



Bharat Institute  
for Skill Development

# ARCHITECTING EDGE INTELLIGENCE

## TinyML & Edge AI

Intermediate Practitioner Course

Course Delivery Plan &  
Hands-on Lab Guide



**4 HOURS**

INSTRUCTOR-LED  
SESSION

(In-Person / Virtual)

+



**16 HOURS**

HANDS-ON LABS

(SELF-PACED)

=



**20 HOURS**

TOTAL  
LEARNING JOURNEY



LEARN



DEPLOY



INNOVATE



Bharat Institute  
for Skill Development



MEP STRA





# COURSE DELIVERY

A blended learning approach combining expert-led concepts with extensive hands-on practice to help you build, deploy and optimize Edge AI solutions.

4 HOURS  
Instructor-Led

+

16 HOURS  
Hands-On Labs

=

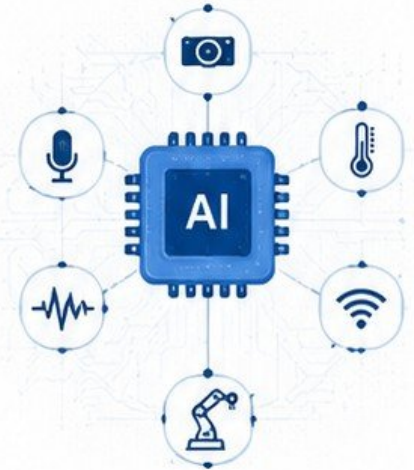
20  
HOURS  
LEARNING  
JOURNEY



## INSTRUCTOR-LED SESSION — 4 HOURS

In-Person / Virtual

-  **Conceptual Grounding** – Understand Edge AI, TinyML principles and the need for intelligent devices.
-  **Architectures & Toolchain** – Explore Edge AI system architectures and the TinyML toolchain.
-  **TinyML Pipeline Walkthrough** – End-to-end walkthrough of the TinyML development pipeline.
-  **Live Demo & Roadmap** – Live demonstration of TinyML on target hardware and learning roadmap.
-  **Q&A** – Clarify concepts and get expert guidance.



## HANDS-ON LABS — 16 HOURS

-  **Step-by-Step Lab Guides** – Structured labs with clear instructions and resources.
-  **Build • Train • Deploy • Optimize** – Complete the TinyML lifecycle through practical exercises.
-  **Work with Real Hardware & Sensors** – Gain hands-on experience with microcontroller boards and sensors.
-  **Capstone Project** – Build a complete TinyML application as a capstone.
-  **Assessment & Benchmarking** – Evaluate performance and benchmark your optimized models.



This 20-hour blended journey ensures you not only understand TinyML & Edge AI concepts but also apply them through extensive hands-on practice.



Bharat Institute  
for Skill Development



MEP STRA





# PROGRAM HIGHLIGHTS

A well-structured program designed to give you practical skills and hands-on experience in TinyML & Edge AI.



## HANDS-ON EXPERIENCE

Learn by doing with real hardware and practical exercises.



## END-TO-END PIPELINE

From data collection to deployment on edge devices.



## REAL-WORLD DATA & MODELS

Work with real sensor data and practical machine learning models.



## OPTIMIZATION FOCUSED

Optimize models for performance, memory and power.



## PROJECT-DRIVEN LEARNING

Build, test and deploy through a capstone project.



## CERTIFICATE OF COMPLETION

Receive a certificate upon successful completion.

# LEARNING OUTCOMES

By the end of this program, you will be able to:



Understand Edge AI architectures and TinyML workflow.



Collect and prepare real sensor data.



Train and optimize TinyML models.



Deploy models on microcontroller boards.



Measure performance and optimize for real-world use.



Build a complete TinyML application as a capstone project.

## TINYML & EDGE AI PIPELINE



### DATA COLLECTION

Gather real-world sensor data



### PREPROCESSING

Clean, label and prepare the data



### MODEL TRAINING

Train ML model for edge applications



### OPTIMIZATION

Optimize for size, speed and efficiency



### DEPLOY & INFER

Deploy on edge device and run inference

## APPLY EDGE INTELLIGENCE ACROSS INDUSTRIES



### SMART INDUSTRY

Predictive maintenance, quality inspection and process automation.



### HEALTHCARE

Remote patient monitoring, wearables and early anomaly detection.



### IoT & AUTOMATION

Smart devices, environmental monitoring and connected systems.



# WHO SHOULD ENROLL?

This program is ideal for learners and professionals who want to build practical skills in TinyML and Edge AI.



## STUDENTS

Electronics, Computer Science, AI/ML and related streams



## FACULTY

Educators and trainers looking to upgrade their skills



## ENGINEERS

Embedded, IoT, hardware and software engineers



## EMBEDDED & IoT PROFESSIONALS

Working with devices, sensors and real-time applications



## AI/ML ENTHUSIASTS

Anyone passionate about building intelligent edge applications

# COURSE SNAPSHOT



## 20 HOURS TOTAL

A complete learning journey combining expert-led sessions with extensive hands-on practice.



## 4 HOURS

### INSTRUCTOR-LED SESSION

In-Person / Virtual



## 16 HOURS

### HANDS-ON LABS

Self-Paced

## WHAT MAKES THIS PROGRAM UNIQUE?



Structured 4 + 16 hour blended model for better understanding and mastery.



Focus on real hardware, sensors and real-world Edge AI scenarios.



End-to-end learning from data to deployment on edge devices.



Project-driven approach for practical and industry-relevant learning.



Certificate of Completion upon successful completion.



**THINK BEYOND THE CLOUD.**  
**BUILD INTELLIGENCE AT THE EDGE.**



+91-9618660830

connect@bis-dev.com

www.bis-dev.com

Follow us on     



Bharat Institute  
for Skill Development



MEP STRA

