Development of Facilities & Enhancement of Human Resource Skills

About Us :

We aim to become the leading organization in advancing machine learning and AI technologies specifically designed to strengthen Indonesia's C6ISR capabilities, enhancing national security by protecting critical systems and infrastructure against emerging threats

*C6ISR
Command, Control, Communications, Computers, Cyber-defense, Combat System, Intelligence, Surveillance, and Reconnaissance.

The training focuses on boosting disaster preparedness and response by improving community resilience and minimizing vulnerability

TRAINING DISASTER ANTICIPATION

Comprehensive Training: Workshops/FGD

INCLUDING

1. **5 trainings, 10 days per year, over the course of 3 years** to provide in-depth understanding
2. **Expert trainers** regarding to the syllabus proposed i.e. UAV Pilots Training, LiDAR Operation Training
3. **Training Module Development & Certification** for max. 20 participants of each trainings
4. **Venue, Accommodation, & Transportation** for Participants, Trainers, and Committee

TOPICS

Legislative: Disaster management laws and regulations.
Institutional: Strengthen disaster management bodies.
Planning: Develop contingency plans for disaster areas.
Implementation: Conduct regular simulations and training.
Funding: Allocate funds for disaster response and mitigation.
Science and Technology: Use tech for monitoring and warnings.
Increasing Community Capacity
Reducing Community Vulnerability

TRAINING DISASTER ANTICIPATION

Comprehensive Training: Workshops/FGD

DEVICES OPERATION TRAINING

1

Objective: Train employees on maintaining and utilizing IT-related tools, including UAV navigation systems, sensor monitoring, and purchased platforms.

Facilities Provided:

- Virtual reality technology,
- UAV simulators, and
- Realistic disaster scenarios

Training Environment: Safe and controlled, allowing practice and study without real-world risks.

Learning Management System (LMS):

- Documents training sessions,
- Provides access to participants who missed live sessions

Simulation Scenarios:

- Interactive hardware and software for disaster response and recovery
- Users can input data, choose scenarios, and test response actions
- Real-time evaluation based on developed technology

TRAINING DISASTER ANTICIPATION

Comprehensive Training: Workshops/FGD

DEVICES OPERATION TRAINING

1

Interactive Tools:

- Hardware and software to aid in disaster response and recovery
- Users can input data, select disaster scenarios, and test response actions
- Real-time evaluation of actions based on developed technology,

Benefit:

- Models disaster development
- Provides detailed feedback and reports
- Enhances emergency preparedness and response
- Supports overall disaster management policies and strategies

TRAINING DISASTER ANTICIPATION

Comprehensive Training: Workshops/FGD

UAV PILOTS TRAINING

Objective: Drone/UAV Mapping Survey Training focuses on teaching the use of unmanned aerial vehicles (drones) for survey and mapping activities.

Training Content:

- Technical, practical, and theoretical aspects of drone operation
- Drone technology and related software
- Remote sensing principles
- Practical data collection steps using drones

Training Modules:

- Introduction to photogrammetry (aerial photography) concepts
- Regulations for drone use in Indonesia
- Practical training on automatic flight path planning
- Practical training on aerial mapping data acquisition
- Determination and measurement of Ground Control Points (GCPs)
- Processing of aerial photography data

Instructors: Experienced practitioners and academics in photogrammetry and drones/UAVs, or members of the Indonesian Drone Pilot Association (APDI)

TRAINING DISASTER ANTICIPATION

Comprehensive Training: Workshops/FGD

LiDar OPERATION TRAINING

3

Objective: Train participants to effectively use LiDAR (Light Detection and Ranging) including sensors and radar for accurate mapping and mastering data processing.

Advantages: LiDAR provides precise mapping even in low-light conditions and through obstacles like vegetation and buildings.

Training Modules:

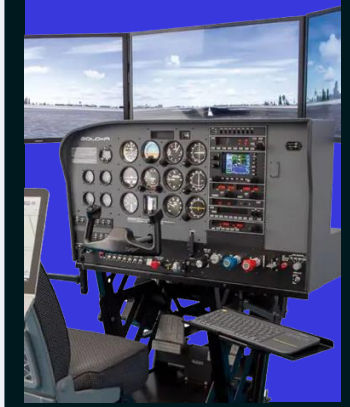
- Introduction to LiDAR sensor technology
- Theory and concepts of LiDAR mapping
- Comparison between Photogrammetry and LiDAR
- Drone flight regulations in Indonesia
- Mission planning (flight path)
- Installation of LiDAR sensors on drones
- Installation of base stations and LiDAR data acquisition
- Pre-processing data (PPK Base and LiDAR)
- LiDAR data processing (Outputs: Point Cloud, Contours, Aerial Photos)
- Result analysis and evaluation

Instructors: Experienced practitioners and academics in photogrammetry and drones/UAVs, or members of the Indonesian Drone Pilot Association (APDI)

TRAINING FACILITY

Simulator Tools & Equipment: UAV Simulator

UAV Simulator



Capability

- **3D platform and environment display** in Flight Gear
- **Aircraft dynamics simulation** with detailed models
- **AHRS behavior emulation** from standard autopilot ADM
- **Payload sensors:** Laser Altimeter, WOW, RPM sensor
- **PWM output reading** for servo actuators; includes sensor failures, noise, disturbances, and malfunctions
- **Complete pre-flight procedures**

MISSION PLANNING

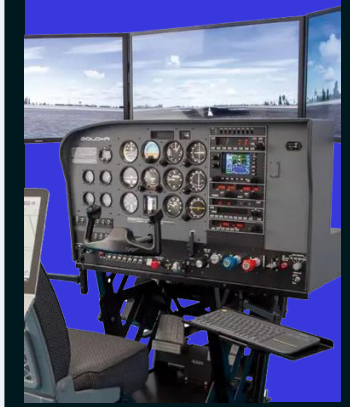
Capability

- **Mission execution and emergency testing:** Cargo-Drop, parachute release, mass changes with 3D visualizations
- **Aircraft dynamics realistic simulation:** Center of Gravity, inertia shifts, engine failures, power loss
- **Sensor emulation:** Deactivation and noise for various sensors (Laser altimeter, Magnetometer, GNSS, etc.)
- **Weather and carrier operations:** Speed, heading, waves; simulate servo lock-ups
- **Ruggedized housing** and one-wire connectivity

TRAINING FACILITY

Simulator Tools & Equipment: UAV Simulator

UAV Simulator



Purpose
UAV Training Simulator is designed for training UAV operators, mission commanders, and image interpreters across various mission profiles.

Training Modules

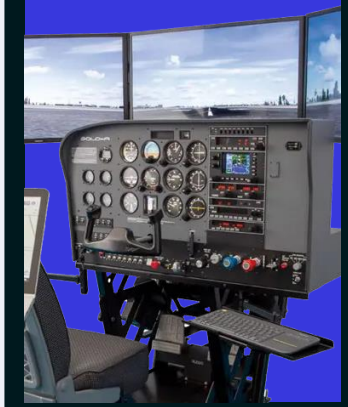
- **Generic Aerodynamic Simulations:** Configurable for different UAV models and visualized with global terrains or environments.
- **Autopilot Simulation:** Includes autopilot system training.
- **IR Sensor (FLIR):** For remote sensing.
- **Camera Simulation:** Simulates various camera systems.
- **Hidden Displays:** Provides concealed viewing options.
- **Customizable Synthetic Environments:** Includes tactical environments representing maritime, land, and air assets.
- **Interconnectivity:** Can network with other training systems for team-based training.

Portability
Designed for easy transport and deployment worldwide or for classroom settings.

TRAINING FACILITY

Simulator Tools & Equipment: UAV Simulator

UAV Simulator



Simulations Overview

- **Purpose:** The simulations are designed for comprehensive UAV pilot training, utilizing a hardware-in-the-loop simulator to create realistic testing environments.
- **Capabilities:** Allows for the simulation of various UAV missions and payloads to provide a hands-on training experience.

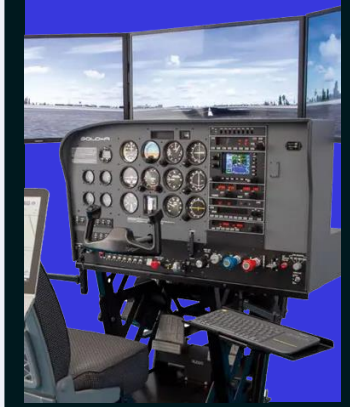
Components

1. **Aircraft Simulator (SIM):**
   - **3D Visualization:** Displays realistic 3D environments and aircraft models using Flight Gear software, enabling immersive training.
   - **Dynamic Emulation:** Simulates aircraft dynamics and integrates an autopilot estimator suite (AHRS) for realistic flight control.
   - **Payload Simulation:** Emulates different sensors and payloads such as Laser Altimeters and RPM sensors, including the ability to simulate failures and disturbances.
   - **Pre-Flight Procedures:** Supports complete pre-flight checks and procedures to ensure operators are prepared for real-world scenarios.
1. **Flight Control Computer (FCC):**
   - **Software Integration:** Runs actual flight software and processes attitude data from the AHRS-INS port, mirroring real flight conditions.
   - **Configuration:** Managed and set up by Vision Air, ensuring accurate simulation of flight operations.

TRAINING FACILITY

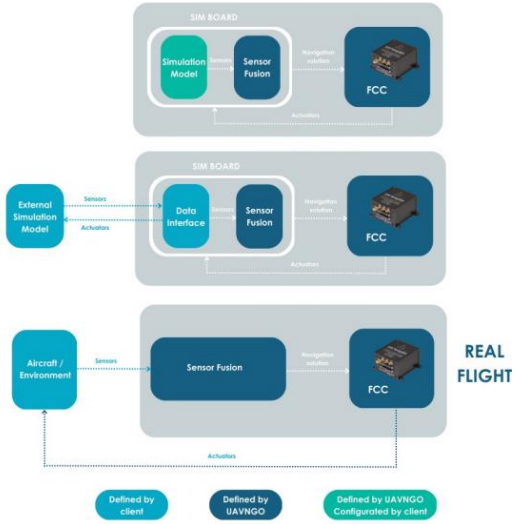
Simulator Tools & Equipment: UAV Simulator

UAV Simulator



Simulation Devices: SIMS

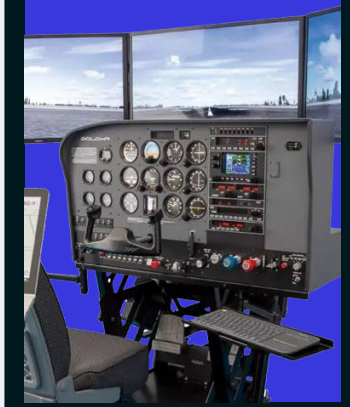
To offer a realistic training experience, SIMS features extensive configuration options. This allows users to gain a thorough understanding of aircraft operations in emergency situations without the need for direct platform testing.



TRAINING FACILITY

Simulator Tools & Equipment: UAV Simulator

UAV Simulator



Agnostic Simulator Model

- **Flexibility:** Allows for modifications in the platform design or simulation models without needing updates from external sources. This means changes can be made in the existing simulation environment without external intervention.
- **Compatibility:** Works with MATLAB™ and SpeedGoat™ for model-based simulations, which have been tested for real-time environments, reducing complexity and ensuring meaningful results.

Configuration and Control

- **Simulation Configuration Application:** A Windows® software tool that manages the simulation environment
  - **Communication Setup:** Configure how different systems interact during the simulation.
  - **Simulation Control:** Start, stop, and pause simulations as needed.
  - **Environment Control:** Adjust and manage the simulated environment for different training scenarios.

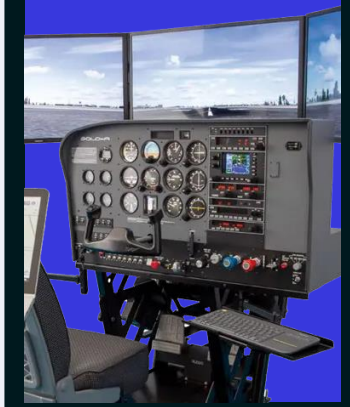
Training Functionalities

- **Dynamic Adjustments:** Simulate variations in the center of gravity and inertias, which helps mimic real-world changes like fuel consumption or cargo drops.
- **Failure Simulations:** Emulate engine failures, power loss, and sensor issues, including:
  - **Sensor Failures:** Deactivation and noise in sensors such as Laser Altimeters and GNSS.
  - **Weather Conditions:** Simulate wind, gusts, and other environmental factors.
  - **Servo and Ship Simulation:** Model servo lock-ups and carrier ship behaviors for maritime operations.
- **Ruggedized Housing:** Ensures the simulator can withstand various conditions and usage scenarios.

TRAINING FACILITY

Simulator Tools & Equipment: UAV Simulator

UAV Simulator



MISSION PLANNING

Purpose
The UAV simulator (SIMS) enables detailed mission planning, realistic testing, and integration of UAV systems.

Mission Planning & Testing
Use the Flight Plan Editor to plan and test missions under realistic weather conditions.

Advanced Mission Simulation
Simulate complex operations like:

- Cargo drops and parachute releases,
- including switch activation and adjustments in mass,
- CG, and
- inertia with 3D visualization.

Iron-Bird Configuration
Utilize connectivity options (24 GPIOs, 3 COM Ports, 1 Ethernet port) for integrating servos and peripherals, simulating real flight movements and payload handling.

Emergency & Safety Training
Induce emergency conditions during flight simulations using the UAV simulator software (SIMS) interface.

TRAINING FACILITY

Simulator Tools & Equipment: Virtual Reality

BENEFIT

1

Enhanced Understanding

VR provides a realistic visualization of disaster impacts, making the consequences clearer.

2

Improved Preparedness

Immersive VR simulations strengthen disaster readiness and response strategies.

3

Effective Communication

VR effectively conveys risk messages through realistic, engaging experiences.

Oculus Quest 2 128Gb

Headset Weight	503 gr
Display	IPS LCD, 1832 x 1920 pixels per eye 72 Hz - 120 Hz
Chipset	Qualcomm Snapdragon XR2 (7 nm)
GPU	Adreno 650
Sensors	6DOF inside-out tracking with built in 4 cameras
OS	Oculus Mobile, based on Android 10
RAM	6 GB
Internal Memory	128 GB
Headset Battery	Li-Ion 3640 mAh
Connectivity	Wi-Fi a/g/n/ac/ax, Bluetooth, USB Type-C

TRAINING FACILITY

Simulator Tools & Equipment: Virtual Reality

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TRAINING FACILITY

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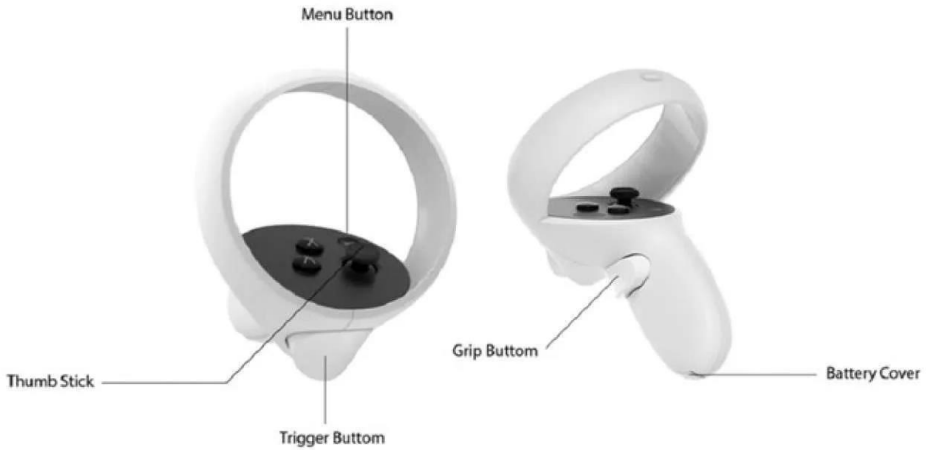

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TRAINING FACILITY

Simulator Tools & Equipment: Virtual Reality

Realistic & engaging disaster scenarios

Realistic visuals & sounds

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TRAINING FACILITY

Learning Management System (LMS)

BENEFIT

1

Optimized Learning Efficiency

LMS enables effective learning through both synchronous live streaming and asynchronous recorded content, accommodating various learning styles.

2

Adaptive Learning Environment

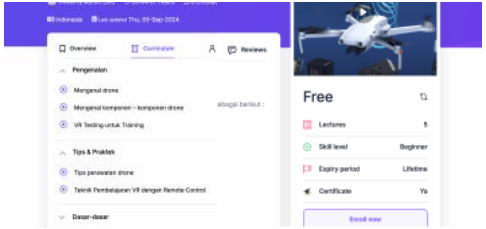
LMS integrates andragogy and heutagogy approaches, offering personalized and effective learning experiences tailored to individual needs

3

Seamless Training Continuity

LMS facilitates the ongoing replication of training programs, ensuring consistency and efficiency even with changes in human resources.

LMS Dashboard



Flexible Learning Platform	Android, iOS Desktop-optimized web version
Content Management System (CMS)	Theme customization HRIS integration Content library customizable
Monitoring & Analytics Dashboard	User data management Performance metrics reporting User satisfaction surveys Group discussion forums
Content Development	“Plug-and-play” content catalog; Video Tutorials, Realistic Simulations, Podcast, and others
Rewards	Digital certificates Gamification; leaderboards

TRAINING FACILITY

Learning Management System (LMS)

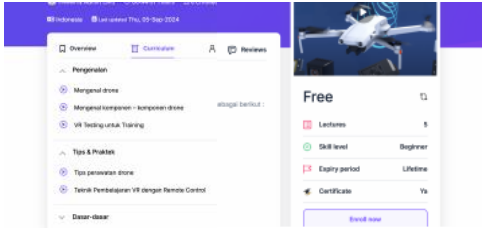
LMS Flexibility: Integrates Flipped and Blended Learning models, allowing self-paced and online study via live streaming or recorded videos, with flexible scheduling that fits around work hours and minimizes productivity disruption.

Key Features:

- **Flexible Learning Platform:** Accessible via mobile apps (Android and iOS) and a desktop web version, allowing users to learn anytime and anywhere.
- **Content Management System (CMS):** Facilitates management of learning materials, customization of themes, integration with Human Resource Information Systems (HRIS), and a customizable content library.
- **Monitoring and Analytics Dashboard:** Offers comprehensive user data management, performance metrics reporting, user satisfaction surveys, and group discussion forums for evaluation and optimization.
- **Program Management and Implementation Support:** Includes full support for program implementation, change management, Training-of-Trainers, and 24/7 technical support.
- **Learning Content Development:** Provides mobile-optimized digital learning content using micro-learning methods such as video tutorials, realistic simulations, podcasts, and a “plug-and-play” content catalog.
- **Digital Certificates and Rewards:** Supports issuing digital certificates upon course completion and incorporates gamification features like awards and leaderboards to enhance user motivation.

Continuous Training: To facilitate the continuous replication of training for new participants, addressing human resource rotation.

LMS Dashboard



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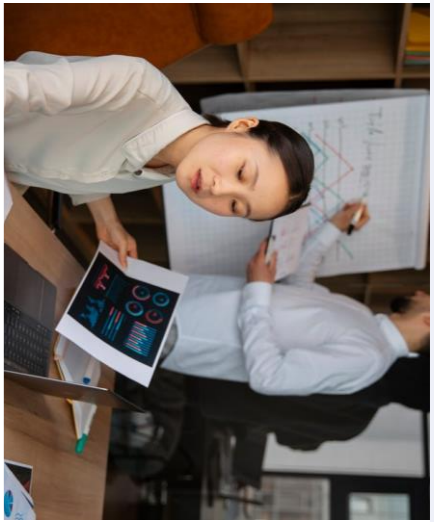
TRAINING FACILITY

Learning Management System (LMS)

Advantages:

- **Efficient Investment:** Cost-effective with competitive pricing and comprehensive features.
- **Easy Administration:** Simplifies learning management with user-friendly administrative tools.
- **Comprehensive Technical Support:** Provides problem-solving, scheduled maintenance, and administrator training.



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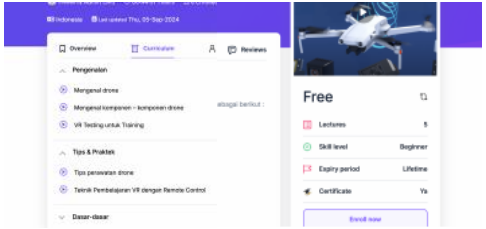

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LEARNING MANAGEMENT SYSTEM

Module Digitalization

BENEFIT

1

Enhanced Engagement

interactive elements like quizzes, gamification, and multimedia can make training more engaging and effective.

2

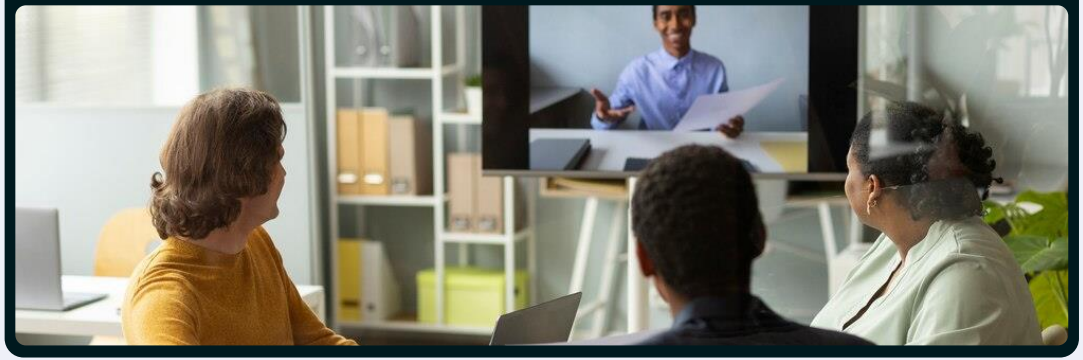
Data Analytics

Digital platforms can track and analyze participant performance, providing valuable insights for improving training programs.

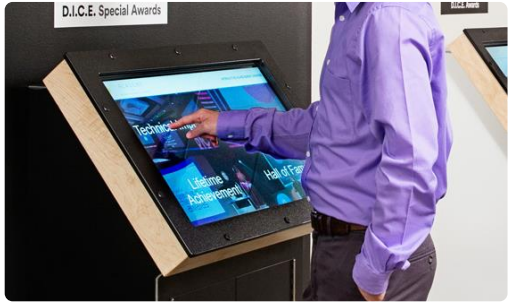
3

Resource Sharing

Digitalization allows for easy sharing and updating of resources, such as documents, videos, and links, which can be revised and distributed quickly.



Digital Module Conversion

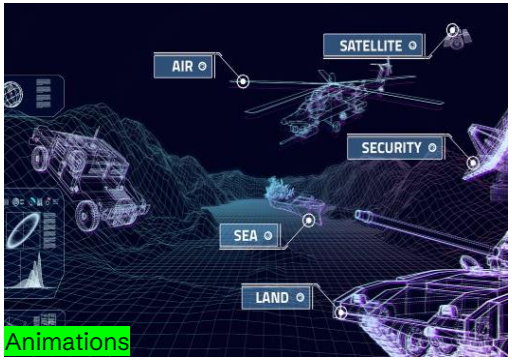


Example

- Animations
- Interactive Games
- E-Learning Modules
- Virtual Reality (VR) Simulations
- Augmented Reality (AR) Experiences
- Webinars and Live Streams
- Interactive Infographics
- Podcasts and Audio Content

LEARNING MANAGEMENT SYSTEM

Module Digitalization



Animations

Interactive Games


E-Learning Modules


Virtual Reality Simulations

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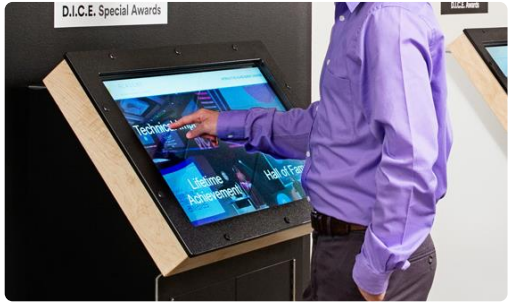

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LEARNING MANAGEMENT SYSTEM

Module Digitalization

AR Experiences

Interactive Infographics

Podcast

Webinars

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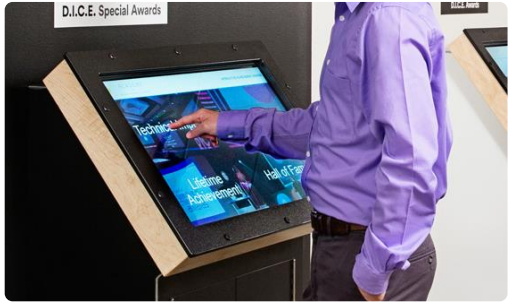

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