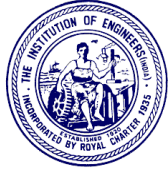# Engineering Staff College of India

Autonomous Organ of The Institution of Engineers (India)

Old Bombay Road, Gachi Bowli, Hyderabad – 500 032. TS, India

POWER & ENERGY DIVISION

Classroom Continuing Professional Development Programme on

Application of Analytics in Power Plants

29 - 31 May, 2024

at ESCI, Hyderabad

(An IMS Certified (ISO 9001:2015 QMS, ISO 14000:2015 Envtl. Mgmt., ISO 45001:2018 (OH&SM), ISO 50001:2018 EnM). AICTE & CEA Recognized Institution)

Centre for Promotion of Professional Excellence

INTRODUCTION

Most power plants have tremendous amounts of data stored in their historians, asset management systems, and/or control and monitoring systems. Plant operations and maintenance can be greatly improved by turning this data into actionable information, but this has proven to be easier said than done for many plant operators, due to a variety of issues.

Because of long operating lifetimes, power generation plants can lag in the adoption of modern data analytic and other solutions to improve operations and maintenance. Many facilities still have what they started with in terms of automation hardware and software systems, based on the refresh cycle of their main control system.

A good example is the data analytics software plants use to improve operations and maintenance through root cause analysis, asset optimization, report generation, and more. The default data analytics approach in most plants today is the spreadsheet, the go-to tool for process engineers in every industry, and now more than 30 years old. While it provides unquestionable flexibility and power, this general-purpose tool lags in the innovations that have been introduced in information technology (IT) departments, and even in consumers' lives.

In particular, one often sees frustration with older software solutions among younger employees who show up with a lifetime of computer experience, and wonder at the lack of innovation in the tools provided to them for data analytics. Spreadsheets and macros in a world of Google and Alexa just don't make sense to this audience.

To compound the issue, there is more data to work with, more demand to get insights from data, and more technology—creating a gap between the status quo spreadsheet and the potential for improvement. The data collection capabilities provided by process instrumentation, coupled with improved methods of networking and storage, have created an environment where companies accumulate vast amounts of time-series data from plant operations, labs, suppliers, and other sources. Together, these data sources contain potential insights into the operation and maintenance of virtually every major item of equipment and every important process in a typical power plant.

OBJECTIVE

There are new technologies and solutions that accelerate machine learning to enable faster insights for improved process and business outcomes. These solutions bridge the gap among innovations, organizational needs, and access to insights by leveraging technologies like machine learning and web-based deployment, while remaining accessible to process engineers and experts. The big data can be visually depicted by data analytics software such that engineers easily understand it. This enables an iterative and collaborative analysis of data by those in the best position to create information that can be used to improve plant operations and maintenance. The Plant manager can carry out Power Plant Asset Optimization activities based on a cost/benefit relationship.

COURSE COVERAGE

- Introduction to Analytics, BI, AI, ML and application in Power Plant.
- Introduction to basic Statistics & Probability Distributions related to Power plant.
- Application of various techniques in Power plant like
  - Hypothesis Testing- Z- test, T-test, One sample mean,
  - Hypothesis Testing of two sample means & application in Power plant
  - Testing Normality
  - Correlation & Application of it in Power Plant
  - Factor & Cluster Analysis & Application
  - Regression with Single Variable & Application, Multiple Regression
  - Introduction to Design of experiments
- Asset Management with Reliability Maintenance Techniques

METHODOLOGY

The programme will be conducted in an interactive environment providing greater scope for discussions. **Hands on experience on some techniques with case studies will be dealt.** Emphasis will be on a highly participative style of learning. The classrooms are provided with latest audio – visual teaching aids. The ambience in the campus and classrooms facilitate in effective learning by participants.

FACULTY

Apart from Core Internal Faculty, Domain Experts from various Power Utilities.shall share their experience, besides, eminent engineers and specialists from manufacturing industries, R&D institutes, Consulting Firms and Academia.

TARGET PARTICIPANTS

Senior officers of Power Utilities / Corporations / State Govt. Organisations, Power Distribution Companies / Academic Institutions, Construction Companies etc.

PROGRAMME VENUE, DATES & TIMINGS

Engineering Staff College of India (ESCI) Campus, Old Bombay Road, Gachi Bowli, Hyderabad - 500032, Telangana, India.

DATES

29 – 31 May, 2024

TIMINGS

On the first day registration will commence at 0900 Hrs. On all other days the programme timings will be from 0945 to 1715 hrs with breaks in between for tea and lunch.

ACCOMMODATION

Participants will be accommodated in our Executive Hostel located within ESCI Campus. The accommodation will be on twin sharing basis.

COURSE DIRECTOR

Dr. V. Vidyasagar
Sr. Faculty - Power & Energy Division, ESCI
(Mob: +91 9421801203)

COURSE FEE

Residential Fee is Rs.16,500/- per participant. Residential fee includes Course Material, Course Kit, and Twin-sharing / Single AC accommodation as per availability, Breakfast, Lunch, Dinner, Tea / Coffee and Snacks.

DISCOUNTS
Non-Residential Fee: 10% discount on course fee is allowed for non-residential participants.

Group Discount: 10% discount for three or more participants if sponsored by the same organization.
(All discounts are applicable only if fee is received at ESCI a week before the commencement of the programme)

GST @18% (as applicable) is to be paid extra over and above the training fee. **GST No. 36AAATT3439Q1ZV, PAN Card No. AAATT3439Q.**

The course fee is to be paid in favour of **"IE (I) – ENGINEERING STAFF COLLEGE OF INDIA"** in the form of demand draft payable at Hyderabad.

Alternatively the payment may be made by **Electronic Fund Transfer (EFT) to ESCI – Current A/c No. 33705165550** with The SBI, Manikonda Branch, Gachi Bowli, Hyderabad – 500 032 by **NEFT / RTGS / IFSC Code No: SBIN0011076 – MICR No: 500002107.** While using EFT method of payment, please ensure to communicate us your company name, ESCI invoice reference and programme title.

Online registration is available on ESCI website. To register, manually please send your nominations (**10 days** prior to date of commencement of the programme) giving details of name, designation, contact address, email address, mobile number, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to:

Head, Power & Energy Division
Engineering Staff College of India
Gachi Bowli, Hyderabad – 500 032
Phone: 040–6630 4170 to 4176 ; 040-6630 4173 / 4176, Fax: 040 – 23000336, 66304103
Email:pe.esci@gmail.com / pe@escihyd.org; Website: www.escihyd.org

CERTIFICATE: A certificate of participation will be awarded to each participant on conclusion of the programme.

GENERAL INSTRUCTIONS
- ESCI encourages participants to present case studies from their respective organizations.
- For the convenience of the outstation, participants ESCI will facilitate pickup and drop from Airport / Railway Station / Bus Stations, if travel plans are received at least 3 days in advance along with mobile number by fax or email. The participants shall pay the charges directly to the cab driver.
- ESCI provides complimentary accommodation to participants a day prior to the commencement and after the conclusion of the programme. (Check in at 12:00 hrs a day prior to the commencement & check out at 12:00 hrs a day after completion of the programme)
- Overstay charges of @ Rs.990/- per day / per head, (Food will be charged extra).
- Well developed Information Centre and Internet facilities are available to the participants free of cost.