New Age Course for ITIs

EDGEFX TECHNOLOGIES

Integrated STEM Systems Design & Prototyping Junior Technician

From STEM Learning to Industry Readiness & Self-Employment

Qualification Level: NSQF Level 3

Industry Partner EdgeFX Technologies

The Foundation Qualification for Employment, Self-Employment, Robotics, AIoT and Future Manufacturing

NCVET Certified | CTS | Skill India | Industry 4.0 | Technical Education

Build What Matters.
Build It Well.
Build It For Real Use.

"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."

– Kamini Gupta, CMD

120+
Countries

30+
Years Experiene

50+
ITI & 1000+ Labs Implemented

50,000+
Learners Impacted

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Outdated technology	Digital + physical integration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, experiential learning
Fragmented outcomes	True Industry readiness

The gap is not in education-it is in application.
Moving from Learning Infrastructure to Industry Transformation

Hardware-in-the-Loop Architecture

Make in India

Skill India

Digital India

Industry 4.0/5.0

Atmanirbhar Bharat

The EdgeFX CoE

Smart Manufacturing Skill Hubs

Bridging academic theory with real-world factory floors.

Digital Engineering Centers

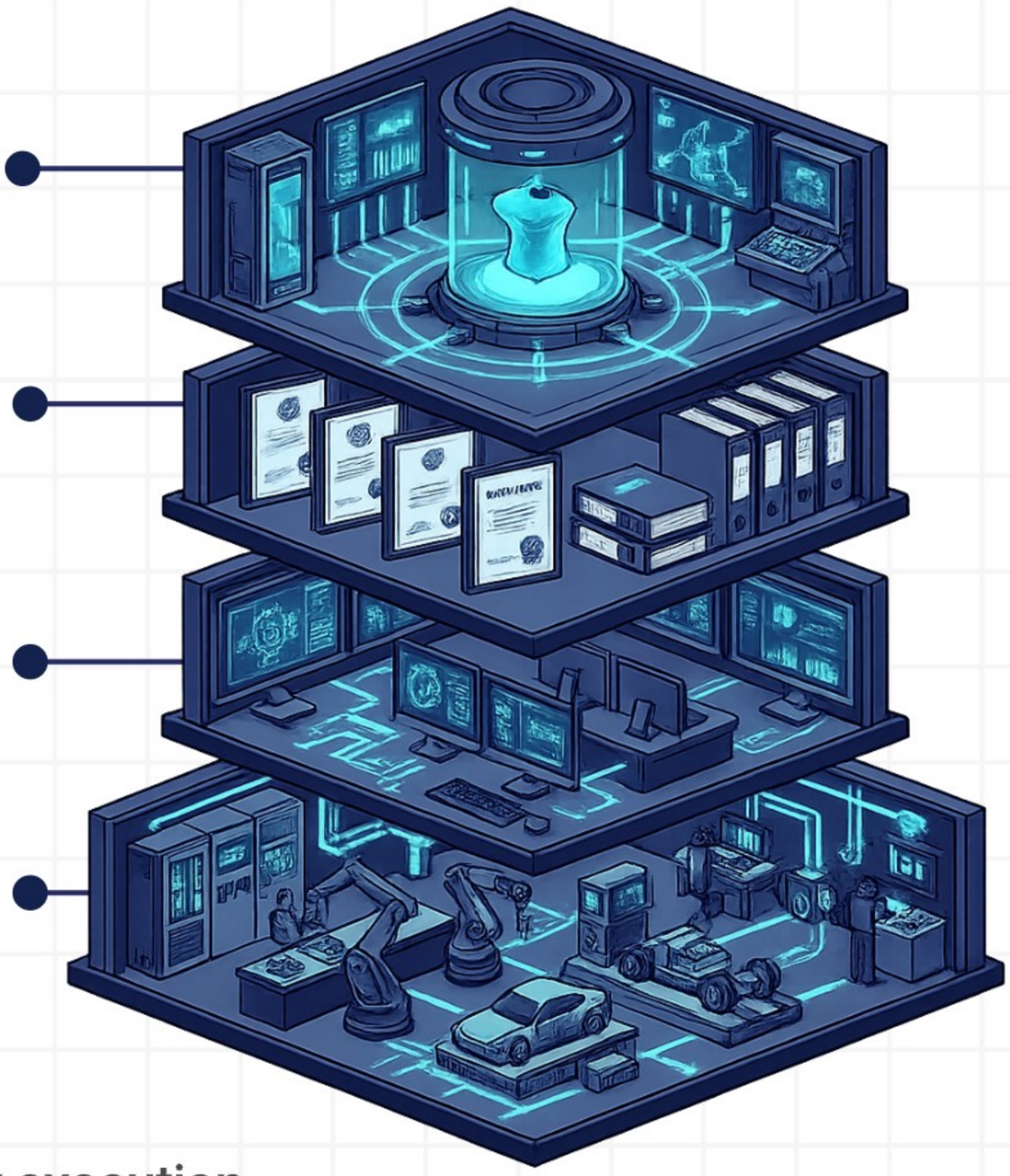
Fostering MSME problem-solving via student-led innovation.

Industry 4.0 Ecosystems

Strengthening industry-academia-research linkages.

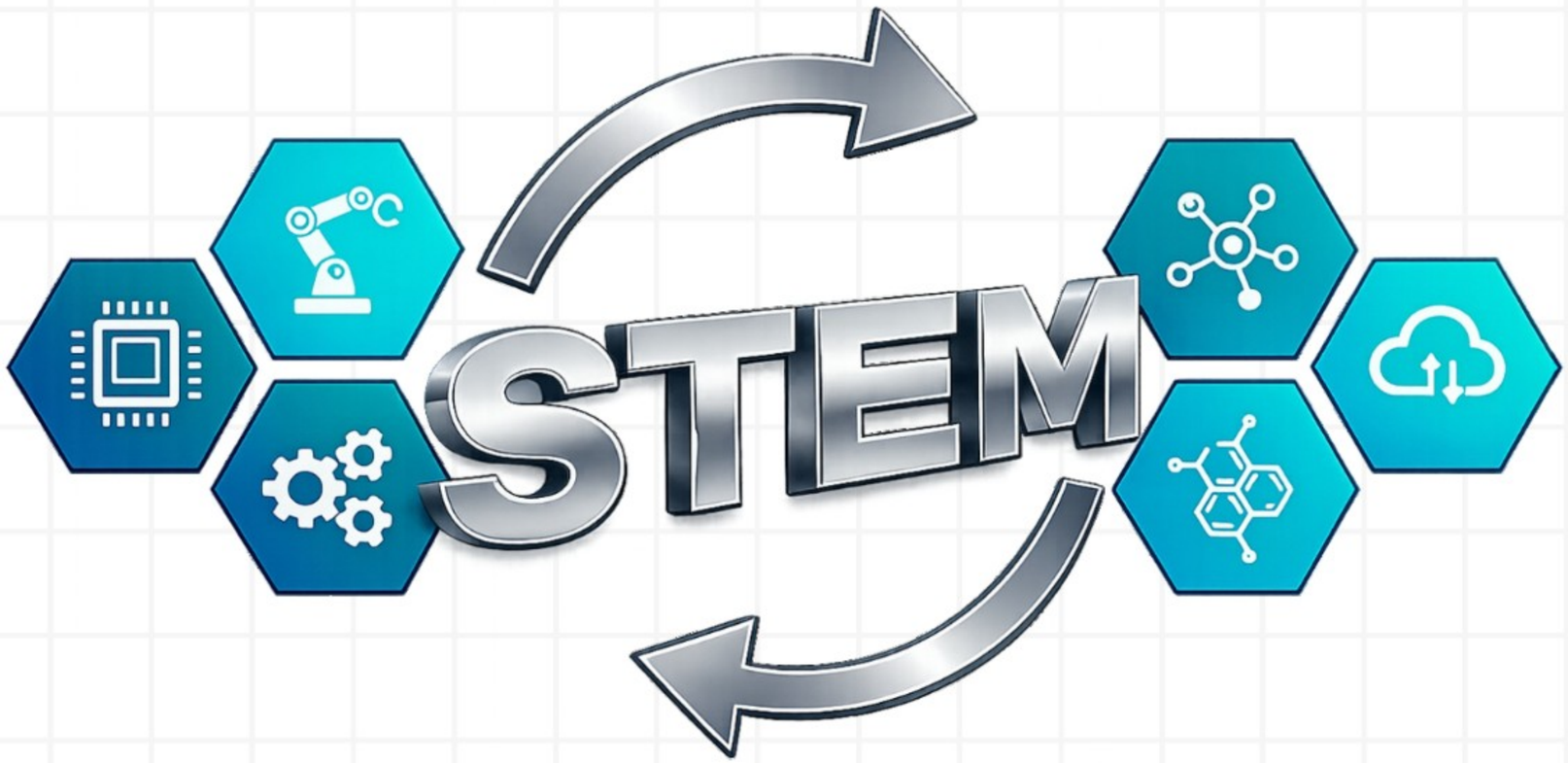
Integrated Industry 4.0 Learning Ecosystem

- **Innovation Layer:** Startup & incubation ecosystem mapping to commercial viability.
- **Skill Layer:** NSQF/NCVET aligned programs driving certification.
- **Digital Layer:** Virtual labs, simulations, and Learning Management Systems (LMS).
- **Physical Layer:** Industry-grade hardware labs (PLC, Robotics, EV, IoT).



End-to-end turnkey execution

The Model Curriculum: Integrated STEM Systems Design & Prototyping Junior Technician



Qualification Level:
NSQF Level 3

Total Duration:
360 Hours

Structure:
125 Hrs Theory | 175 Hrs Practical | 60 Hrs Mandatory On-the-Job Training (OJT)

A rigorously structured 9-module framework designed to transition learners from foundational component recognition to fully operational embedded system prototyping.

The Learning Progression Staircase

STEM Foundations & System Building

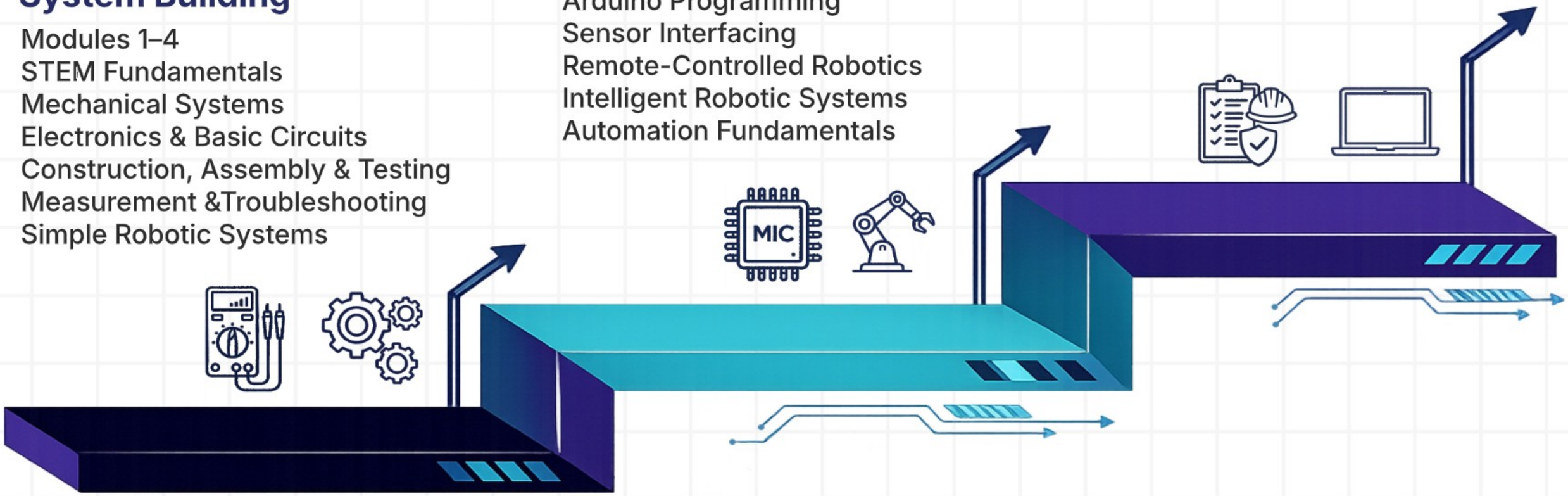
Modules 1–4
STEM Fundamentals
Mechanical Systems
Electronics & Basic Circuits
Construction, Assembly & Testing
Measurement &Troubleshooting
Simple Robotic Systems

Phase 2: Embedded Intelligence & Robotics

Modules 5–7
Arduino Microcontrollers
Arduino Programming
Sensor Interfacing
Remote-Controlled Robotics
Intelligent Robotic Systems
Automation Fundamentals

Phase 3: Professional Employability (60 Hours)

Modules 8-9: Workplace safety, documentation, and OJT



360 Hours of continuous, hands-on, NCVET-aligned capability building.

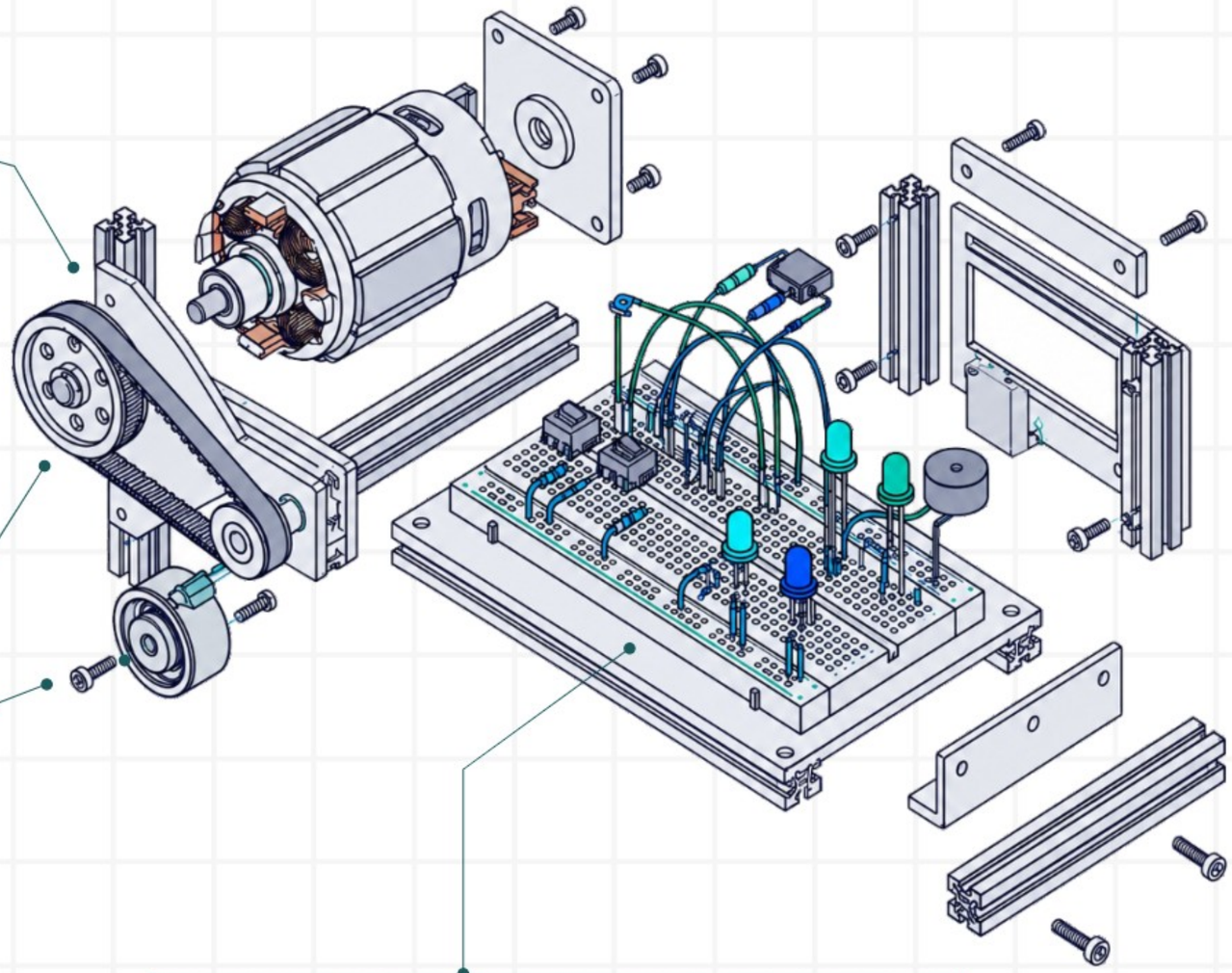
Phase 1: Foundations of Hardware (Modules 1-4 | 210 Hrs)

Module 1: STEM Explorer Fundamentals

Understanding STEM concepts, system components, tools, safety practices, and basic engineering principles.

Module 2: Machines, Motion & Mechanisms

Simple Robots, Structural assemblies, and motion systems



Module 3: Electronics & Circuit Design

Circuits, switches, LEDs, buzzers, Motors and power systems.

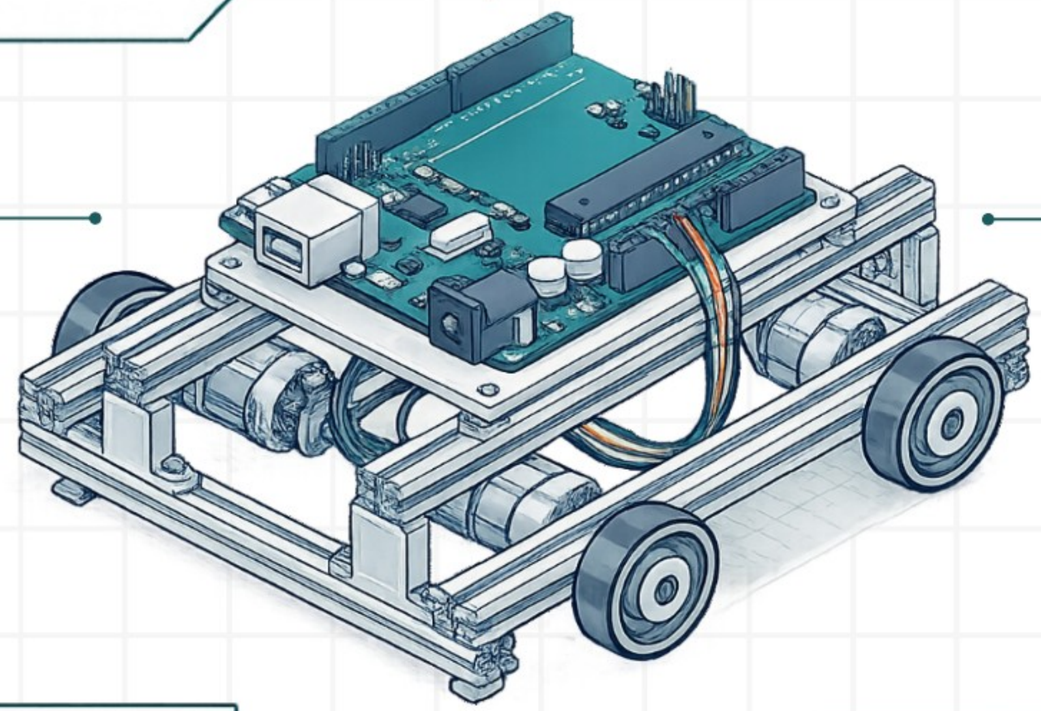
Module 4: Testing & Troubleshooting

Measurement tools, testing, fault finding, and system validation.

Phase 2: Intelligence & Control (Modules 5-7 | 90 Hrs)

Module 5: Arduino Microcontrollers

Understanding Arduino boards, component identification, power management, programming environment setup, and uploading test programs.



Module 6: Arduino Programming & Sensor

InterfacingDeveloping programs using variables, conditions, and loops while interfacing sensors, switches, LEDs, buzzers, and actuators.

Module 7: Intelligent Robotics & Automation

Building robotic systems, integrating motors and controllers, operating remote-controlled robots, and explorin automation fundamentals.

Phase 3: Professional Readiness (Modules 8-9 | 60 Hrs)

Workplace Safety & Protocol

Competency 1:
Workplace Safety & Protocol

Correct utilization of PPE, discipline, and hazard identification.

Competency 2:
Technical Documentation

Maintaining logbooks, writing structured technical reports, and fault reporting.

Competency 3:
Team Execution

Coordinating cross-functional tasks and presenting project summaries.

THE CAPSTONE: 60 hours of mandatory On-The-Job Training (OJT), ensuring immediate transition into real-world industrial environments.

The Digital Twin: Learning Experiential Platform (LEP)

Bridging physical labs with a powerful, AI-driven digital LMS.

For Students

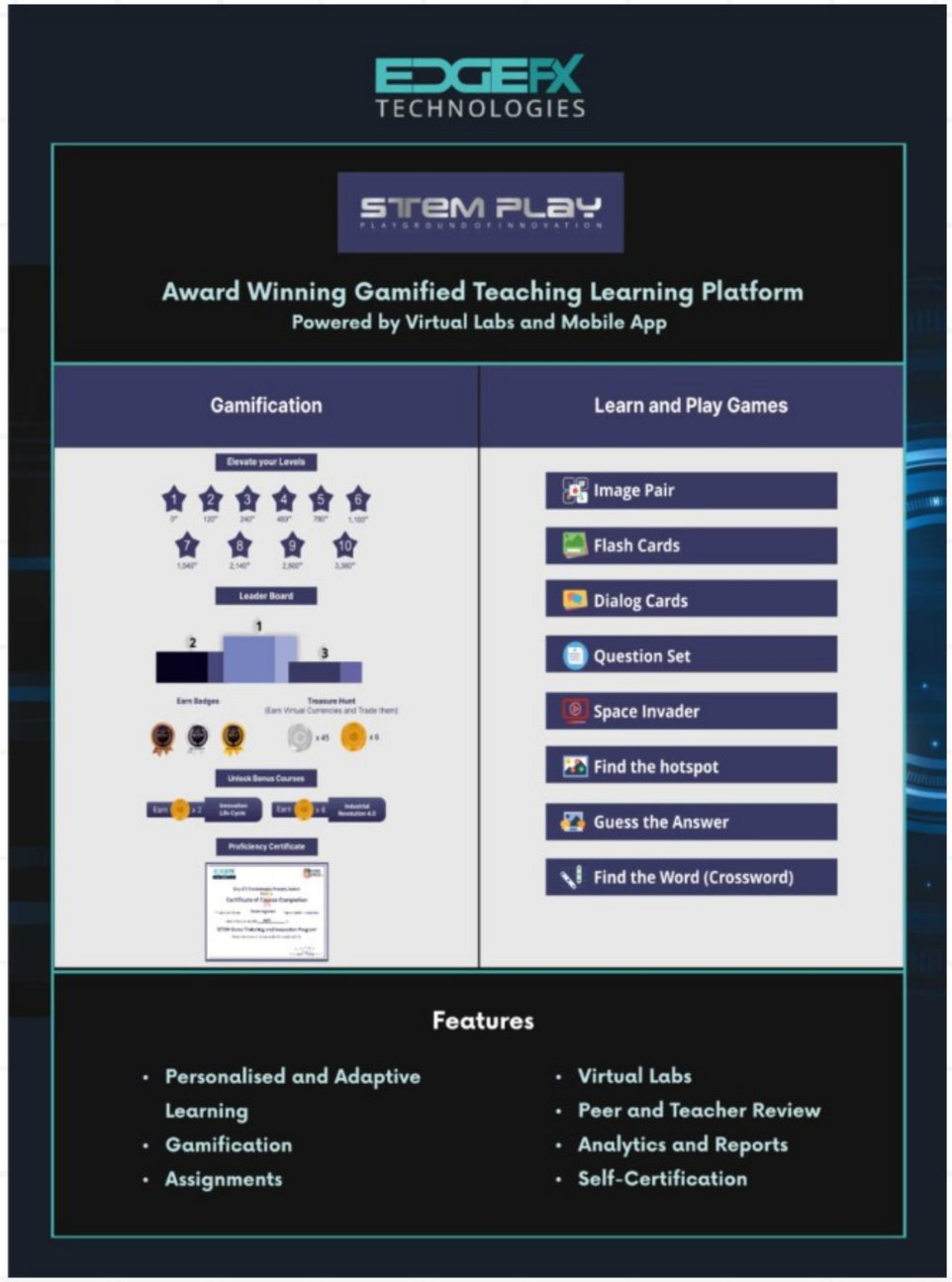
High-fidelity virtual prototyping sandboxes, real-time circuit simulation, and gamified sequential paths.

For Educators

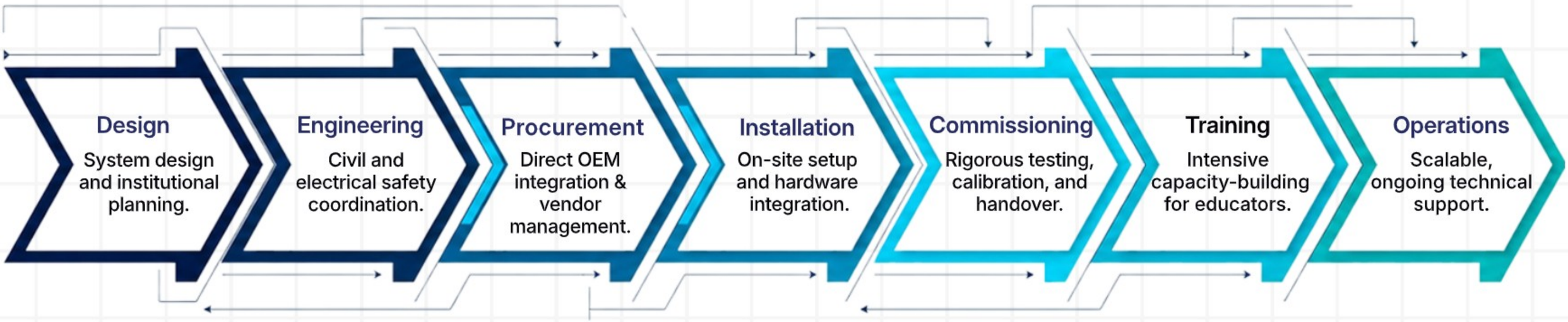
Omnichannel tracking, automated grading, and comprehensive training manuals.

AI Integration

Dynamic concept visualization and multilingual text-to-image support.

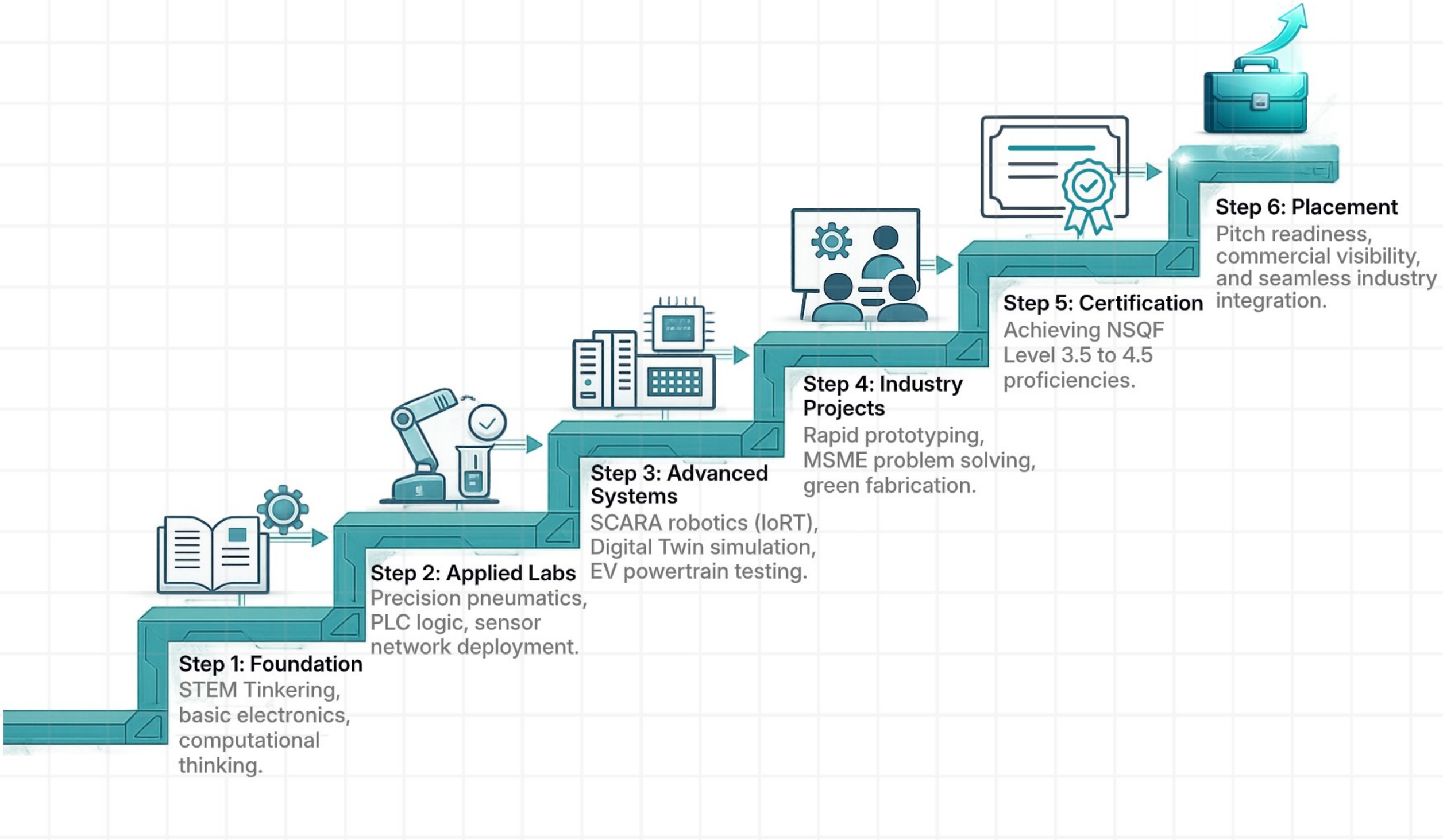


The OEM-Driven Execution Blueprint



Execution defines impact. We design it, we build it, we sustain it.

Vertical Progression Pathways



State-Level Validation: DET Telangana & NCVET Agreement

NCVET & Department of Employment and Training (DET) Telangana sign agreement for NCVET Recognition as Awarding dy (AB - Dual)

Posted On: 24 APR 2026 6:39PM by PIB Delhi

National Council for Vocational Education and Training (NCVET) and Department of Employment and Training, Telangana have signed an agreement on 24.04.2026 for NCVET Recognition as Awarding Body (AB - Dual) to DET Telangana. Through this recognition, DET will be eligible to award, assess and certify learners where training is directly being imparted by the Awarding Body in campuses or training centers owned or fully managed by it for its approved or adopted qualifications in the state of Telangana.

The agreement signing ceremony was chaired by Smt. Debashree Mukherjee, Secretary, MSDE and Chairperson, NCVET. The ceremony was also attended by Prof. (Dr.) Ashok Kumar Gaba, Executive Member, NCVET, and Lt. Col. Vikram Singh Bhati, Director, Recognition, NCVET.

After NCVET Recognition as Awarding Body (AB - Dual), DET Telangana is expected to skill trainees through ITIs, Advanced Technology Centers (ATCs), and empaneled training partners in short-term industry-aligned courses. The thrust areas for these initiatives will be IoT-enabled Smart Agriculture, IoT Healthcare, Robotics, Electric Vehicles, Drone Technology, AR/VR, and Fashion Design Technology.

DET qualification "Integrated STEM Systems Design & Prototyping Junior Technician" in the Electronics and Hardware sector, having strong vertical progression across sectors like Robotics, Manufacturing, Automation, Education, and IoT, has already been approved by NCVET.

The Milestone

On April 24, 2026, the Department of Employment and Training (DET) Telangana was recognized as an Awarding Body (AB-Dual) by NCVET.

The EdgeFX Impact

The "Integrated STEM Systems Design & Prototyping Junior Technician" qualification has been explicitly approved for rollout across ITIs and Advanced Technology Centers.

Focus Areas

Enabling state-wide skilling in IoT, Healthcare, Smart Agriculture, Robotics Electric Vehicles (EV)

Backed by National & Global Standards

'Aligned Partner'

N·S·D·C National Skill Development Corporation

MAKE IN INDIA

Skill India
asst Encapeert of India

MSME Zed CERTIFICATION
ZERO DEFECT ZERO EFFECT

CERTIFIED ISO 9001:2015 COMPANY

ESSCI
ELECTRONICS SECTOR SKILLS COUNCIL OF INDIA

Ministry of Skill Development and Entrepreneurship | Ministry of Technical Education

Let’s Build What Matters.

Who We Work With	Partnership Models
Government & Departments	Co-Create, Co-Implement, Co-Fund, Co-Scale
CSR & Foundations	
System Integrators	
Industry & Academia	

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