simulations. If based on a 3D CAD model, the simulation environment is also physics-aware so that objects interact with each other and react under forces like gravity to provide further realism. In addition, the user can incorporate crane operations in any imported 3D CAD model as part of a planning exercise or training scenario.

Lifelike avatars may be added to the training environment to represent the trainee and other plant workers. These avatars can walk, run, and perform actions in a realistic manner. They can also be set up to assist or hinder the trainee as part of a training scenario.

Updated or additional 3D CAD models can be imported without losing existing training content. Links to documents, drawings, and other pertinent external information may also be included.

INTERACTIVE AND REALISTIC TRAINING EXPERIENCE

After choosing a training scenario, trainees may be asked to equip their avatar by choosing the appropriate personal protective equipment (PPE) and tools to undertake a task. The user can walk around the plant, climb stairs, open doors, bump into objects, run, crawl, and more – almost any action that could be done in the real world. The user can toggle between a third-person and first-person point of view to vary the simulation experience.

When operating equipment, the user sees immediate results through dynamic animations such as component highlighting, mechanical operation, and fluid flow. Incorrect choices may result in animations which provide negative feedback, including loss of containment, explosions, smoke, fire, structure collapse, or even injury to other workers.

For 3D CAD models, cranes and hoists can be operated to simulate dismantling and assembly processes, with items swinging and falling in the physics-aware simulation environment. Measurements can also be taken from the model.

BENEFITS:

- Accelerate training and qualification of operations and maintenance personnel
- Improve knowledge retention through engaging, games-based learning experiences
- Quickly create highly realistic, immersive training scenarios
- Improve utilization of instructor resources by providing reusable, automated training units
- Ensure secure recordkeeping of personnel training completion and competency
- Improve planning of maintenance, inspection, and isolation procedures
- Simulate and rehearse complex procedures and operations in a risk-free environment
- Provide a safe, realistic environment for emergency response training
- Validate facility design and ergonomics for safe and efficient operations
- Demonstrate training compliance to regulatory authorities

TRAINING SCENARIOS

Individual training scenarios can be self-paced or timed, assigned to selected users, and repeated at any time from any location – reducing the burden on instructors. The trainee is presented with a scenario to perform with clear instructions and continual feedback on progress achieved. When in evaluation mode, 3D PACT records all actions, times, and results. The trainee may be given a limited time to complete a scenario or a limited number of allowable attempts on any task. Detailed scenario pass/fail results are securely held in the Web-based reporting system to ensure integrity.

3D PACT supports many different types of training scenarios.

SYSTEM IDENTIFICATION TRAINING
"Walk-down" the plant and view dependencies and interconnections by highlighting systems. Identify tags and components as part of the walk-down process.

OPERATIONS TRAINING
Operate sequences on a facility, including commissioning, startups/shutdowns, abnormal operations, and emergency operations.

EQUIPMENT OPERATION TRAINING
View and navigate equipment internals during operation, which would be impossible in the real world.

INSPECTION AND CONDITION MONITORING TRAINING AND PLANNING
Plan and prepare for inspections without the need to travel to and walk-down the plant. Save travel time and reduce the risk of trips, slips, and falls.

MAINTENANCE TRAINING AND PLANNING
Plan, practice, and prepare for maintenance activities to optimize safe, effective performance.

LOCK-OUT/TAG-OUT
Train, review, and evaluate isolation procedures prior to trainees being allowed to perform these safety-critical processes in the plant.

DECOMMISSIONING PLANNING
Plan and simulate the dismantling and removal of equipment and materials.

EMERGENCY RESPONSE TRAINING
Train and evaluate how staff handles emergency situations and unsafe working situations.

About Hexagon PPM

Hexagon PPM is the world's leading provider of asset life cycle solutions for design, construction, and operation of industrial facilities. By transforming unstructured information into a smart digital asset, our clients are empowered to visualize, build, and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire life cycle.

PPM is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technology solutions that drive productivity and quality across geospatial and industrial landscapes.