TRAINING PROGRAM ON

MCSA for Induction Motor Diagnosis & VFD

ABOUT ARRELIC TRAINING INSTITUTE

Arrelic Institute is focused to equip both industry professionals and college graduates with the skills and knowledge required for bridging the desire stare of workforce which industry needs to compete globally.

Arrelic Institute provides over 75 different type of customized training programs in the field of Reliability Engineering, Asset Management, Best Practice, Operation & Maintenance, Predictive Maintenance, NDT, Predictive Analytics, Quality, Risk & Safety.

Arrelic Institute conducts public trainings and workshops in 38 locations across India and 10+ International locations. We are working for large corporate house from 15 different types of industries ranging from Airlines, Automobiles, Cement, Defence Manufacturing, FMCG, Glass, Marine, Metals, Mining, Oil & Gas, Power, Pulp & Paper, Facility Management and Fertilizer.

ARRELIC INSTITUTE: AT A GLANCE

50+ E-Learning Training Modules

40+ Global Experts

06 Industry Specific Domain

15 Types of Industries

5+ Associations

02 University Program

38 locations in India

15 Global Locations

75 Training Modules

www.arrelic.com/offerings/training-and-development

ARRELIC AWARDS & RECOGNITIONS

NASSCOM

TOP5

Won the Top 5 Startups in eastern India in Thieve 30 by NASSCOM

GLOBAL ENTREPRENEURSHIP SUMMIT INDIA 2017

Selected for GES – 2017, Hyderabad and showcased among top 100 Start-ups from India.

SMART FIFTY
50 Solutions to Transform India

TOP50

Emerged as one of the top 40 startups in #Smartfifty' – a search for solutions to transform India

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PULSE THE VENTURE
INSPIRING INNOVATION

Top 24 Start-ups selected over 1850 startups across India By CNBC.

NASSCOM PRODUCT CONCLAVE

Selected for NPC – Bangalore and NPC – Kolkata for Product showcase.

TIECON DELHI-NCR

Product showcased in TIECON – 2017 and selected through Govt. Of Odisha.

#startupindia

Startup India Recognize

Startup Odisha

STARTUP ODISHA recognised.

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birac
Ignite Innovate Incubate

BIRAC finalist in SPARCH - 2017

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web summit
LISBON, NOVEMBER 6-9, 2017

Selected for Web summit - Lisbon

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hello tomorrow

Selected for Hello tomorrow, Paris Summit.

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100 open startups

Selected and presented in 1000 open startups.

ABOUT THE TRAINING COURSE
Introduction to MCSA for Induction Motor Diagnosis & VFD

The Machinery Fault Simulator (MFS) is our most popular model, having a larger baseplate and a more powerful motor. Compared to the MFS-Lite, it adds capabilities to study machinery defects found in gearboxes, belt drives, reciprocating mechanisms, induction motors, pumps, and compressors.

Hands-on activities will be led on the Machinery Fault Simulator (MFS) to show run of the typical motor fault and to inspect the issues encompassing vibration analysis versus motor current signature analysis. Average machine fault will incorporate unbalanced rotor, bowed rotor, broken rotor bars, shorted turns over low voltage stator windings, air gap eccentricity, and bearing imperfections under different loading conditions. The direction is performed in a classroom setting with workstations organized for conducting controlled activities. Every workstation comprises of a MFS with an assortment of fault kits, a 8-channel information securing framework with a PC, programming for simulating signal processing concepts, preparing and data analysis software, completely wired sensors, and fundamental frill, for example, tachometer, strobe, and so on. Each of the PCs are arranged for open exchange of data and enhanced discussion. Copied shortcomings from case histories will be incorporated.

Machinery Fault Simulator (MFS) is an innovative tool to study the signatures of common machinery faults without compromising production schedule or profits. The bench-top system has a spacious modular design featuring versatility, operational simplicity, and robustness. Each component is machined to high tolerances so it can be operated without conflicting vibration. Then, various faults can be introduced either individually or jointly in a totally controlled environment, making the MFS the best tool available for learning machinery diagnosis.

LEARNING OBJECTIVES &
KEY BENEFITS OF ATTENDING THE WORKSHOP

By attending this technical training on **"MCSA for Induction Motor Diagnosis & VFD"** delegates will be able learn and deliver the following things.

- ✓ **The fabrications and electrodynamics of induction motors.**
- ✓ **Characteristics of high quality motors.**
- ✓ **Real time analysis and understanding Motor Current Signature Analysis.**
- ✓ **The delineation and working of variable frequency drives**
- ✓ **Increased credence in fault detection**

WHO SHOULD ATTEND ?

Predictive Maintenance attempts to detect the onset of a degradation mechanism with an aim of correcting the degradation prior to significant deterioration in the component or equipment. People in the following roles should participate in this training:
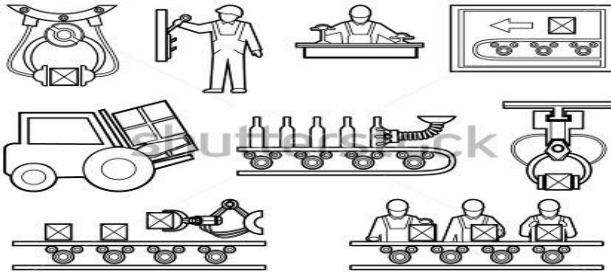
- ✓ Managers, safety and reliability engineers, consultants, maintenance personnel, motor manufacturers, university professors and motor repair shop personnel can be a part of this course.

INDUSTRIES THAT CONCERN ABOUT

LOW PRODUCTIVITY

Conventional use of time-based approach for maintenance does not take into consideration the way assets are being utilized, their current condition and real world operating conditions.

HIGH DOWNTIME

Failure to curb unplanned downtime and lack of control over value chain processes lead to high costs, inefficiencies and poor compliance. These severely impacts the profit and industrial growth.

INADEQUATE ASSESS CONTROL

Industries lack the ability to interpret assets data and because of unavailability of proper predictive methods they are unable to predict equipment failures which leads to unplanned downtime.

HIGH MAINTENANCE COST

Increased competition, pressure to grow revenue & profit, tighter regulations, scarcity of raw material, fluctuation demand and obsolete technologies have impacted the way industries are being operated.

COURSE OUTLINE

DAY – 1

DETECTION OF MECHANICAL PROBLEMS WITH HELP OF MCSA

- ✓ Asset management, RBM, CBM, and condition monitoring for electrical drive systems
- ✓ MCSA instrumentation

INTERLINK BETWEEN CURRENT AND VIBRATION MONITORING TO DETECT THE ROOT CAUSE (RCA) OF PROBLEMS.

- ✓ Causes and effects of: broken rotor bars, abnormal airgap eccentricity, shorted turns in stator windings, shaft/coupling misalignment, stator core vibration characteristics and problems

- ✓ CONDITION MONITORING FOR ELECTRICAL DRIVE SYSTEMS
- ✓ Reliable interpretation of current spectra
- ✓ Effect of motor design, load, and drive train
- ✓ Prediction of fault severity: reliability and limitations

DAY – 2

RELIABLE CLARIFICATION ABOUT CURRENT SPECTRA.

- ✓ MCSA products: operation, strengths, and limitations
- ✓ Diagnosis of mechanical problems via MCSA

EFFECT OF MOTOR DESIGN, LOAD, AND DRIVE TRAIN

- ✓ Fundamentals on current signature analysis
- ✓ Enhancing overall product quality through suitable materials
- ✓ Advance the lubrication knowledge and expertise of your reliability team

MOTOR CURRENT SIGNATURE ANALYSIS PRODUCTS: LIMITATIONS, OPERATION AND STRENGTHS

- ✓ Current signature patterns as a result of defects
- ✓ Electrodynamics and construction of induction motors
- ✓ features of high quality motors

PROGRAM SCHEDULE

Time	Session	Time	Session
09:00 -10:30	Morning Session 1	13:30 -15:00	Afternoon Session 1
10:30 -11:00	Refreshments & Networking Break	15:00 -15:30	Refreshments & Networking Break
11:00 -12:30	Morning Session 2	15:30 -17:00	Afternoon Session 2
12:30 -13:30	Lunch	17:00 -17:30	Day review & Q/A