Nurtures Ultimate Operator Competencies

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CLOUD-BASED SIMULATOR TRAINING
Nurtures Ultimate Operator Competencies
Today’s Speaker

John Roffel, Director of Honeywell’s Operator Competency and Simulation product lines. John leads the product line business teams, focusing on our product investments to address customer needs, and overall business strategy for each product line. Over 25 years experience in dynamic simulation and advanced process control, with over 20 years Honeywell project operations experience delivering and leading advanced process control and simulation projects and operations teams globally.
Abstract

Operator training and competency assurance is a key factor in sustained performance improvement. Competent operators actively contribute to continuous improvement in safety, operations and business performance. Cloud-based simulator training can help your organization meet today’s operator competency and business performance challenges. Learn how rich training content, presented in new and fun ways, with process simulator based practice and evaluation scenarios, can provide an engaging and credible training experience. Discover the benefits of leveraging cloud technologies, economies of scale and domain expertise in development and nurturing of ultimate operator competencies. Help your operators be the best they can be.
Operator Competency – People Challenges

• People are the foundation of operational performance.
• Experience literally walking out of the door
• Increasing Complexity and Automation
  - Autopilot limits real world experiences
• Evolving operator role.
  - From operating to intervention
  - From reactive to proactive
  - From routine tasks to non-routine diagnosis and decision making
• Wide variation in people, abilities and capacity to learn.
• Diverse geographical locations of operating plant assets

Evolving Operator Role
Operator Competency Current Reality

- Operator competency directly impacts safe, reliable and profitable process operations.
- Simulator training is one of the most effectively tools to safely and consistently develop and maintain competent operators.

- Access to training simulators is constrained.
  - Compelling Investment requirement: New construction, Process revamps, Control system migration, corporate mandates.
  - Lifecycle Commitment: simulation system infrastructure maintenance, subject matter experts, curriculum maintenance.

- Supply Constraint: Difficult to scale for peak demands; One person or team at a time
- Fixed Location – limits use to local team
Reality Check

- Competent Operators → Need
- Developing Operator Competency → Challenge
- Operator Training Simulator → Solution
- Simulator Training Accessibility → Problem
Requirements

• Readily accessible simulator training
  - Not constrained by location - Where and When Needed, Available 24/7
  - Not constrained by resources – Instructorless, Self paced
  - Not constrained by Infrastructure – Scale up when needed

• Right and Fast
  - Ready when you are
  - Leverage economies of scale
  - Share best practices and lessons learned
  - Credible, realistic and safe simulator training experiences
  - Current and relevant curriculum
  - Easy to use

Cloud based Operator Training provides ready access to effective training tools where and when needed across the globe
Cloud Hosted Console Operator Training

• High fidelity simulation based training interventions to develop and maintain key console operator competencies.
  - available now at your desktop.
• In partnership with Automation College, Honeywell’s UniSim Competency Suite cloud-based training leverages the power of the internet to deliver simulator training for teaching critical skills.
• We offer scalable on-demand access to UniSim Competency Suite operator training delivered to the trainee desktop.
• Enrollment is easy via the Honeywell web portal:
  OR
  - Google: Honeywell Automation College, go to the first link and look for Operator Training and Simulation
• Targeted towards process operations personnel
Cloud Hosted Console Operator Training

- Each course includes a workbook with practical high fidelity simulator based training exercises.
- Learn fundamental of process plant operation though practical application using simulation technology
- Gain an understanding of key process variables, process controls and process interactions
- Respond and recover from abnormal situations
- Safely practice plant start-up and shutdown of the simulated process.
- Gain confidence to tackle day to day real world operations challenges
- Receive immediate feedback using short quizzes
Cloud Hosted Console Operator Training

- Uses Honeywell’s UniSim Operations Operator Training Simulator (OTS) technology.
  - Cold Start and Steady State Snapshots
  - Simulation Training Exercises
  - Console Emulation: Trends, Alarming, Graphics, Face Plates, etc.

- Typical Course Structure:
  1. Introduction to Process Model
  2. Process Variables and Controls
  3. Process Disturbances and Malfunctions
  4. Startup and Shutdown

- The course duration is typically 40 hours
- Access to the training is available 24/7
Lesson 1: Introduction to the Process Model

• This training unit is designed to familiarize trainees with the process flow, equipment and process controls of the target process model.

• The lesson provides the following information regarding the model:
  - Model Scope
  - Process Equipment
  - Process Flow Description
  - Instrumentation and Control
Lesson 2: Key Process Variables

- In this lesson, the trainee will adjust key operating variables using the simulation model, and observe the process response to the change.

- The lesson consists of the following exercises:
  1. 11TC10 – Debutanizer Tray 2 Reboiler
  2. 11FC01 – Debutanizer Heavy Feed
  3. 11PC16 – Debutanizer Reflux Drum Pressure Control
  4. 11AC12 – Debutanizer Composition Control
  5. 11TC11 – Debutanizer Tray 3 Temperature Control
  6. 11PC19 – Depropanizer Reflux Drum Pressure Control
  7. 11AC17 – Depropanizer Composition Control
Lesson 3: Process Disturbances

• In this lesson, the trainee will adjust operating strategy to adapt to process disturbances and malfunctions.

• The lesson consists of the following exercises:
  8. Ambient Air Temperature
  9. Loss of Cooling Water
  10. Heavy Feed Temperature Decrease
  11. Fouling of Reboiler (E-100)
  12. Plugged Debutanizer Level Transmitter (11LT14)
  13. Plugged Depropanizer Pressure Transmitter (11PT18)
  14. Plugged Overhead C5 Analyzer (11AT12)
  15. Pump Failure (P-62)
  16. Condenser Fan Failure (11HS14A/B)
Lesson 4: Startup and Shutdown

• In this lesson, the trainee will safely practice startup and shutdown of the plant using detailed operating procedures.
• The lesson consists of the following exercises:
  - Process Unit Startup
  - Process Unit Shutdown
Cloud Based Operator Training Delivers

• Interactive content and game based training teach process principals, cause and effect and troubleshooting skills.
• Engaging training simulator scenarios used to reinforce, practice and evaluate trainee’s knowledge and skills.
• Training content aligned with the requirements of many in-house competency management systems and competency models.
• Always up-to-date with relevant evergreen content, leveraging Honeywell leadership in Console Operator Training Simulators and industry best practices.
• Delivered via Automation College, an established provider of training, with robust and resilient delivery channels, support network and online help systems that keep trainee focused on learning.
• Optimize training investment, while contributing to safety, reliability and process performance.
Custom OTS too......

• Many of the benefits of Cloud Based E-learning can also be applied to a custom OTS
• Simplify & centralize:
  - Leverage resource across the enterprise
  - Access to customized OTS enterprise wide – wherever, whenever
  - Centralize support and maintenance
## UniSim® Competency Suite

### UniSim Operations
- Best in class operator training simulator
- UniSim Design Dynamics process model
- Realistic training experiences
- Comprehensive training and evaluation features
- Fully scalable architecture
- Integrated with UniSim Curriculum

### UniSim Curriculum
- Console and Field Operator Competency model
- Fully customizable
- Based on Abnormal Situation Management Consortium research and validation

### UniSim Tutor
- Knowledge based learning tool
- What-if and diagnostic training
- Improves Trainee decision making
- Integrated with UniSim Curriculum

### UniSim Field View
- Extends UniSim Operations simulator training to the Field Operator
- Dynamic panoramic navigable images for field operators

### UniSim 3D Connect
- Simulator integration and connectivity to 3D immersive, interactive environment
- Credible and realistic field operator training