Chief Patron(s):

- Dr. Pramod Chaudhari (Chairman - BoG COEP Tech University Pune)
- Mr. Vikas Rastogi, Principal Secretary, Department of Higher and Technical Education, Maharashtra, India.
- Dr. Vinod M Mohitkar, (Director, Technical Education Maharashtra).

Patron:

- Prof. S. D. Agashe, Vice Chanceller, COEP Tech Pune

Advisory Committee:

- Dr. Prashant Bartakke, Dean, School of Electrical and Communication Engg
- Dr. Vibha Vyas, HoD E & TC Department
- Industry experts from KPIT, Alpa ICT, Renishaw, Hella and Millenium semiconductors

Organizing Secretary:

- Dr R A Patiland Dr Ranjit Sadakale
- Mr. Ravi Chougule

Organizing Committee

Dr. S. P. Mahajan	Dr Vaishali Ingle
Mr. Ganesh Andurkar	Mrs Ashwini Andurkar
Dr S. P. Metkar.	Mrs. Yogita Kapse
Dr. V. N. More	Dr. Mrs. Y. V. Vaidya
Dr Mrs. Ashwini Kulkarni	Dr Pankaj Tasgaonkar
Dr Mrs. Deeplakshmi Niture	

About The University

COEP Tech University formerly known as College of Engineering, Pune (COEP), chartered in1854, is a nationally respected leader in technical education now become unitary technical university of Govt. of Maharashtra in 2022. The university has a rich history and dedication to the pursuit of excellence. COEP Technological university, Pune offers a unique learning experience across a spectrum of academic and social experiences.

Post autonomy the institute has demonstrably progressed in leaps and bounds, in terms of its academics, research, outreach, networking, and rankings. Known for its intense and persistent bondage with industry and galaxy of alumni, the campus, in recent years, has established technology specific schools/ Centers of Excellence and minimum two state-of-the-art laboratories at every academic department, all from magnanimous contributions of industry/corporate and alumni. COEP is ranked first at the national level in the Atal Ranking of Institutions on Innovation Achievements (ARIIA) 2020 under the category of Govt. / Govt. aided institutions and 50th amongst the top 100 engineering institutions across the country as per the results of NIRF. The hallmark of COEP education is its strong and widespread alumni network.

About E & TC Department

Department of Electronics and Telecommunication Engineering has a legacy of quality education since 1948. It is recognized by its well-established laboratories, excellent computational facilities, collaboration with industries and research organizations, devoted learned faculty, and a culture of strengthening knowledge and research. The Department of Electronics and Telecommunication Engineering has been running UG program since 1948 and PG programs in VLSI and ES, Digital System, Signal Processing and Wired and Wireless Communication and a PhD program. All programs run by the department have received NBA A++ accreditation. PG and research students working in research areas related to cutting edge technologies such as VLSI and Embedded Systems, Communication Networks, Computer vision and Pattern Recognition, Signal Coding and Communication, Multidimensional and Multimedia Signal processing and Optical devices. Moreover, the department is involved in a number of technical and co-curricular activities encouraging students to broaden their horizons of thought, innovate and implement their ideas. Also, it maintains a great rapport with industries and R&D organizations.

About the FDP

This FDP introduces recent advances and research problems in the area of Industrial IoT and Artificial Intelligence. The participants would obtain deep insights in the subject and in turn would be able to apply it for using/developing/researching IIOT and Artificial Intelligence algorithms. FDP focuses on Internet of Things (IoT), Machine Learning (ML), Artificial Intelligence (AI) and Data management. Statistics shown a huge amount of data will be grown and most of devices to be connected to the Internet by 2025. The solution is integration of three technologies, namely IoT, ML, and AI. ML algorithms eliminates optimization and estimation of process and allow to learn the patterns by itself and take autonomous decisions without new set of the rules and regulation.
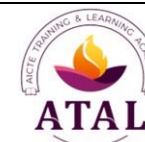
AICTE Training and Learning (ATAL) Academy
Sponsored One Week
Faculty Development Programme
on
Evolving Industrial Applications of IOT and AI
(Theoretical and Practical Approach)
8- 13th January 2024
Timing: 09:30 AM - 05:30 PM (offline)

Organized by
Dept of E & TC, COEP Tech University Pune
In association with
RENISHAW METROLOGY PVT LTD, PUNE

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ABOUT AICTE - ATAL ACADEMY

To empower faculty to achieve goals of Higher Education such as access, equity, and quality. To establish an AICTE Training and Learning (ATAL) cell in all the technical institutions, Universities, Deemed-to universities, and other institutions of technical learning. To build a database of trainers/experts, Video Repositories, Training materials, and training needs for technical institutions. To set up an Academy that will plan and help in imparting quality technical education in the country to support technical institutions in fostering research. innovation, and entrepreneurship through training.

Objectives ff the FDP

1. The major objective of this FDP is to train the faculties, researchers, and practitioners in recent developments of IIOT and AI
2. To introduce fundamentals of IoT in Industry and AI with its applications.
3. The program would help the participants to understand the key concepts and advanced understanding on IIoT and AI and asset utilization and optimizing.
4. The participants can identify optimized algorithms, technologies to develop any future applications.
5. Big Data, organizations can remotely monitor all strategic and tactical assets, and through Industry 4.0 and IoT
6. To explore various research opportunities and challenges in the field of IIoT and AI and its applications.

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Course Contents

➢ Introduction to description concept of Industrial IOT and AI. Scope of Smart Sensors for convergence of technology and multidisciplinary engineering practices and AI.

➢ Component of IOT – Sensor, Actuators, and Communication Protocols.

➢ IoT Protocols, Edge Devices, FOG Devices

➢ BIG Data Predictive Analysis and IOT security.

➢ Data analytics, Cloud services, IIoT Use cases& Recent Trends in IOT

➢ Industry 4.0/5.0 combines IIoT and smart manufacturing.

➢ Intelligent monitoring applications for production floor shops and machine health

➢ Case Studies of various Industrial Applications like smart factories, Health Care and Additive Manufacturing

Outcome of the Programme:

After completing the course, the participants will understand:

1. Effective usage of IIoT deployment for different sectors in commerce and industry
2. Developing and modifying code for various sensor-based applications using wireless sensor modules and working with variety of modules like environmental and security module.
3. It can be seamlessly integrated in existing processes to increase efficiency and output multifold and can also be used to create and design newer and better processes.
4. Exploring the features of predictive data analytics for IoT applications.
5. Modular hands-on training will enable participants to conduct IoT related activities in academic environment and initiate new projects in Industrial sectors.
6. Industry 4.0/5.0 combines IIoT and smart manufacturing. It fuses physical operations with digital technology, big data, and machine learning to set new benchmarks in manufacturing and supply chain management.
7. Participants will be encouraged to orient themselves to specific focused areas of their interest with hands-on training.

MODE OF CONDUCTION

In house (offline) for both theory and practical/labs/ experiential learning. Duration- Six days

REGISTRATION PROCESS

❖ One can register for the course (FDP) through AICTE Training & Learning (ATAL) Academy web portal only. □ https://atalacademy.aicteindia.org/signup

❖ There is no registration fee for the course/FDP.

❖ For certificate, attendance & passing of examination is mandatory.

✓ On completion of the program on all days, participants will be awarded a certification of participation by the respective ATAL academy, fulfilling all terms and conditions. For more details visit: https://www.aicteindia.org/atal

(Note: External Participant will get Rs.2,000 (Lumpsum) only those have attendance >= 90% and traveling beyond 20 KM one side)

Note: The Certificates shall be issued by AICTE Training and Learning (ATAL) academy to those participants who have attended he program with as per rules at the end of the FDP.

Who can attend?

Target Group: -
- Assistant Professors/Associate Professors/Ph.D. scholars/PG students /Industry
- Min/Max Limit- 30/50 participants. Nomination by a college /university principal/director for better accountability to attend the registered FDPs.

Why to attend?

✓ To know recent work/development on key issues in the area of Industrial Application of IoT and Artificial Intelligence & Machine Learning. To meet experts in the field and exchange experiences and practices.

Course Schedule Duration

8th – 13th January 2024
Timing: 09:30 AM - 05:30 PM (offline)

Important Dates

- Last date of Registration: 31st December 2023
- Intimation to Participants: 2nd January 2024

Resource Persons

The Faculty experts from COEP Tech University, invited experts from institutes of higher learning, industry Expert and Research organization those who are working in the field of Industrial IOT

DETAILED SESSION PLANNING- ATAL TECHNICAL FDPS : ATAL BASIC FDP- A Typical Flow: Offline (9.30 am -5.30 pm)

Day 1 (8 Jan 2024)	Day 2 (9 Jan 2024)	Day 3 (10 Jan 2024)	Day 4 (11 Jan 2024)	Day 5 (12 Jan 2024	Day 6 (13 Jan 2024)
9.30-12.00 **Session 1** Introduction to concept of Industrial IOT and AI	**9:30 – 12:00** **Session 3** IoT Protocols, Edge Devices, FOG Devices	**9:00 – 9:30** **Session 5** BIG Data Predictive Analysis and IOT securities	**9:00 – 9:30** **Session 7** Data analytics, Cloud services, IIoT Use cases& Recent Trends in IOT-Part 1	**9.30 -1.00 Industrial** **Visit to RainShaw Industry Hinjewadi**	**9:30 – 12.00** Role of NEP 2046 in IOT , Case Studies of various Industrial Applications like smart factories, Health Care and Additive Manufacturing
12.00 -1.00 **Article Discussion**	**12.00 -1.00** **Article Discussion**	**12.00 -1.00** **Article Discussion**	**12.00 -1.00** **Article Discussion**		**12:00 – 1:00** **Reflection Journal**
1.00-2.00 **Lunch**	**1.00-2.00** **Lunch**	**1.00-2.00** **Lunch**	**1.00-2.00** **Lunch**	**1.00-2.00** **Lunch**	**1.00-2.00** **Lunch**
2.00-4.30 **Session 2** Component of IOT – Sensor, Actuators, and Communication Protocols	**2.00-4.30** **Session 4** IoT Protocols, Edge Devices, FOG Devices	**2.00-4.30** **Session 6** BIG Data Predictive Analysis and IOT securities	**2.00-4.30** **Session 8** Data analytics, Cloud services, IIoT Use cases& Recent Trends in IOT-Part 2	**2.00-4.30** **Session 9** Case Studies of various Industrial Applications like smart factories, Health Care and Additive Manufacturing	**2.00-4.00** **MCQ, Feedback & Interactions**
4.30-5.30 **Practical sessions/Labs**	**4.30-5.30** **Practical sessions/Labs**	**4.30-5.30** **Practical sessions/Labs**	**4.30-5.30** **Practical sessions/Labs**	**4.30-5.30** **Practical sessions/Labs**	**4.00-5.00** **Valedictory Session**
Peripheral Hands On: 1. I2C, SPI, Modbus, Network Stacks overview, Keyboard Display interface 2. ModBusdemo 3. Wifi Demo 4. One Sensor Demo 5. End to End Demo	1. Motion Sensors (Accelometer, Gyro, magnotometer) 2. Threshold based G Force 3. Ball tracking 4. Compass application	To study interfacing of sensors with boards. 2. Example :- Temperature sensor, Displacement and Velocity transdcuers, Vibration and acceleration transducers	1. WiFi and socket Programming 2. Simple client/server module (With Harcules utility) 3. TCP/ UDP examples MQTT Handson 2. Adding Sensors	1. IoT Data visualization with ThingsWorks (Sensor+MQTT+ ThingsWorks cloud)	