CORE CONCEPT

Enterprise XR Development Course: AR Work Instructions and VR Training Simulators

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Introduction:

Enterprise XR development for AR work instructions and VR training simulators is a 1-week course for learning technology, digital engineering and operations training units, ending with an XR Build and Deployment Plan for a case organisation. Energy, utility and manufacturing sites often hold headsets and CAD models yet still train operators on paper, because staff cannot turn equipment data into a tracked simulator or a guided AR task. Nominees already build digital learning or manage engineering data, and practise in hands-on lab sessions. CoreConcept Training Center delivers this enterprise XR development course.

Course Objectives:

- Design VR operator and safety training scenarios with branching fault events, scoring rules and debrief screens
- Author AR step-by-step work instructions and remote expert assistance sessions anchored to physical equipment
- Convert CAD assemblies into optimised real-time 3D assets using mesh decimation, texture baking and level-of-detail settings
- Configure OpenXR-based builds and provision headset fleets through mobile device management with kiosk mode and content updates
- Emit xAPI statements from simulator and AR sessions to a learning record store and launch them from the LMS with cmi5
- Measure training transfer by comparing simulator performance data with field error, time-to-competence and incident records

Target Audience:

- Learning technology units responsible for building and hosting immersive training content
- Digital engineering units responsible for CAD data, digital twins and 3D model libraries
- Operations training units responsible for operator competence in plants, networks and production lines
- Maintenance and reliability units responsible for procedures, work packs and field technician guidance
- End-user device units responsible for provisioning and securing headsets and rugged tablets
- HSE training units responsible for hazard awareness and emergency response drills

Course Outline:

Day 1: Frontline Task Analysis and Enterprise XR Build Scope

- Frontline Task Analysis Matrix for Operators and Field Technicians
- Task Hazard Rating for Choosing VR Rehearsal or AR Guidance
- Standalone, Tethered and Tablet AR Hardware Capability Check
- Existing CAD, Procedure and LMS Data Inventory Audit
- XR Build Requirements Document for One Operator Task

Day 2: OpenXR Architecture, Interaction Models and Learning Data Standards

- OpenXR Runtime, Action Sets and Interaction Profiles
- WebXR Browser Delivery for Lightweight AR Work Steps
- Hand Tracking, Controller Input and Gaze Interaction Patterns
- xAPI Statement Vocabulary Design for Simulator Events
- cmi5 Launch Profile Linking XR Sessions to the LMS

Day 3: Building VR Simulators, AR Work Steps and CAD Asset Pipelines

- Lockout Tagout VR Scenario Storyboard With Fault Branches
- Simulator Scoring Rubric With Critical Error and Hint Logic
- AR Step-by-Step Work Instruction Authoring With Spatial Anchors
- AR Remote Expert Session With Live Annotation and Recording
- CAD-to-Real-Time Asset Pipeline With Decimation and Texture Baking

Day 4: Headset Deployment, Performance Tuning and Data Failure Cases

- Mobile Device Management Enrolment, Kiosk Mode and Content Pushes
- Frame Rate Budget, Draw Call and Polygon Count Optimisation
- Simulator Comfort Testing With Teleport Locomotion and Vignetting
- Offline Statement Queueing and Learning Record Store Sync Failures
- Spatial Map, Camera Feed and Session Recording Security Controls

Day 5: Lab Build of the XR Build and Deployment Plan

- Case Organisation Brief With Pump Isolation Task Data
- Lab Prototype of Simulator Scenario and Scoring Rubric
- Lab Prototype of AR Work Steps From Case CAD
- Training Transfer Measures From Field Errors and Competence Time
- XR Build and Deployment Plan Completion and Panel Review

Skills You Will Gain:

- Immersive Scenario Scripting
- Spatial Work Instruction Authoring
- CAD Asset Optimisation
- OpenXR Interaction Configuration
- Headset Fleet Provisioning
- xAPI Statement Design
- XR Performance Profiling
- Training Transfer Evaluation

Why Attend This Course:

- Hand the head of operations training an XR Build and Deployment Plan with a scored simulator prototype and AR work steps for one critical task
- Choose between VR rehearsal, AR guidance or remote expert support for each frontline task on hazard, frequency and equipment evidence
- Prevent stalled headset rollouts, untracked simulator sessions and oversized CAD models that freeze on standalone devices
- Share the scenario storyboard, statement vocabulary, asset optimisation checklist and device enrolment runbook with colleagues

Conclusion:

Back at work, the participant gives the head of operations training and the digital engineering lead an XR Build and Deployment Plan covering the simulator scenario, AR work steps, asset pipeline, headset fleet settings and xAPI tracking for one critical task. Training managers use it to approve the first production build and device order, and engineering uses it to prepare CAD exports. After the first cohort completes the simulator, the unit should compare scored sessions with field error rates and time to competence, then adjust scenarios and AR steps.

Frequently Asked Questions FAQ:

What should participants know before an enterprise XR development course on AR work instructions and VR training simulators?

Participants should already build digital learning content, manage CAD or 3D data, or administer devices. No programming background is needed beyond basic scripting logic, as lab templates supply starting projects. An anonymised procedure or equipment model helps apply the labs to a real task.

How does enterprise XR development differ from an XR strategy course or a game development course?

Enterprise XR development builds working simulators and AR work steps tied to plant procedures, CAD data and the LMS. Strategy courses choose and fund use cases without building them, and game development courses focus on gameplay mechanics rather than operator competence and tracked learning records.

Why does enterprise XR development need xAPI rather than simple completion tracking?

Simulator and AR sessions produce detailed events such as critical errors, hints used and step times. xAPI records these as statements in a learning record store, so training teams can analyse performance and compare it with field data instead of seeing only completion.

What do participants take back from an enterprise XR development course?

Participants take back an XR Build and Deployment Plan for a case organisation, with a simulator storyboard and scoring rubric, prototype AR work steps, a CAD asset optimisation checklist, a headset enrolment runbook, an xAPI statement vocabulary and a training transfer measurement plan.