EDGEFX TECHNOLOGIES

Build what matters.
Engineer it for real-world impact.

Empowering the Future of Technical Education through Industry 4.0 & 5.0

Turnkey Centers of Excellence

Industry-Aligned Laboratory Infrastructure

Bridging Academic-to-Industry Pipeline

Designed for ITIs, Polytechnics, Engineering Institutions

STEM | IOT | Mechatronics | Robotics | Industry 4.0 & 5.0

Aligned with PM-SETU | PM-USHA | World Bank Projects | ADB | Skill & Technical Education

MESSAGE FROM CMD

“At EdgeFX, we exist to do one thing well: help people actualize and maximize their potential through industry-aligned, hands-on technical education ecosystems. Every solution we create must serve real learners and real outcomes. We are building experiential, applied, future-ready technology.”

Our mission:

To become a leading EdTech & Skill Solution Provider

We believe in:

Ownership | Excellence | Purpose-driven innovation

Let’s build what matters.
-Kamini Gupta

About EdgeFX

30+ Years Experience

120+ Countries

Government Trusted | Award Winning

What We Do

600+ Learning Solutions

STEM | AI | Robotics | IoT | Manufacturing

Labs, Platforms & Skill Programs

Proven Execution at Scale

50+ ITIs | **1000+** Labs | **50,000+** Learners | **120+** Locations

Impact

Future-ready learners ↗

Innovation mindset

Industry-aligned skills

Bridging the Curriculum – Industry Gap

Traditional Learning Models	Industry 4.0 Ecosystems
Isolated labs	Connected ecosystems
Outdated technology	Digital + physical integration
Theory-heavy curriculum	Applied learning
Fragmented outcomes	Industry readiness

The gap is not in education - it is in application.

From Learning Infrastructure To Industry Transformation.

Why EdgeFX

EdgeFX addresses this gap through an OEM-driven, end-to-end execution model that integrates physical lab infrastructure with digital platforms and industry-aligned curriculum.

With proven experience in deploying Turnkey Centres of Excellence, EdgeFX ensures seamless implementation-from design and supply to capacity building, operations, and outcomes-delivering scalable, accountable, and industry-relevant learning ecosystems.

- Connected ecosystem
- Digital + physical integration
- Applied learning
- Industry readiness

From infrastructure to impact. From labs to livelihoods.

Execution & Implementation Framework

Design	System design and planning
Engineering	Civil + Electrical coordination
Procurement	OEM integration + Vendor ecosystem management
Installation	On-site setup and integration
Commissioning	Testing and calibration
Training	Train-the-trainer programs
Operations	Scalable ongoing support

Key Elements

Skills
Innovation
Employability

Execution defines impact

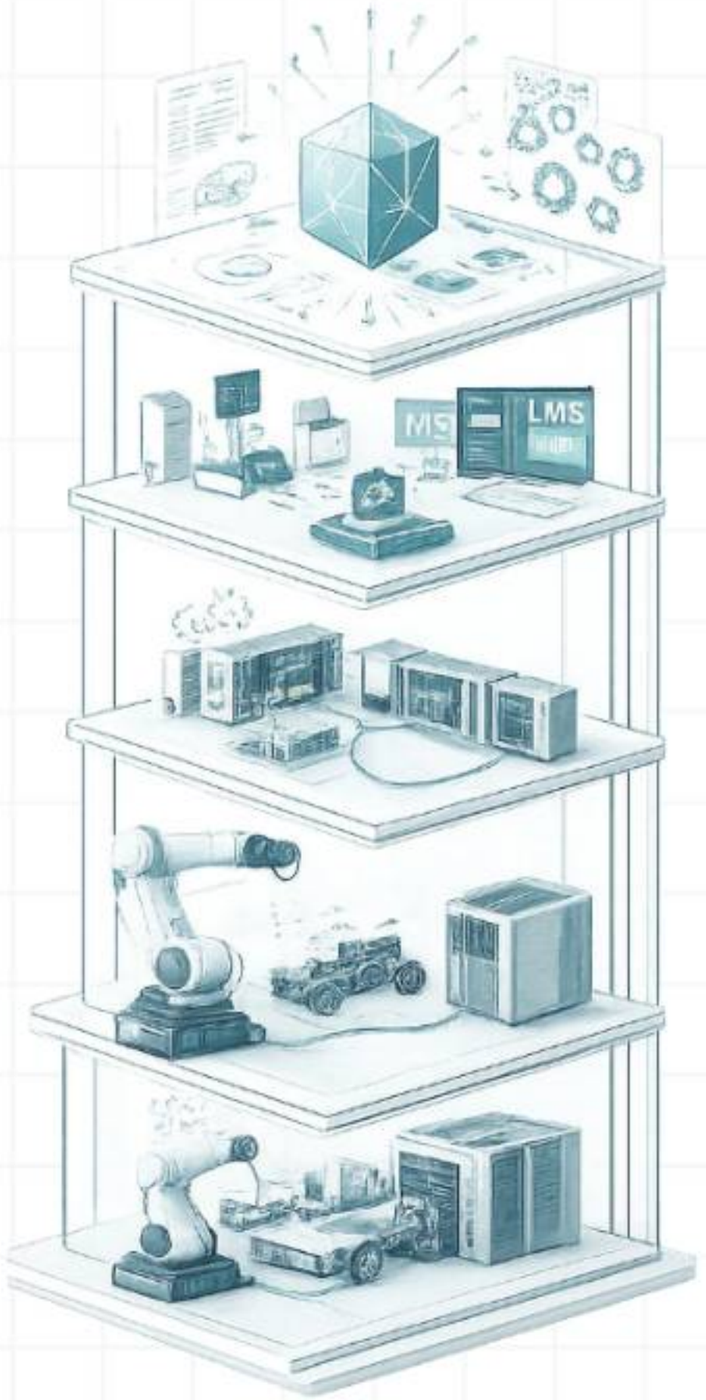
Integrated Industry 4.0 Learning Ecosystem

- **Physical Layer**
  Industry-grade hardware labs
  (PLC, Robotics, EV, IoT)

- **Digital Layer:**
  Virtual labs, simulations, LMS

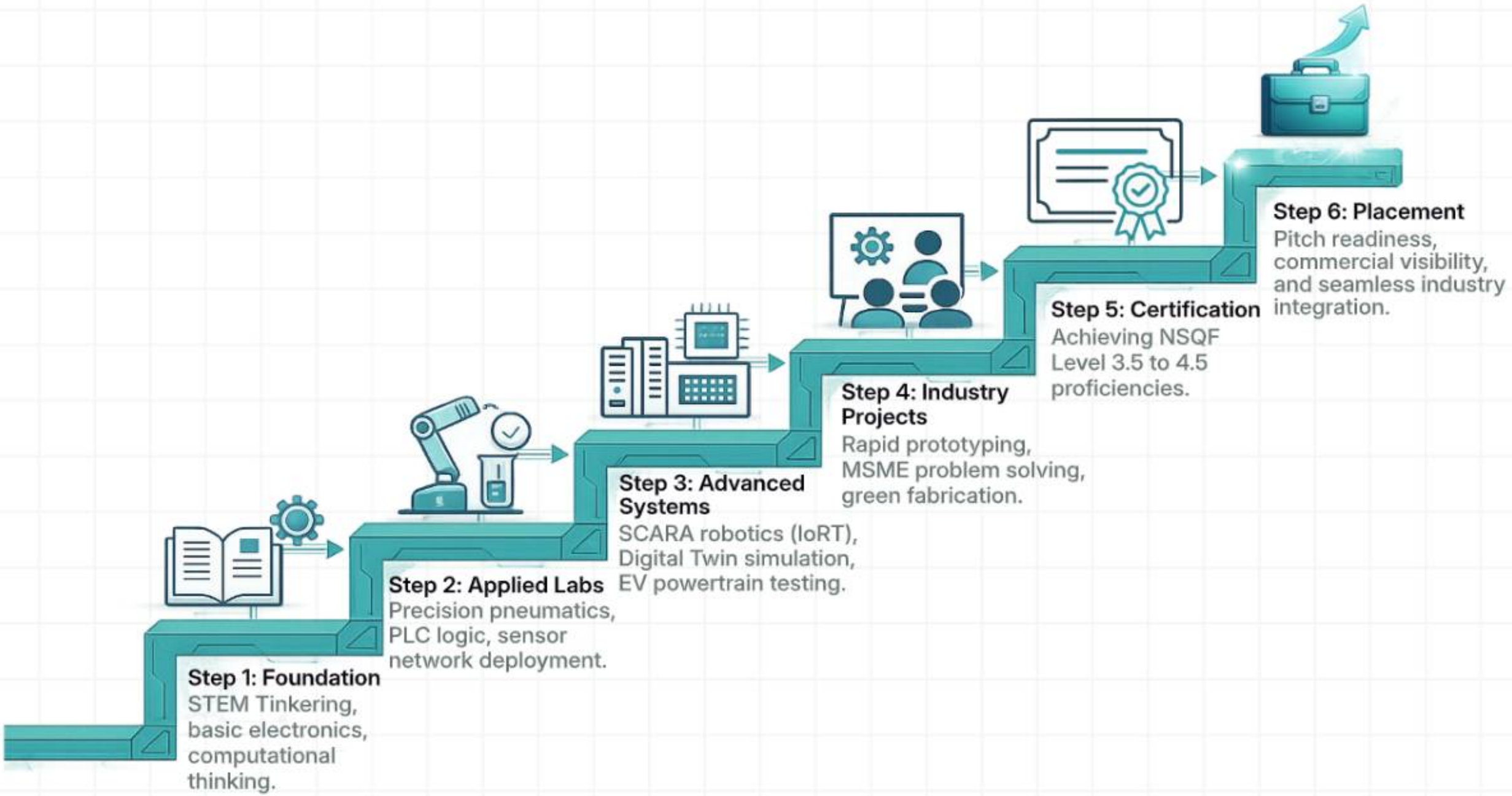
- **Skill Layer:**
  NSQF/NCVET aligned programs

- **Innovation Layer:**
  Startup & incubation ecosystem



End-to-end turnkey execution

From Skill Development to Industry Readiness



From Classroom to Career

EDGEFX
TECHNOLOGIES

Empowering The Future of Technical Education

Turnkey Centers of Excellence & Industry 4.0 Lab Solutions

STEM | IOT | Mechatronics | Robotics | Industry 4.0 & 5.0

Solutions Portfolio Summary

Technical Education

Foundation (STEM & Innovation)

- Studio Content Creation
- Startup, Research, Incubation & Innovation Centre of Excellence for Technical Education Institutions
- STEM Multidisciplinary Tinkering, Incubation and Innovation Lab for ITI

Advanced Engineering

- Advanced Manufacturing (CNC)
- Additive Manufacturing (3D Printing)
- PLC & Industrial Automation
- Precision Pneumatic System
- Industrial IoT & Multi-Protocol Networking
- Multi Domain Mechatronics Simulation

Emerging Tech (Industry 4.0/5.0)

- Digital Twin & IIoT CoE
- Smart Agriculture IoT
- Makers Lab (Industry 5.0)
- SCARA (Selective Compliance Articulated Robot Arm) - The Internet of Robotic Things (IoRT)
- MR/AR/VR
- Semiconductors
- Electric Vehicle

Learning Experiential Platform (LEP)

Gamified Digital Content Ecosystem

Solutions Portfolio: NSQF aligned courses for ITI Institutions

NSQF Aligned

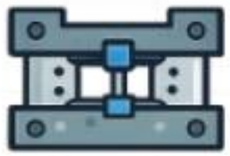
Integrated STEM Systems Design & Prototyping Junior Technician (NSQF Level-3)

Industry Partner EdgeFX Technologies

Fitter (NSQF Level-4)

Turner (NSQF Level-4)

Machinist (NSQF Level-5)



Tool & Die Maker (NSQF Level-4)

Introduction to Artificial Intelligence (AI) (NSQF Level-3.5)

AI – Data Quality Analyst (NSQF Level-5)

IoT Technician (Smart Healthcare) (NSQF Level-3)

IoT Technician (Smart City) (NSQF Level-3)

Solutions Portfolio: NSQF aligned courses for ITI Institutions

NSQF Aligned

Welder (NSQF Level-3)

Mechanic Electric Vehicle (NSQF Level-4)

Electrician (NSQF Level-4)

IoT Technician (Smart Agriculture) (NSQF Level-3.5)

Senior Technician - Industrial Automation (NSQF Level-4.5)

Mechatronics Technician (NSQF Level-4)

Smart Factory / Industry 4.0 Systems (NSQF Level-4.5)

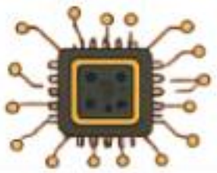
Solar Technician (NSQF Level-3)

Drone Operator (NSQF Level-4)

Drone Technician (NSQF Level-4)

Solutions Portfolio: NSQF aligned courses for ITI Institutions

NSQF Aligned



Semi Conductor Technician (NSQF Level-3)

Industrial Robotics & Digital Manufacturing Technician (NSQF Level-3.5)

Digital Twin Using COMOS, SIMIT, COMOS Walkinside

AI & Edge intelligence Training Program

Unity Based AR/VR Digital Twin Simulation Lab

CNC Operator Machining Technician L3 (NSQF Level-3)

Unity Digital Twin integration for Industrial automation using (Siemens S7-1200 PLC)

Amesim simulation for electric vehicle

AR VR (NIMI Aligned)

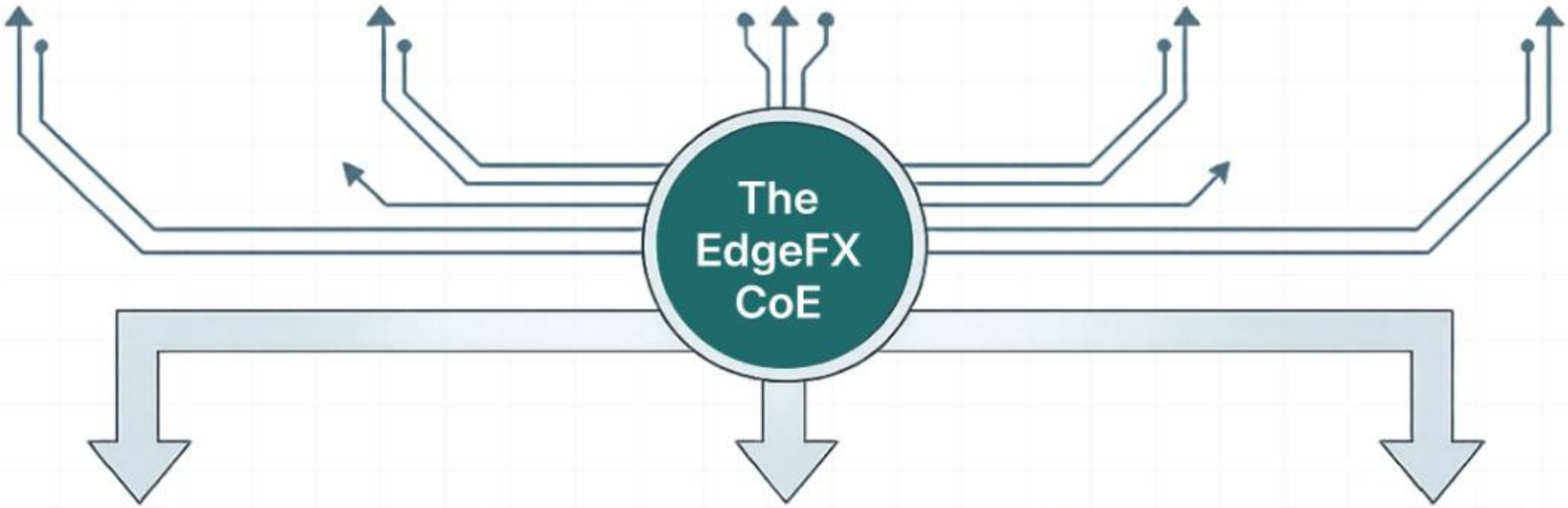
Electrical CAD Design with COMOS Software

And more.....

The Digital Thread: Hardware-In-The-Loop Architecture

Linking Technical Infrastructure to Macro-Economic Goals

Make in India | Skill India (NSQF 3.5 Compliant) | Digital India | Industry 4.0 / 5.0 | Atmanirbhar Bharat



1. Smart Manufacturing Skill Hubs	2. Digital Engineering Centers	3. Industry 4.0 Innovation Ecosystems
Bridging the gap between academic theory and real-world factory floors.	Fostering community and MSME problem-solving through student-led innovation.	Developing faculty expertise and strengthening industry-academia-research linkages.

EdgeFX Transforming Technical Education into Future-Ready Immersive Environments.

Solutions Portfolio: Turnkey CoE

STEM Multidisciplinary Tinkering, Incubation and Innovation Lab

Fostering the Next Generation of Innovators

1. Overview

A hands-on, foundational ecosystem blending electronics,coding, and mechanical assemblies with virtual lab simulations.

2. Key Learning Domains

Computational Thinking

Basic Electronics

Logic Gates

3. Core Components

- TinkerFX Workstation V2.0
- FColor-Coded Building Blocks & Breadboards
- AVR Architecture CPU
- L293D Motor Drivers, RF Modules

Outcomes

Circuit building, basic Arduino coding, virtual prototyping Self-Employment and Entrepreneurship

Applications

Early robotics, home automation models, multisensory projects

Key Features

BIS Certified hardware, Gamified STEMPlay LMS, 120+ guided step-by-step projects

Solutions Portfolio: Turnkey CoE

Startup, Research, Incubation & Innovation (SRII) CoE

From Ideation to Commercialization

1. Overview

A multi-layered ecosystem enabling student startups, applied research, and patent filing, bridging the gap between academic projects and commercial viability.

2. Key Learning Domains

Entrepreneurship

IP Creation

Product Lifecycle

3. Core Components

- InnovateFX Workstations
- Rapid Prototyping Tools
- Real-Time Industry Display Models
- Hackathon Frameworks & Digital Twin Ready Environment

Outcomes

Prototype-to-product transition, pitch and investment readiness.

Applications

MSME problem solving, viable tech commercialization.

Key Features

Physical/Digital layer integration, Industry mentor support pipeline, Institutional startup cell enablement.

Solutions Portfolio: Turnkey CoE

SCARA Robot - The Internet of Robotic Things (IoRT)

High-Speed Precision Manufacturing Powered by Cloud Robotics

1. Overview

- Features an industry-standard 3-axis SCARA robot integrated with machine vision and cloud IoT capabilities.
- Focuses on high-speed, high-precision assembly, shape sorting, and remote web control.

2. Key Learning Domains

Robotic Kinematics

IoRT Integration

Automated Sorting

Machine Vision

3. Core Components / Infrastructure

- GSP12 - SCARA Robot SC3-300 (300mm reach, Nema 17 stepper motors, T8 Lead Screw).
- 5MP Vision Camera for edge/contour and color analysis.
- EdgeFX Control Software V3.0 and IoT Cloud Dashboard.

Learning Outcomes

- Robot teaching & jogging
- Image processing algorithms
- Kinematic programming

Applications

- Pick-and-place assembly
- Color & shape sorting
- PMedical device handling

Key Features

- Remote web/cloud control
- Manual jog & teach mode
- High-speed repeatability

Solutions Portfolio: Turnkey CoE

Studio – Content Creation Lab

Empowering Digital Storytelling and Media Production

1. Overview

A state-of-the-art media setup designed to train students in both the technical workflows and creativeaspects of digital content generation.

2. Key Learning Domains

Digital Media

Broadcasting

Post-Production

3. Core Components

- High-fidelity A/V recording gear
- Acoustic treatments
- Non-linear editing workstations
- Studio lighting grids

Outcomes

Audio-visual engineering, live broadcasting workflows.

Applications

Educational content creation, corporate communications, media entrepreneurship.

Key Features

Turnkey physical integration, seamless software workflows, ongoing technical handholding.

Solutions Portfolio: Turnkey CoE

PLC Industrial Automation - Lift Application

Mastering Real-Time Control Logic for Vertical Transportation

1. Overview

- Designed to teach conceptual and practical knowledge of industrial automation through vertical transport emulation.
- Empowers trainees to solve real-time mechanical problems using ladder programming.

2. Key Learning Domains

PLC Programming | Building Automation | Mechatronics Control | I/O Interfacing

3. Core Components / Infrastructure

- PLC Unit with I/O panel (8 inputs, 6 outputs, 24V supply).
- 3-Floor Lift Hardware Module with DC Gearbox Motor (60W, 12V/24V).
- Multiple Proximity Sensors (M18 cylindrical, 2–5mm range) and WPLSoft Programming Software.

Learning Outcomes

- Ladder logic programming
- PLC timer/counter usage
- Real-time problem solving

Applications

- Commercial elevators
- Manufacturing assembly lines
- Process control logic

Key Features

- 25+ Real-time projects
- Android PLC Simulator App
- Direct PC-to-PLC interface

Solutions Portfolio: Turnkey CoE

Precision Pneumatic & Vacuum System

Mastering Fluid Power and Electro-Pneumatic Control Systems

1. Overview

- A hands-on workstation designed to teach the principles, physical laws, and components of fluid power.
- Explores the integration of pneumatic, electro-pneumatic, and vacuum technologies in industry.

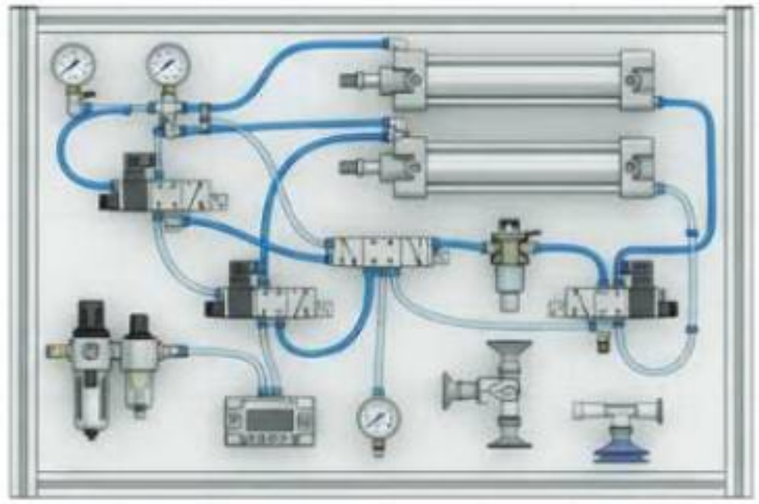
2. Key Learning Domains

Pneumatics & Hydraulics

Electro-mechanical Control

PLC Integration

Mechatronics



3. Core Components / Infrastructure

- Extruded aluminum workstation (8.5mm slots) allowing dual-sided team access.
- Industrial directional control valves, air treatment units (5µm filter), and double-acting cylinders.
- Vacuum technology components (vacuum pads, ejectors, 4–20 mA analog sensors).

Learning Outcomes

- Circuit reading & design
- Pressure & flow regulation
- Energy saving methodologies

Applications

- Automated material handling
- Vacuum-held part transfer
- Precision clamping

Key Features

- 100% industrial components
- Stand-alone & PLC controlled
- Energy monitoring tools

Solutions Portfolio: Turnkey CoE

Additive Manufacturing Lab (3D Printing)

Transforming Digital Designs into Physical Realities

NSQF Aligned

1. Overview

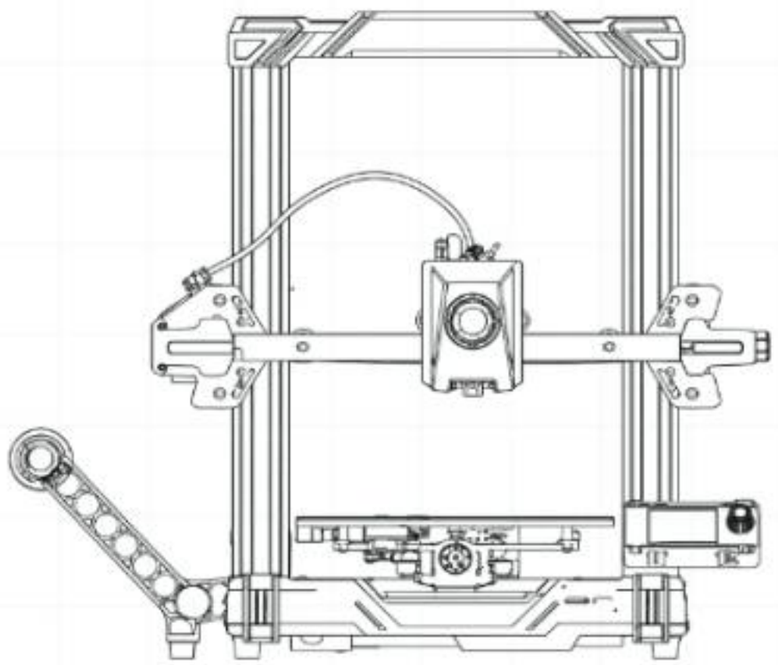
End-to-end FDM technology ecosystem for rapid prototyping, design iteration, and complex geometry fabrication.

2. Key Learning Domains

- Rapid Prototyping
- Material Science
- Design Thinking

3. Core Components

- Direct Drive FDM Printer
- Auto-leveling Bed & Removable PEI Sheet
- 300×300×300mm Build Volume
- Acrylic Enclosure



Outcomes
Slicing software optimization, print troubleshooting.

Applications
Product casings, custom jigs/fixtures, architectural models.

Key Features
Power failure protection, multi-material support (PLA, PETG, TPU, ABS), 100-micron resolution.

Solutions Portfolio: Turnkey CoE

Advanced Manufacturing Lab (CNC Machine)

NSQF Aligned

Precision Engineering from Art to Part

1. Overview

Professional-grade CNC routing and milling ecosystem for exploring G-Code, prototyping, and material processing.

2. Key Learning Domains

- Subtractive Manufacturing
- CAD/CAM
- Precision Tooling

3. Core Components

- 300W 12000 RPM Spindle
- 16mm Guidebars with Linear Bearings
- NEMA 23 Motors
- Arduino GRBL Controller

Learning Outcomes

G-Code mastery, isolation milling

Applications

PCB fabrication, mechanical parts, custom signages.

Key Features

Open-source software workflows, Laser module provision, Make in India (Class I Supplier).

Solutions Portfolio: Turnkey CoE

PLC & Industrial Automation Lab

NSQF Aligned

Mastering the Backbone of Modern Manufacturing

1. Overview

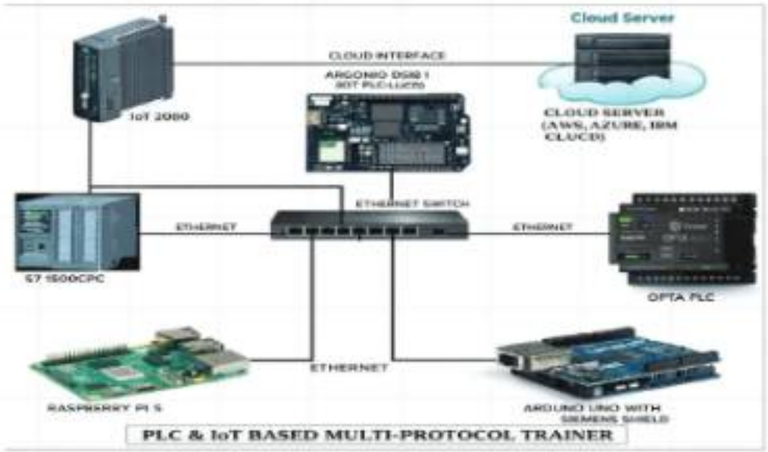
Advanced training environment for ladder logic, FBD, and SCADA integration.

2. Key Learning Domains

- Industrial Control
- Motor Drives
- HMI Interfaces
- Profinet

3. Core Components

- Siemens S7-1500 & Opta PLCs
- CompactLogix 5370
- Studio 5000/TIA Portal
- 32D1/32DO Expansion, 24V 2A DC Source



Outcomes

Ladder programming, I/O interfacing

Applications

Conveyor control, process automation.

Key Features

Windows-based software, Cloud integration (AWS/Azure), Profinet communication

Solutions Portfolio: Turnkey CoE

Industrial IoT & Multi-Protocol Networking

Distributed Sensor Networks for Smart Agriculture & Industry

NSQF Aligned

1. Overview

- Combines classical PLC automation with open-source IoT technologies to teach industrial communication protocols.
- Fully aligned with NSQF Level 3.5 CTS standards for IoT Technician (Smart Agriculture).

2. Key Learning Domains

- Multi-Protocol Networking
- Smart Agriculture
- Distributed IoT
- Edge Computing

3. Core Components / Infrastructure

- Siemens SIMATIC IOT2050 Industrial Edge Gateway.
- Arduino with Ethernet Shield & Raspberry Pi computing nodes.
- Multi-Protocol Trainer Panel (Modbus TCP/IP,Relay Outputs, Digital/Analog I/O).

Learning Outcomes

- Node-to-cloud communication
- Edge data processing
- Protocol troubleshooting

Applications

- Automated irrigation / Drones
- Remote greenhouse monitoring
- Smart factory telemetry

Key Features

- NSQF Level 3.5 compliant
- Cross-platform integration
- Real-world industrial gateway

Solutions Portfolio: Turnkey CoE

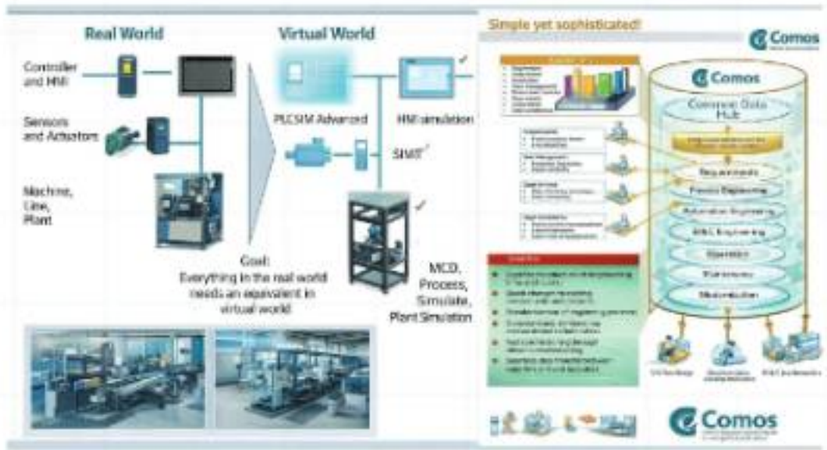
Digital Twin & Process Simulation

Virtual Commissioning and Plant Lifecycle Engineering

NSQF Aligned

1. Overview

- Establishes a true Digital Twin of the plant to validate, test, and troubleshoot automation systems virtually before physical deployment.
- Ensures operational reliability through comprehensive plant lifecycle engineering.



2. Key Learning Domains

- Virtual Commissioning
- P&ID Digitalization
- Hardware-in-the-Loop
- Plant Simulation

3. Core Components / Infrastructure

- SIMIT Simulation Software for real-time process emulation.
- SIMATIC S7-PLCSIM Advanced for integrated virtual controller testing.
- COMOS Engineering Software for Piping and Instrumentation Diagrams (P&IDs) and basic engineering.

Learning Outcomes

- P&ID creation and simulation
- Risk-free control testing
- Object-oriented lifecycle data

Applications

- Plant modernization
- Operator training environments
- Water system automation

Key Features

- Bi-directional data exchange
- Hardware-in-the-loop ready
- ESeamless automation linkage

Solutions Portfolio: Turnkey CoE

Multi-Domain Mechatronics Simulation

Advanced Mathematical Modeling and Analysis

NSQF Aligned

1. Overview

- An open, powerful platform to model, run, and analyze complex multi-domain mechatronic systems and components.
- Bridges the gap between 3D mechanical design and actual system dynamics

2. Key Learning Domains

- Multiphysics Simulation
- Fluid Power Dynamics
- Electrical/ Control Systems
- Component Design

3. Core Components / Infrastructure

- Automation Studio Educational Edition 8.0 Premium Package.
- SIMCENTER AMESIM (Academic Bundle ILACAD100 - 5 User License).
- Comprehensive simulation libraries (Pneumatics, Hydraulics, Powertrain, Thermal).

Learning Outcomes

- Multi-domain system design
- Dynamic component analysis
- System optimization

Applications

- Aerospace & Automotive electronics
- Cooling & Heating systems
- Electric motor drives

Key Features

- 3D mechanical integration.
- User-friendly modeling GUI
- Extensive part libraries

Solutions Portfolio: Turnkey CoE

MR/AR/VR & STEAM Foundations

Immersive Operator Training and Gamified Prototyping

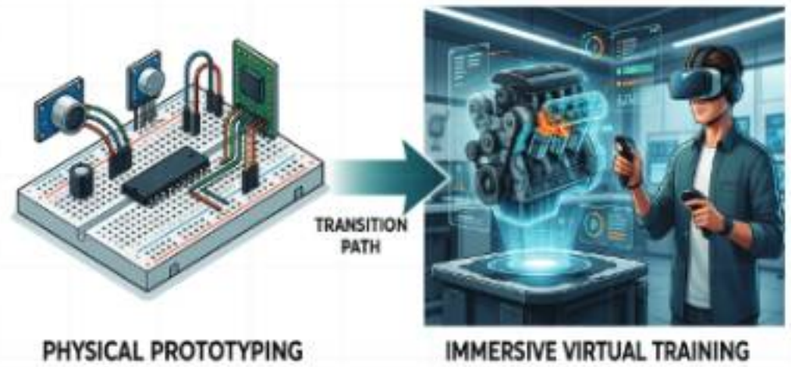
NSQF Aligned

1. Overview

- Provides foundational computational thinking via DIY kits, scaling up to advanced Mixed Reality environments for operator training.
- Supports the complete engineering design process from ideation to virtual implementation.

2. Key Learning Domains

Mixed Reality (AR/VR) | STEAM Concepts | Rapid Prototyping | Computational Thinking



3. Core Components / Infrastructure

- High-performance MR/AR/VR Workstations (Minimum 10 computers per install).
- IncubateFX Display Models (Programmable AVR CPUs, Bluetooth, 8-DO/6-AI).
- Gamified Teaching-Learning Platform powered by a virtual lab.

Learning Outcomes

- Electromechanical circuit building
- App-based control programming
- Spatial computing navigation

Applications

- Virtual safety training
- Home automation prototyping
- Mobile robot navigation

Key Features

- Modular hardware connectors
- Free teacher LMS login
- Immersive digital content

Solutions Portfolio: Turnkey CoE

Semiconductor Technician Lab

NSQF Aligned

Hands-On Expertise in Semiconductor Fabrication, Packaging, and Device Applications

Overview & Domains

1. Overview

A comprehensive facility covering passive and active electronic components, cleanroom processes, assembly, and device physics. Prepares students for careers in semiconductor technology by adhering to strict industry safety and ESD standards.

2. Key Learning Domains

- Semiconductor Materials
- Wafer Probe Testing
- Assembly & Packaging
- Semiconductor Applications

Infrastructure & Visuals

3. Core Components

- CMOS Simulation Software (Nanosheet & FINFET structure support).
- RF Signal Generator (3.6 Ghz) & Real-Time Spectrum Analyzer.
- 3D Device Simulation Framework for quantum' mechanical effects and circuit design.

Diagnostic Matrix

Learning Outcomes	Wafer level electrical/ physical characterization. Microscopic inspection of IC packages (DIP, BGA). Analog/Digital circuit troubleshooting.
Applications	IoT device data collection/control. Automotive ECUs and ADAS systems. Medical imaging & wearable devices.
Key Features	NSQF Level 4.5 aligned curriculum. Complete ESD-safe work environments. Chemical/gas handling & safety protocols.

Solutions Portfolio: Turnkey CoE

Makers Lab CoE (Industry 5.0)

Human-Centric, Sustainable, and Resilient Innovation

NSQF Aligned

1. Overview

A comprehensive multidisciplinary space designed around the pillars of Industry 5.0: human-machine teaming and sustainable circular economies.

2. Key Learning Domains

- Human-Centricity
- Sustainability
- Circular Economy

3. Core 7-Zone Infrastructure

- Digital Fabrication & Electronics/PCB Lab
- Robotics/IoT (NVIDIA Jetson/Raspberry Pi)
- Mechanical Workshop
- AI Computing & Sustainability Lab
- Safety Systems

Outcomes

Cross-disciplinary engineering, sustainable design practices.

Applications

Green fabrication prototyping, resilient supply chain modeling.

Key Features

24/7 access model, Tier-1/Tier-2 scalable structure, Industry advisory panel governed.

Solutions Portfolio: Turnkey CoE

Smart Agriculture IoT Lab

Data-Driven Solutions for Sustainable Farming

NSQF Aligned

1. Overview

NSQF-aligned (Level 3.5) training environment focused on deploying sensor networks and drone technology for modern agriculture.

2. Key Learning Domains

- Precision Farming
- Sensor Networks
- Drone Tech

3. Core Components

- Solar Charge Controllers
- Soil Moisture & Temperature Sensors
- Agricultural Spraying Drones
- Wireless LoRa Modules

Outcomes

Sensor deployment, real-time data analytics.

Applications

Automated irrigation, livestock monitoring, crop health assessment.

Key Features

DGT/CTS Curriculum aligned, Cloud dashboards, Solar power integration.

Solutions Portfolio: Turnkey CoE

Electric Vehicle (EV) LAB

Developing Industry-Ready EV Technicians and Entrepreneurs for Green Mobility

NSQF Aligned

Overview & Domains

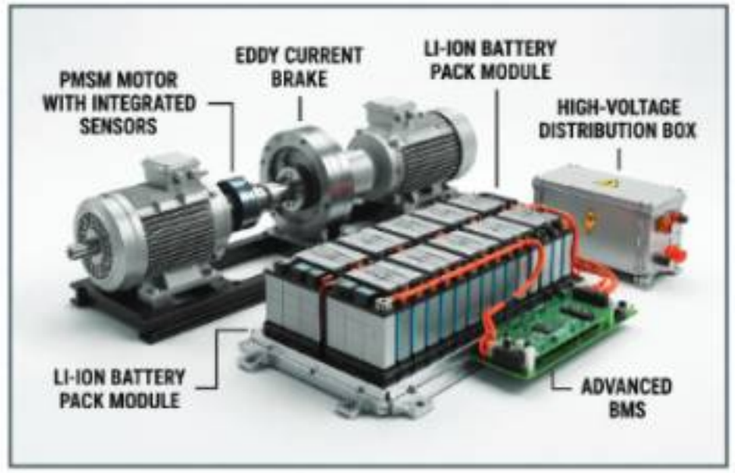
1. Overview

A complete electric mobility learning ecosystem covering EV architecture, battery management, and powertrain testing. Transforms technical institutions into EV Skill, Research, and Innovation Hubs aligned with the National Electric Mobility Mission.

2. Key Learning Domains

- EV Vehicle Systems
- Battery & BMS Tech
- Powertrain & Motor Control
- Charging Infrastructure

Infrastructure & Visuals



3. Core Components

- PMSM Motor & Drive Testing Systems with Torquemeter.
- Li-ion Battery Packs with advanced BMS (cell balancing and SOC/SOH estimation).
- DC Fast Charging infrastructure and EV Design & Simulation Software.

Diagnostic Matrix

Learning Outcomes	Complete EV architecture mastery. Battery safety and SOC/SOH diagnostics. FOC/DTC motor control tuning.
Applications	EV performance testing & diagnostics. Green grid and charging integration. Sustainable technology design.
Key Features	Industry-grade hardware ecosystem. LMS with structured digital curriculum. Faculty training and technical handholding.

Solutions Portfolio: Learning Experiential Platform (LEP)

Bridging Physical Labs with Digital Intelligence

The Future of NEP-Aligned Education

A personalized and adaptive learning ecosystem that seamlessly integrates physical labs with a powerful digital LMS, driving experiential and outcome-based learning.

Adaptive Learning
Personalized student pathways

Omnichannel LMS
Seamless Web & Mobile App access

Role-Based Access
Tailored portals for Admins, Teachers & Students

Smart Analytics
Real-time performance dashboards

Gamification
Leaderboards & engagement tracking

Assessments
Automated grading & certification

Sequential Paths
Guided learning journeys

Live Tracking
Attendance & progress monitoring

For Educators

- Comprehensive training videos & manuals
- Weekly online training
- Seamless classroom integration support

AI-Powered Capabilities

- AI Text-to-Image generation
- Dynamic concept visualization
- Multilingual support

For Students

- Gamified engagement
- Self-paced learning modules
- Automated certifications & rewards

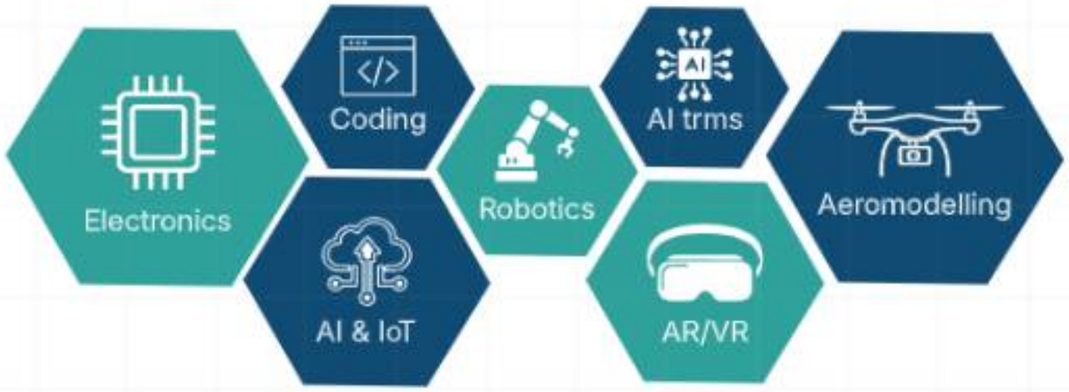
Structured, measurable, and engaging experiential learning powered by LMS, Virtual Labs, and Gamification

Solutions Portfolio: Gamified Digital Content Ecosystem

Learning Through Play, Practice, and Innovation

Experiencing Industry 4.0

A comprehensive gamified learning environment integrating STEM,AI, and Robotics. We merge high-fidelity virtual labs with interactive simulations to bring complex concepts to life.



Gamified Learning Formats

- Interactive Videos
- Smart Flash Cards
- Drag & Drop Exercises
- Crosswords & Word Games
- Hotspot Activities
- Quiz Challenges
- Game-based modules

Virtual Labs

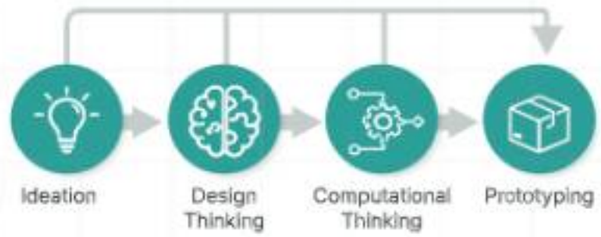
- Real-time Circuit Simulation
- Interactive Arduino Coding
- 3D Robotics Simulation
- Virtual Prototyping Sandbox

Electronics: 75+ hands-on breadboard and PCB projects.

Coding: Extensive library of Arduino-based programming challenges.

Robotics: Step-by-step, real-time physical robot builds.

Aeromodelling: Design and assembly of RC planes and drones.



From virtual simulation to real-world innovation - enabling Industry 4.0 learning

NEP 2020 Compliance:
Experiential, competency- based multidisciplinary learning.

Skill India:
NSQF Level 3.5 & 4.5 certified workforce generation.

The Future-Ready Institution

Make in India & Atmanirbhar Bharat:
Domestic capability in Semiconductors & Green Mobility.

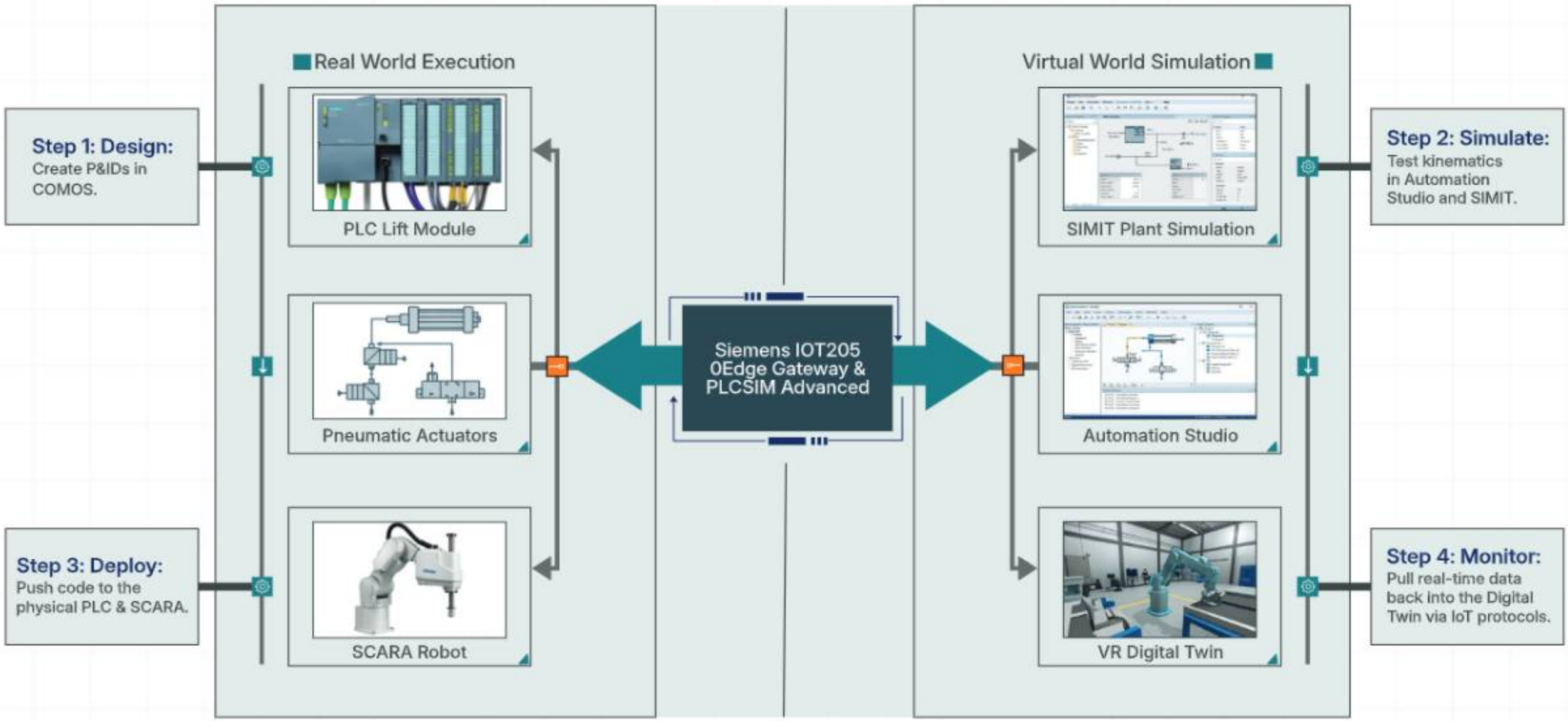
National Electric Mobility Mission:
Building the EV technician & entrepreneur pipeline.

Industry 4.0 / Digital India:
Cloud-based digital twins and IoT tech integration.

Transform your institution into an Industry 4.0 Innovation Ecosystem.
EdgeFX Technologies Pvt. Ltd., 105, Liberty Plaza, Himayatnagar, Hyderabad-29.

The Digital Thread: Hardware-In-The-Loop Architecture

Bridging the Physical and Virtual Environments



Skill Development Layer: NSQF Alignment

(Structured Certification, NEP 2020 Compliance, and Hackathon Competitions).

Digital Learning Layer: Cyber-Physical Ecosystem

(COMOS Digital Twins, Gamified LMS, and 3D Circuit Simulations).

Physical Learning Layer: Industry-Grade Hardware

(EV Powertrains, Wafer Probes, & Automation PLCs).

The EdgeFX Approach

Our Centers of Excellence replace isolated labs with an integrated loop of Ideation, Simulation, and Real-Time Prototyping.

True innovation requires stacking physical hardware, digital twins, and structured skill pathways into a unified ecosystem.

Case Study | IIT Indore/IIT Jodhpur

Location: IIT Indore, Madhya Pradesh | IIT Jodhpur, Rajasthan

The Challenge

Need for advanced infrastructure to strengthen interdisciplinary research and Industry 4.0 capabilities.

Objectives

Deploy a cutting-edge Intelligent Manufacturing CoE with experiential learning setups for researchers and faculty.

The Solution

Turnkey design, supply, installation, and operational training executed seamlessly by EdgeFX Technologies.

Technologies Used

- Electro-pneumatics/hydraulics
- SCADA & Mechatronics systems
- Collaborative Robots (Cobots)
- Artificial Vision & RFID Smart Workflows

Scope

Intelligent Assembly Simulation Ecosystem

Impact

Comprehensive Faculty & Researcher Operational Training Completed

Outcome

Sustainable Research & Innovation Ecosystem Established

Case Study | Comprehensive ITI Modernization

Location: States of Odisha, Goa, Uttarakhand & Uttar Pradesh

The Challenge

Upgrading traditional ITI trades (Electrical, Electronics, etc.) to meet modern employ ability demands in Smart Agriculture and Automation.

Objectives

Seamlessly integrate physical STEM labs with engaging, gamified virtual learning platforms.

The Solution

Large-scale deployment of Smart Agriculture IoT Labs and Maker kits accompanied by deep, continuous faculty capacity building.

Technologies Used

- STEMPlay Virtual Learning Platform
- LoRa-based IoT Sensor Nodess
- Robotics & Coding DIY Kits

Scope
Intelligent Assembly Simulation Ecosystem

Impact
Comprehensive Faculty & Researcher Operational Training Completed

Outcome
Sustainable Research & Innovation Ecosystem Established

Case Study | IoT Smart Agriculture – NSTI (National Skill Training Institute)

Location: NSTI-Hyderabad (India)

The Challenge

Traditional farming faces inefficiencies such as excess water usage, manual crop monitoring, a lack of soil condition data, and low overall productivity.

Objectives

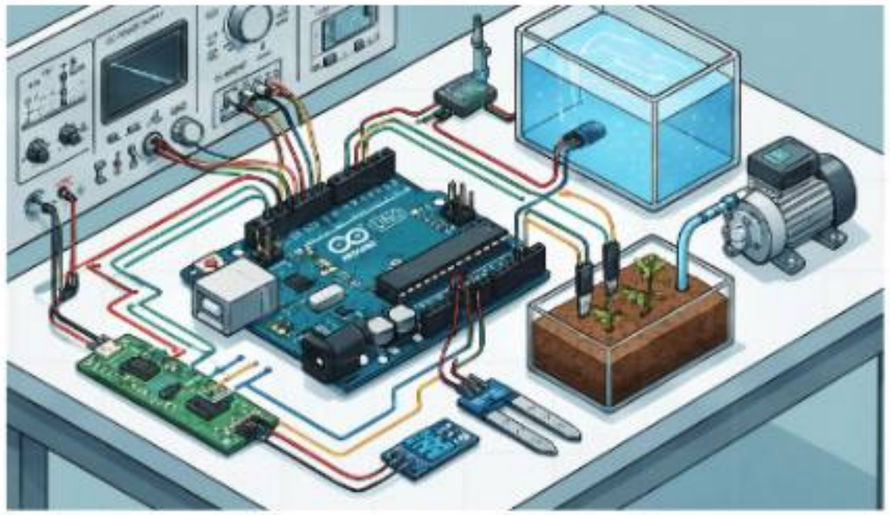
To develop skills in installing and maintaining IoT-based smart irrigation systems through NSTI training, enabling automated water supply and real-time monitoring for improved crop productivity.

The Solution

As part of practical training, students implemented a turnkey Smart Irrigation Monitoring System using environmental sensors, Arduino controllers, and wireless communication to automate water pumps.

Technologies Used

- IoT Sensor Systems (Soil Moisture, Temp & Humidity)
- Embedded Systems (Arduino Controller)
- Wireless Communication (Wi-Fi / GSM Module)
- Automation (Relay Module & Water Pump Control)
- Cloud/Mobile Monitoring (Real-time farmer alerts)



Scope

Smart Irrigation & Agriculture Automation Ecosystem

Impact

Hands-on Training for NSTI Trainees in IoT, Automation & Smart Farming Technologies

Outcome

- 30-40% reduction in water usage
- Automated irrigation system
- Reduced labor effort
- Improved crop monitoring
- Real-time updates received by farmers

Case Study: Cloud-Based Virtual Innovation Lab (TEQIP Initiative)

Bundelkhand University (Jhansi), Visvesvaraya Technological University (Belagavi), & Bineswar Brahma Engineering College (Kokrajhar - Assam)

Challenge & Objectives

Challenge

The need to improve the quality of engineering education, student employability, and institutional innovation capabilities, overcoming the limitations of physical laboratory access.

Objectives

- Strengthen practical engineering skills and outcome-based technical learning.
- Enable blended learning through digital laboratories and faculty-assisted experiential pedagogy.
- Improve Industry 4.0 readiness among engineering students.

Implementation & Technologies

Implementation

Deployment of EdgeFX Cloud-Based Digital Blended Learning Platform, empowering structured experimentation and simulation-based engineering without physical constraints.

Technologies Deployed

85+ virtual electronics/ robotics experiments	Arduino programming modules
Logic gates & circuit simulations	RF communication experiments
Motor control applications	Sensor-based IoT modules

The Multiplier Effect of Industry 4.0 Labs

1 Lab → Multiple Outcomes:

- Multi-department usage (Mechanical, Electrical, Electronics, CS)
- Multi-level training (ITI → Diploma → Degree)
- Multi-technology exposure (PLC, IoT, Robotics, EV, AI)

1 Investment → 5X Impact

- Skill Development
- Research & Innovation
- Startup Enablement
- Industry Readiness

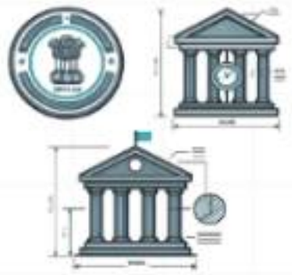
Scalable Deployment Model for Technical Institutions

- Multi-institution rollout capability Startup Enablement
- State-wide CoE deployment model
- Integration with ITIs / Polytechnics / Universities
- Designed for state-wide, multi-institution technical transformation.

Strategic Affiliations & Collaborations

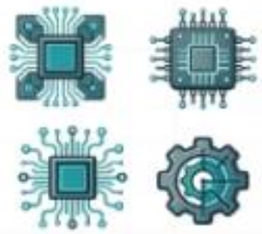
1. Government & Institutional Engagement

Central and State Government bodies, Public Sector Undertakings (PSUs).



2. Industry & Technology Partners

Global tech leaders powering the digital/physical layers (e.g., Siemens, Arduino).



3. Certifications & Recognitions

NSQF/NCVET alignments, Make in India (Class I Supplier),BIS Certifications.

4. Academic Collaborations

Premier technical institutes (e.g., IIT Indore, IITI Drishti CPS Foundation).

Trusted by Institutions Powered by partnerships

- Ministry of Rural Development
- Ministry of Skill Development and Entrepreneurship
- Ministry of School Education
- Ministry of Technical Education
- NSDC

Let’s Build the Future Together

At EdgeFX, we collaborate with forward-thinking organizations to create meaningful, long-term impact.

We Partner With

- Government Bodies & Departments
- System Integrators & Implementation Agencies
- CSR Foundations & Development Organizations
- ITIs, Polytechnics & Universities

What We Bring

- Technology & OEM Capability
- Execution Expertise
- Integrated Learning Ecosystems
- Scalable Deployment Models

Let’s create future-ready institutions and industry-ready learners.

Engineered for Impact.

Integrating policy, infrastructure, and skills to build future-ready innovators.

Partner with EdgeFX to enable large-scale technical transformation across institutions.

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Engineering future-ready technical ecosystems