

Online AICTE Training and Learning (ATAL) Faculty Development Programme (FDP) On

Trends in Measurement and Control for System Automation

28 June-02 July, 2021

Sponsored by
AICTE, New Delhi



Organized by
Department of Electrical & Electronics Engineering
Birla Institute of Technology, Mesra
Ranchi, India

About the Institute

Birla Institute of Technology, Mesra, Ranchi was founded in 1955 by the philanthropist-industrialist, the late Sri B. M. Birla. It was established by the Hindustan Charity Trust, Calcutta. It was granted Deemed University status in the year 1986 under u/s 3 of UGC Act, 1956.

The institute is located at the confluence of rivers Jumar and Swarnrekha, 16 kilometers away from the city of Ranchi in a peaceful and green environment. Ranchi, the capital of Jharkhand state, is connected to all major cities of India by road, rail and air. It is entirely residential spread over a large area providing accommodation for faculty and staffs with all basic facilities like hospital, bank, post office etc. and also facilities for sports, cultural and recreational activities.

About the Department

The Department of Electrical & Electronics Engineering is dedicated to the current needs of industry with the flexibility to tune its programmes according to different requirements. The Department is being supported from various funding agencies. It has recently received grants of about Rs. 2.7 Crore from UGC, DST, AICTE, CDAC, TEQIP etc. to strengthen the research facilities in various fields. The domain of Smart Grid, Energy Efficient Electrical Motor Drives, and Department of EEE has MoUs with University of Padova, Italy and with other Industries, Dept. of EEE. The Department currently runs three M. Tech programs with the specializations in (i) Power Electronics, (ii) Power Systems, (iii) Control Systems. Besides, a good number of research scholars are working towards the Ph.D. degree. The Department is well equipped with modern laboratories such as Power Electronics and Drives Lab., Machines Lab, Power System Lab., Smart Grid Lab., Control & Robotics Lab., Soft Computing Lab. and has computing facilities with latest softwares like Matlab, LabVIEW, PSIM, PowerSIM, dSPACE etc. for pursuing research in the emerging areas of Electrical Engineering.

About the FDP

The FDP is to develop the idea about the importance of measurement and control in automation of industries for various fields of engineering. This refers to the new phase of industrial revolution which includes the automation using conventional as well as modern techniques such as Machine to Machine (M2M) communication, Internet of Things (IoT) etc. without the need of human intervention. Some of the major areas are as follows:

- i. Devices and Instruments
- ii. Process Measurement and Control
- iii. Automation Systems for Control and Data Acquisition
- iv. Wireless Sensor Networks
- v. Access Control
- vi. Networked control systems
- vii. Measurement and control in complex and cyber physical system
- viii. Condition monitoring, Fault detection, diagnostics and prognostics
- ix. Smart energy systems
- x. Robust Adaptive Control And SCADA
- xi. Navigation, Guidance and Control
- xii. Biomedical Engineering Systems
- xiii. Wide Area Monitoring and Control
- xiv. Autonomous Underwater Vehicles

The topics of lectures of the FDP will not be limited to these areas.

Specific Objectives

- To impart knowledge about the role of measurement and control in the area of automation for industries.
- To convey information regarding measurement and control in order to integrate with industries.
- To provide hands-on practice on the related areas in Matlab, Labview etc.
- To acquaint the participants with the role of measurement and control in automation for industrial applications.

- To bring together all the national level experts to exchange research ideas in this field.

The measurement and control techniques play a very important role in automation relevant for Industry.

- (a) **Relevance:** The measurement and control plays a very important role in automation relevant for Industry.
- (b) **Benefits to Faculty:** The FDP may be beneficial to the UG/PG level faculty members belonging to various technical colleges/institutes.
- (c) **Expected Outcome:** The expected outcome of FDP is to spread awareness among the fraternity of technical education towards improvements in different areas of Industry especially in the field of measurement and control.
- (d) **No. and Level of participants:** The FDP may be useful to the faculty members belonging to various AICTE approved degree and diploma level technical colleges/institutes. The FDP may be attended by the UG/PG level faculty members, UG/PG students, research scholars, participants from Government and Industry. Maximum 50 participants (including faculty and students) can be accommodated in the FDP.

Speakers

Faculty from various recognized international level institutions like IITs, NITs, BIT, Mesra and other institutes of repute will deliver the lectures. The faculties are pioneer and experts in their respective fields of specialization.

Organizing Committee

Patron:

Prof. I. Manna, Vice Chancellor, BIT Mesra

Convenor:

Prof. S. Chakraborty, Dept of EEE, BIT Mesra.

Coordinator:

Prof. Vijaya Laxmi

Session wise Time Schedule:

Day 1:

- Importance of System Automation
- Modelling and Control of Actuators and Microactuators
- Machine Intelligence based Control: Theory and Applications

Day 2:

- Automation Systems for Control and Data Acquisition: A Steel Industry Overview
- Image based Non-invasive Dimension Measurement of Real World Objects
- Wireless Sensor Networks: An Overview

Day 3:

- Sensors for Wide Area Monitoring and Control of Power Network
- Measurement and Control in Steel Rolling Mill Automation Application
- Lab Session

Day 4:

- Synchro Phasor Based Wide Area Measurement and Control for Smart Grid
- Control of autonomous underwater vehicles
- Lab Session

Day 5:

- Nature Inspired Computing tools, Advanced Optimization Techniques and their applications
- Video Synopsis: An Intelligent Video Surveillance Framework for Smart Cities
- Valedictory/Feedback

Registration Fee

No Registration Fee will be charged from the participants from Academics, Industries and students.

Boarding and Lodging

Accommodation will not be needed as the FDP will be organized online.

Contact Details:

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Some important Notes

- No Registration Fee
- One can register for the course as per the specified process of AICTE Training and Learning (ATAL) Academy.
- E-certificates will be issued to the participant for 80% attendance and 60% score in test.
- On the last day of the program an Assessment test will be conducted for all Registered participants.

Registration Link

<https://atalacademy.aicte-india.org/login>

Important: The details of the course will be available in the link provided in <https://www.bitmesra.ac.in/>.