भारतीय प्रौद्योगिकी संस्थान जम्मू
INDIAN INSTITUTE OF TECHNOLOGY JAMMU
विद्याधनं सर्वधन प्रधानम्

INSTITUTE INCUBATION & INNOVATION COUNCIL
I3C - IIT JAMMU

BATCH 03

PG Certificate in AI-Enabled IoT & Embedded Systems

Transform your career at the intersection of AI, IoT, and Embedded Systems

6 Months | 100 Hours Live Interactive Online Session

TeamLease™ EDTECH
Making India Employable

Digivarsity®

From IIT Jammu

The Institute Incubation and Innovation Council (I3C) – IIT Jammu is honored to conduct the certification programs of IIT Jammu, offering a diverse range of industry-aligned courses that promote innovation, skill enhancement, and professional excellence.

We extend our best wishes to all participants for a fulfilling learning experience and continued success in their academic and professional endeavors.

I3C – IIT Jammu warmly welcomes you to the program and looks forward to your active participation.

With regards,
Institute Incubation and Innovation Council (I3C)
Indian Institute of Technology Jammu

ABOUT IIT Jammu

IIT Jammu is recognized as an "Institute of National Importance" under the "Institutes of Technology Act" of 1961. IIT Jammu is an autonomous public higher education institute that operates under the governance of the IIT Council and receives funding from the Government of India.

Inaugurated on 6th August 2016, IIT Jammu opened its doors to the first batch of students at its campus in Paloura, Jammu. During its initial phases, the institute benefited from the mentorship of IIT Delhi. In 2018, IIT Jammu shifted its primary operations to the Main Campus located in Jagti, Nagrota.

Situated on National Highway 44, the main campus of IIT Jammu is conveniently located approximately 15 kilometers from the airport, offering easy accessibility to students and faculty alike.

The Institute Incubation & Innovation Council (I3C) is IIT Jammu's Section-8 not-for-profit organization responsible for conducting the online certificate programs of IIT Jammu. I3C enables agile, industry-aligned programs that evolve with technology.

Program Overview

The PG Certificate in AI-Enabled IoT & Embedded Systems by IIT Jammu, offered through I3C–IIT Jammu in collaboration with TeamLease EdTech, is a 6-month intensive certificate program, now in its Third Cohort, designed for professionals and graduates aspiring to master the rapidly evolving fields of Internet of Things, Embedded Systems, and Artificial Intelligence. Delivered through live online sessions with an optional campus immersion, the program combines academic rigor with hands-on practical application.

Participants will gain comprehensive expertise in microcontrollers, IoT architecture, communication protocols, machine learning deployment on edge devices, and industry-standard tools and platforms. The program equips learners with future-ready technical capabilities to build intelligent, connected systems that power smart homes, industrial automation, healthcare wearables, and predictive maintenance solutions.

Who Is This Program For?

This program is tailored for professionals and graduates seeking to build expertise in IoT and Embedded Systems with AI integration:

- **Technology Professionals:** IT professionals, software engineers, and hardware engineers looking to deepen their expertise in IoT and AI
- **Engineers & Developers:** Engineers and software developers seeking a deep understanding of IoT and Embedded Systems
- **Entrepreneurs & Innovators:** Tech enthusiasts and engineers eager to master IoT and Embedded Systems for product development
- **Career Switchers:** Anyone curious about the intersection of IoT, AI, and data analytics

KEY PROGRAM DETAILS

Duration	6 Months
Live Sessions	100 Hours
Mode	Online + Campus Immersion
Program Fee	**₹70,000 + 18% GST** (Excluding Application & Kit Fees)
Schedule	Every Weekends
Campus Immersion	Optional 2-day in-person session at IIT Jammu
Academic Qualification	Graduate degree in BE, B.Tech, BCA, MCA, B.Sc, or M.Sc in Science
Work Experience	Minimum 1 year of work experience in any field

IIT Jammu EDGE

Institute of National Importance

Recognized under the Institutes of Technology Act, 1961, IIT Jammu stands among India's premier technical institutions.

Recognized for Innovation Excellence

Awarded by the Ministry of Education (Innovation Cell) for promoting innovative startups and strengthening a culture of applied research and entrepreneurship.

Proven Excellence at National and Global Platforms

IIT Jammu has demonstrated outstanding performance across competitive innovation and technology platforms:

NIRF RANKING

RANKED 56TH IN ENGINEERING CATEGORY UNDER THE NIRF 2025 RANKINGS.

RANKED #1

GLOBALLY IN THE CS GO AI CHALLENGE BY SKYBOX

RANKED #1

IN SMART INDIA HACKATHON (SIH) 2019 AND 2020

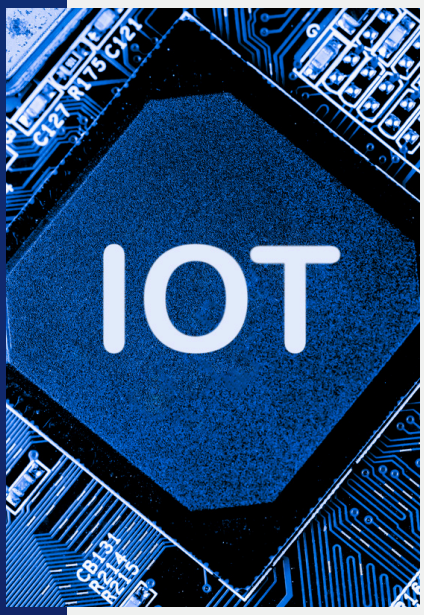
RANKED 7TH

IN THE INTER-IIT TECH MEET 9.0

Why Choose IIT Jammu?

PRESTIGIOUS CERTIFICATION

Earn a highly respected PG Certificate from IIT Jammu (through I3C–IIT Jammu) - an Institute of National Importance recognized for excellence in innovation and technology.



FUTURE-READY CURRICULUM

Participants develop advanced technical capabilities through a carefully structured curriculum covering embedded systems, IoT architecture, AI/ML essentials, edge computing—equipping them for real-world IoT and AI challenges.

IIT JAMMU FACULTY & INDUSTRY EXPERTS

Sessions are led by distinguished IIT Jammu faculty who bring a strong blend of academic excellence, research expertise, and practical industry insight to the classroom.

CAPSTONE PROJECT

The program concludes with a hands-on Capstone Project where participants apply their learning to build real-world IoT solutions such as smart home automation, health monitoring wearables, smart agriculture systems, or industrial IoT applications with anomaly detection.

HARDWARE KIT FOR PRACTICAL LEARNING

Equip yourself with a hardware kit that allows you to build, test, and prototype AI-enabled IoT solutions, turning your learning into hands-on, real-world experience

INDUSTRY-STANDARD TOOLS

Master essential tools like Arduino IDE, STM32Cube, PlatformIO, Node-RED and more enabling you to design and deploy AI-enabled IoT solutions confidently.

ON-CAMPUS IMMERSIONS

Participate in a 2-day optional on-campus immersion at IIT Jammu for hands-on learning and peer interaction.

(The immersion is available at an additional cost of INR 5,000 for 3 nights. Participants who attend will receive a separate Campus Immersion Certificate, while those who do not attend will receive the PG Certificate upon successful program completion.)

Program Modules

Module 1: Embedded Systems Basics

- Microcontrollers vs Microprocessors
- ARM architecture (e.g., STM32, Arduino, ESP32)
- Real-time Operating Systems (RTOS)
- C/C++ for Embedded Development

Module 2: IoT System Design

- IoT Architecture (Edge, Gateway, Cloud)
- Communication Protocols: MQTT, HTTP, LoRa, Zigbee, BLE
- Sensors & Actuators
- Networking and Security in IoT

Module 3: AI & Machine Learning Essentials

- Supervised, Unsupervised, and Reinforcement Learning
- ML model development using Python, scikit-learn, TensorFlow Lite
- Data collection and preprocessing for IoT

Module 4: AI on the Edge

- Deploying ML on microcontrollers (TinyML)
- Model Optimization (Quantization, Pruning)
- Use cases: Predictive maintenance, anomaly detection, smart vision

Module 5: Tools & Platforms

- Arduino IDE, STM32Cube, PlatformIO
- Node-RED for rapid prototyping
- TensorFlow Lite for Microcontrollers
- Google Cloud IoT / AWS IoT / Azure IoT Hub
- Git, Docker (optional), Jupyter Notebook

Capstone Project Ideas

- Smart Home Automation with Voice Recognition
- AI-enabled Health Monitoring Wearable
- Smart Agriculture System with Predictive Analysis
- Industrial IoT system with anomaly detection

Program Structure

100 Hours
Live Online Sessions

5 Program Modules
(including an optional two day on-campus immersion)

Case Studies
Multiple industry case studies integrated throughout the program

Hardware Kit
included for practical implementation

Pedagogy

The program follows a blended learning approach, combining multiple instructional methods to enhance learning outcomes:

Interactive Live Sessions

Engage with faculty and peers through discussions, Q&A, and case study analysis.

Self-Paced Learning

Access recorded lectures, readings, and practice exercises to reinforce key concepts.

Experiential Learning

Apply learning through projects, cases, and hands-on assignments across modules.

Collaborative Activities

Participate in group exercises, peer learning, and discussion forums to strengthen teamwork and practical understanding.

Assessment & Evaluation

Learners will be assessed through a mix of quizzes, assignments, case studies, and final examinations. This multi-faceted approach ensures continuous engagement, practical understanding, and a comprehensive grasp of the concepts.

Program Objectives

01	Provide learners with a structured academic grounding that integrates embedded systems, IoT architectures, edge computing, and AI-driven system design.
02	Anchor program modules around practical scenarios and use cases that reflect contemporary challenges in IoT and AI-enabled systems
03	Encourage learners to understand how hardware, software, connectivity, and intelligence work together in the design of end-to-end IoT ecosystems.
04	Position learners for continued professional growth and academic advancement in domains related to embedded systems, IoT, AI-enabled applications, and emerging technologies.
05	Structure the program to allow learners to explore concepts through projects, assignments, and hands-on activities embedded within each module.

Learning Outcomes

Build practical and advanced technical competencies

Develop deep expertise in Embedded Systems, IoT architecture, AI/ML, and edge computing. Learn to design, implement, and troubleshoot IoT systems while mastering real-time applications and hardware-software integration.

Apply AI and data-driven solutions to IoT challenges

Gain hands-on skills in machine learning, TinyML, and predictive analytics to deploy intelligent solutions on edge devices. Use AI models to optimize operations, detect anomalies, and create smart, connected systems.

Build Real-World AI-Enabled IoT Solutions

Apply your skills to capstone projects such as smart home automation, AI health wearables, smart agriculture systems, and industrial IoT solutions — turning theory into practical impact.

Work with Industry-Standard Tools & Platforms

Become proficient in Arduino IDE, STM32Cube, PlatformIO, Node-RED, TensorFlow Lite, and cloud IoT platforms (Google, AWS, Azure) to design, prototype, and deploy intelligent systems.

Prepare for Industry & Research Challenges

Gain skills that prepare you for high-impact roles in AI, IoT, embedded systems, smart devices, and emerging tech industries, as well as research-driven innovation.

Design end-to-end AI-enabled IoT solutions

Develop the ability to build complete IoT systems—from embedded devices and edge AI to secure cloud integration—creating scalable, real-world applications

Tools You'll Master

Tool to Be Used	Purpose	Rationale
Arduino IDE, STM32Cube, PlatformIO	Embedded Firmware Development	Widely used industry toolchains for microcontroller programming; enable low-level hardware control, peripheral configuration, and real-time embedded application development across Arduino and STM32 ecosystems
Node-RED	Rapid Prototyping & Workflow Orchestration	Low-code, flow-based development tool ideal for quickly building IoT pipelines, integrating sensors, APIs, and devices without heavy coding—accelerates proof-of-concept development
TensorFlow Lite for Microcontrollers	Edge AI & On-Device Inference	Optimized for deploying lightweight machine learning models on resource-constrained microcontrollers, enabling real-time inference without cloud dependency
Google Cloud IoT / AWS IoT / Azure IoT Hub	Cloud Connectivity & IoT Device Management	Provides exposure to leading IoT cloud platforms for secure device communication, data ingestion, monitoring, and scalability—focus on architecture and integration rather than deep cloud development
Git, Docker (Optional), Jupyter Notebook	Version Control, Environment Management & Experimentation	Git ensures collaborative development and code versioning; Docker introduces containerized workflows; Jupyter Notebook supports experimentation, documentation, and model evaluation in a reproducible manner

Program Fees

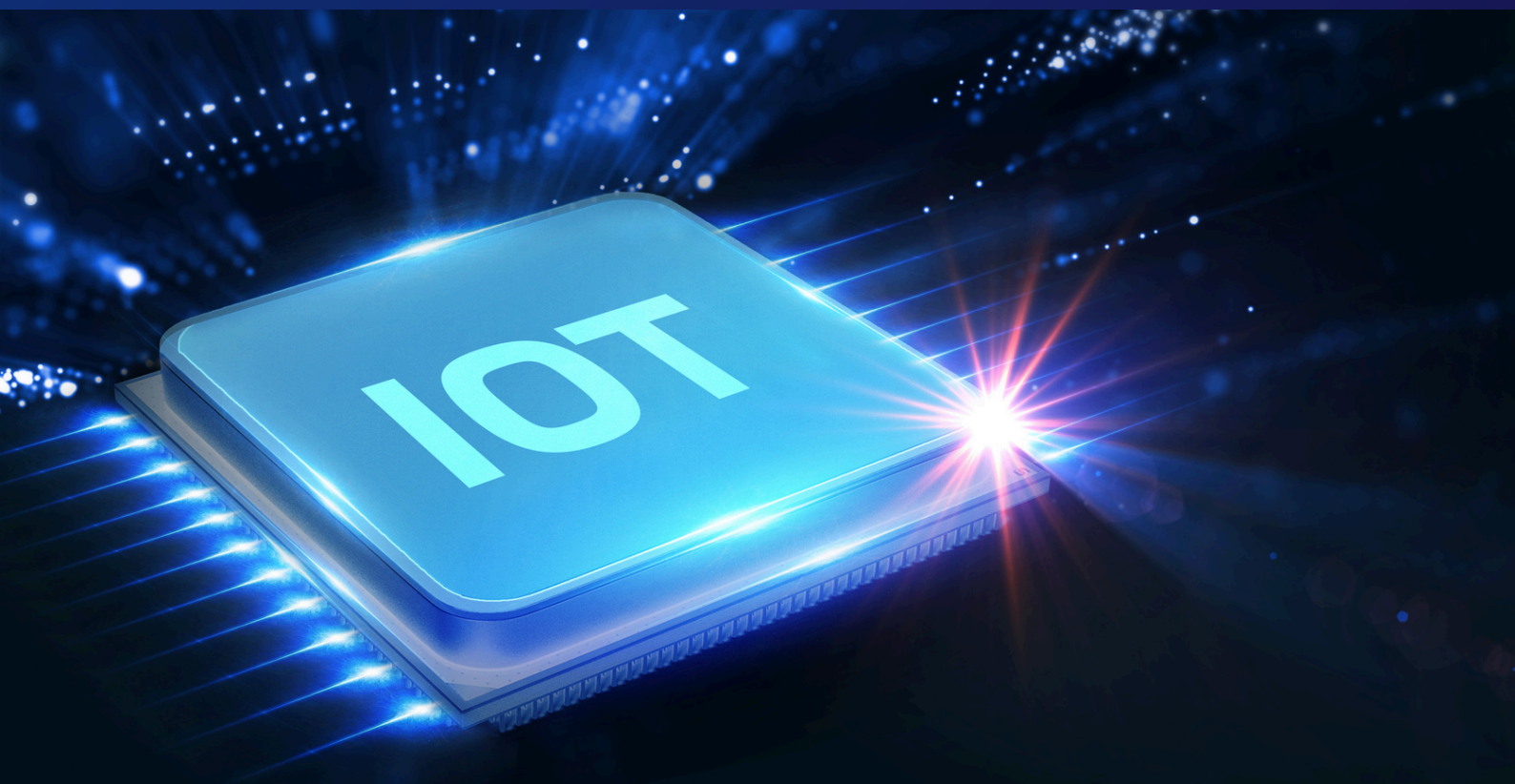
Particulars	Amount
Application fee	₹2000 + GST
Program fee	₹70000 + GST
Kit cost	₹12000 + GST
Total Fee	**₹84000 + GST**

NOTE

- The Application fees are strictly non-refundable and non-transferable
- Low Cost EMI options available
- The fee includes the campus immersion component. Participants are required to make their own travel arrangements, while accommodation, meals, and stay during the on-campus sessions will be provided by IIT Jammu.

Admission Process

1. Fill up an online application form, upload the required documents and submit application
2. Make the application payment
3. Shortlisting based on work and education profile
4. The Final Enrolment Letter shall be issued by I3C–IIT Jammu upon receipt of the full program fee.



Program Certificate

Certificate of Participation

EDTECH LOGO

CERTIFICATE
OF PARTICIPATION

THIS IS TO CERTIFY THAT

Name

has successfully completed the Certificate Program on Business Analyst-Cohort 1, from (Start Date) to (End Date) under supervision of **(Faculty Name), Department of (Name), Indian Institute of Technology Jammu**. We commend the participant's dedication, perseverance, and commitment to professional excellence and lifelong learning.

CERTIFICATE ID:

ISSUE DATE:

SAMPLE

CHIEF INNOVATION OFFICER
IIT JAMMU

CHIEF OPERATIONS OFFICER
I3C-IIT JAMMU

CHIEF EXECUTIVE OFFICER
EDTECH NAME

Certificate of Completion

EDTECH LOGO

CERTIFICATE
OF COMPLETION

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CHIEF OPERATIONS OFFICER
I3C-IIT JAMMU

CHIEF EXECUTIVE OFFICER
EDTECH NAME

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Get In Touch With Us

For registration and any other information, please get in touch with us at **admission.iitjammu@digivarsity.com**

Contact us: 9240222739

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