COURSE 2 MONTHS

TEACHING HOURS 50+ HOURS

CAPSTONE PROJECTS 30+ HOURS

AI POWERED IoT & 5G BUILDER

Career pathway Skilling program for Engineering Students

In Collaboration with

FOUNDATION FOR INNOVATION AND TECHNOLOGY TRANSFER

भारतीय प्रौद्योगिकी संस्थान दिल्ली

Indian Institute of Technology Delhi

# ABOUT COLLABORATION
IIT DELHI – FITT

Foundation for Innovation and Technology Transfer (FITT) at IIT Delhi has been the vanguard of knowledge transfer activities from academia since its inception in 1992. This techno-commercial organization from academia is counted amongst the successful such organizations. FITT provides superior program management services and is steadily increasing its operational landscape. The varied roles of FITT can be seen in enabling innovations and technopreneurship, business partnerships, technology development, consultancy, collaborative R&D, technology commercialization, development programs, corporate memberships etc. These roles are necessitated by the key agenda of the Foundation to showcase the Institute's "intellectual ware" to industry, and thereby unlock its knowledge base and inculcate industrial relevance in teaching and research at IIT Delhi.

IIT Delhi is India's eminent academic and research institution. It co-develops a range of training programs from College level to working professionals and also on emerging areas like Blockchain, AI/ML, IoT, AR/VR & Cybersecurity. The CoE in IIT Delhi has been set up to conduct deep research and product development in these areas, particularly for critical infrastructures like Waterways, Smart Cities, Railways and Energy.

WHY SKILLING IN **AI POWERED IOT**

IS THE NEED OF THE HOUR
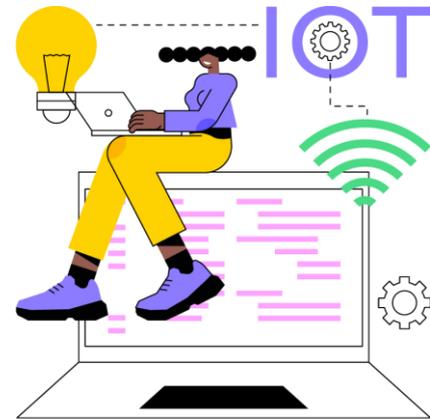
IoT connects everything, making everyday devices super smart. Mastering IoT unlocks job opportunities, enabling creations like smartwatches and aiding healthcare, agriculture, manufacturing, etc. Skills are needed everywhere, from healthcare to farming, addressing real-world issues. Learning in IoT never ends, offering futuristic innovations. With emergence of IoT, heterogeneous data is made available from multiple diverse end points which in today's world needs to be handled using latest AI techniques and algorithms.

To excel in AI powered IoT-related roles, mastering programming languages, understanding hardware components and networking protocols, and possessing data analytics and security skills are crucial. Acquire these skills through online courses, hands-on projects using development kits, participation in hackathons, and seeking internships or entry-level positions in AI and IoT-focused companies. Continuous learning, staying updated with industry trends, and practical experience are vital to thriving in IoT careers.

Jobs in AI powered IoT domain are booming and provide fantastic salaries. Indian companies are seeking skilled individuals now and in the future who can understand AI as well as IoT technologies. Our program aims to prepare students for industry-ready roles, equipping them for placements and the corporate world. Various companies in India like Cisco, Amazon, Wipro, L&T, SAP, Bosch, Qualcomm, IBM, GE, and Accenture offer diverse roles in IoT.

Cisco seeks IoT Solutions Architects and Customer Support Engineers, while Amazon hires IoT Systems Architects and Software Development Engineers. Companies like Wipro, L&T, SAP, Bosch, Qualcomm, IBM, GE, and Accenture also have openings in different IoT domains, including platform development, engineering, and solution architecture.

Individuals who undergo training and acquire skills in AI powered IoT can explore diverse career opportunities as shown in Figure.

New IoT job roles
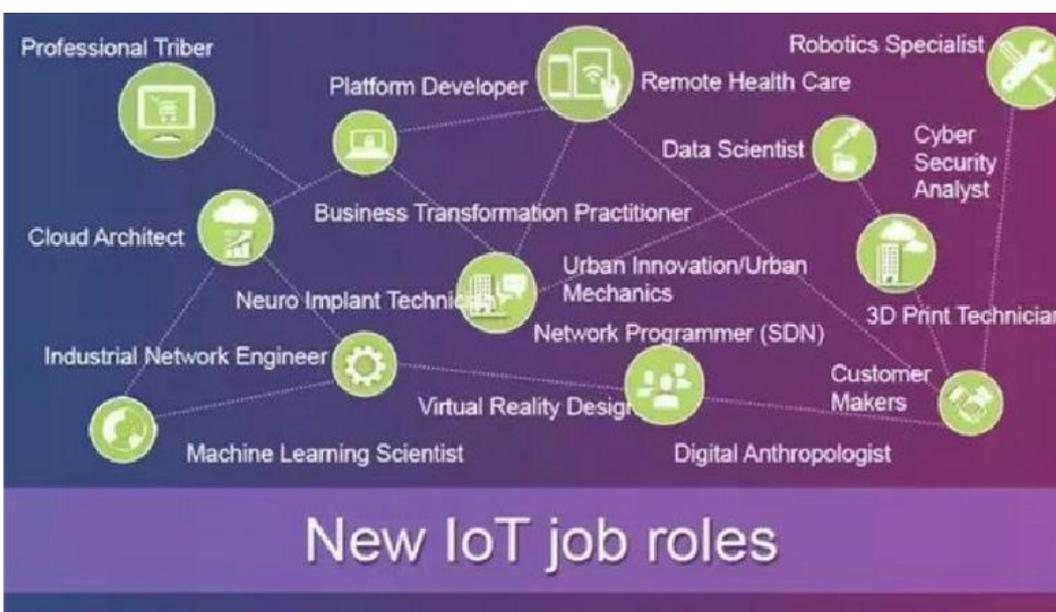
So, studying AI powered IoT is like learning the secret language of the future. It's all about making things smarter, cooler, and more connected.

Plus, it's also a ticket to a world of exciting and emerging job roles in technology where you can make the next big thing!

COURSE NAME - AI POWERED IOT FRAMEWORK AND UTILIZATION IN 5G ENVIRONMENT

In this course, students will learn the basic fundamentals of AI powered IoT, its integration with 5G, and how AI enabled IoT devices and sensors can be used in a 5G network environment.

COURSE OBJECTIVES:

- Provide a basic foundation in Machine Learning and AI.

- Incorporate IoT concepts, principles, and technologies.

- Explore seamless integration of AI enabled IoT with 5G networks, emphasizing the advantages of 5G, such as high data speeds, low latency, and massive device connectivity.

- Examine real-world AI enabled IoT applications across diverse domains, including smart cities, healthcare, agriculture, and industry, allowing students to appreciate the breadth of IoT's impact.

- Give a broad overview to students for design, implementation, and deployment of IoT solutions, including sensor selection, data management, and network connectivity.

- Understand the complexities of managing the vast amounts of data generated by AI enabled IoT devices within the context of 5G networks.

- Provide basic insights into AI enabled IoT applications tailored to specific industries, allowing students to identify opportunities and challenges in domains like healthcare, manufacturing, and agriculture.

PREREQUISITES

- High school diploma, equivalent.

- Basic understanding of mathematics and programming fundamentals.

- Familiarity with the basics of internet/networking is desirable.

- Familiarity with the basics of communication theory is desirable, but not mandatory.

- Familiarity with at least one programming language is beneficial but not mandatory.

- Access to a computer with internet connectivity for programming assignments and project work.

LEARNING OUTCOMES

- Upon completing this course, students should be able to:

- Understand the basic concepts and principles of AI and Machine Learning and is relevance in solutions involving Internet of Things (IoT), including device connectivity, data collection, and communication protocols.

- Explain how IoT seamlessly integrates with 5G networks, leveraging the high-speed, low-latency, and massive device connectivity features of 5G for enhanced IoT applications.

- Broadly evaluate a variety of practical Ai enabled IoT applications in different industries, including smart cities, agriculture, healthcare, and manufacturing.

- Understanding of AI enabled IoT design and implementation within a 5G environment.

- Recognize industry-specific AI enabled IoT use cases, identify opportunities, and navigate challenges in healthcare, manufacturing, agriculture, and other sectors.

- Promote ethical considerations in IoT data collection and usage, emphasizing privacy, responsible data handling, and ethical IoT practices.

- Develop a future-ready mindset, allowing students to adapt to evolving AI enabled IoT and 5G landscapes by staying informed about emerging technologies and standards.

MODULES	TOPICS COVERED
Module 1: Introduction to Machine Learning and AI and IoT	Basics of Machine Learning and AI
	Applications of AI and basic Supervised, Unsupervised and Reinforcement Learning Algorithms
	Historical Development of IoT , IoT Ecosystem and Key Components
Module 2: IoT Communication Protocols	IoT Communication Technologies (basics)
	MQTT, CoAP, and HTTP in IoT (basics)
	Intro to LPWAN Technologies (LoRa, Sigfox)
	Intro to IoT Device-to-Cloud Communication

MODULES	TOPICS COVERED
Module 3: 5G Fundamentals	Basic Overview of 5G Networks
	5G Architecture and Components
	Benefits of 5G in IoT Applications
Module 4: IoT Device Selection and Configuration	Types of IoT Devices (Sensors, Actuators)
	Basic overview of IoT Device Selection Criteria
	Short brief on IoT Device Configuration and Management
Module 5: Data Management in IoT	Data Collection and Aggregation – basic concepts with applicability in AI/ML domains
	Data Analytics and Edge Computing – intro and basic knowledge
	Data Security and Privacy in IoT – an overview
Module 6: Industry-specific IoT Applications	Intro to Smart Cities and Urban IoT with AI enabled systems
	Basics of AI enabled IoT in Healthcare , Agriculture, Manufacturing
Module 7: Capstone Project	AI enabled IoT Solution Design and Implementation Embedded Systems / Network Configurations /Data Analytics (on any one of the three)
	Project Presentation and Documentation

ENROLLMENT PROCESS

The FITT-IIT Delhi course is being provided to selected students free of cost by ODSA.

Eligibility: Current students as well as past pass-outs of Odisha engineering colleges and existing working professionals of Odisha. (Limited seats only)

Process: Kindly fill out the below form, pay registration fees - Rs.99/- (non-refundable) and submit the form and receipt to your college in charge

PLEASE FILL IN THE BELOW FORM

Name...

Institution Name..

Student ID...

Current Pursuing Course or Employment Details

....

Year.......................................   CGPA...

Phone.......................................   E-Mail..

Aadhar Number..

Fathers Name..

☐   AI powered IoT Builder

CERTIFICATE

OF COMPLETION

PROUDLY PRESENTED TO

Demo

IOT & 5G AND AI BUILDER

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SIGNATURE   SIGNATURE

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