



**TRAINING PROGRAM ON  
RELIABILITY  
CENTERED  
MAINTENANCE  
(RCM) - Advance**

# 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 state 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



[www.arrelic.com/offerings/training-and-development](http://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



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



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



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

**#startupindia**

Startup India Recognize



STARTUP ODISHA recognised.



**birac**  
Ignite Innovate Incubate

BIRAC finalist in SPARCH - 2017

**web summit**

LISBON, NOVEMBER 6-9, 2017

Selected for Web summit - Lisbon



**hello tomorrow**

Selected for Hello tomorrow, Paris Summit.



Selected and presented in 1000 open startups.

# ABOUT THE TRAINING COURSE

## RELIABILITY BASED MAINTENANCE (RCM) - Advance

RCM is the second generation of the maintenance technique that was developed and applied over the past thirty years in the most demanding maintenance arena -- civil aviation. The development of RCM while aviation shifted from the DC 8 to the DC 10, a far more complex aircraft, allowed items subject to overhaul to drop from 339 to 7, while reliability and safety increased 240 %. Its numerous applications over the past three decades in all major industries prove it to be the most advanced and effective maintenance management method.

With the rapid improvement of equipment technologies, varieties and the number of physical assets, higher expectations of the management for increased asset utilization combined with several internal and external challenges, Plant maintenance as a niche discipline has evolved with great expertise in the past twenty years.

In this operating scenario, the demands placed on the maintenance team has also increases manifold times for ensuring smooth functioning of the Equipment/ Machineries. Newer techniques, tools and methodologies need to be integrated along with the daily maintenance practices.

Reliability Centered Maintenance (RCM) is a corporate-level maintenance strategy that is implemented to optimize the maintenance program of a company or facility. The final result of an RCM program is the implementation of a specific maintenance strategy on each of the assets of the facility. The maintenance strategies are optimized so that the productivity of the plant is maintained using cost-effective maintenance techniques.



# LEARNING OBJECTIVES & KEY BENEFITS OF ATTENDING THE WORKSHOP

By attending this technical training on “Reliability Centered Maintenance (RCM) - Advance” delegates will be able learn and deliver the following things.

- ✓ Deliver the higher maintenance performance that a management of any company want.
- ✓ It identify a clear approach to reliability improvement for both fixed plant and moving equipment.
- ✓ Auditing the operational and maintenance performance for improvement opportunities
- ✓ Deeper understanding of the theory, processes, and procedures needed to supervise, implement and perform RCM analysis.
- ✓ The ability to generate consensus about highly technical problems and their solutions
- ✓ Topics and knowledge for the more advanced RCM analyst with experience.
- ✓ Examination of RCM Case studies to address implementation and integration issues.
- ✓ An understanding of RCM's role within asset management.
- ✓ Increase your knowledge to plan, design and development of RCM analyses, workshops, plans and programmes.
- ✓ Practical Application of RCM Facilitation.
- ✓ Prepare for a risk-based RCM analysis.
- ✓ Turn RCM into a living RCM- to prevent the RCM analysis from becoming obsolete.
- ✓ Optimize performance using effective planning, scheduling and control.

## WHO SHOULD ATTEND ?

Successful reliability centered maintenance programs require the disciplined application of proven processes and interdepartmental partnerships. It is important for departments that are influenced and impacted by the processes to understand the processes. People in the following roles should participate in this training:

- ✓ Quality Managers
- ✓ Quality Engineers
- ✓ Lean practitioners
- ✓ Business Process Owners
- ✓ Process Improvement Managers
- ✓ System Implementers
- ✓ Management representatives
- ✓ System Coordinators
- ✓ Maintenance analysts
- ✓ Maintenance superintendents





# 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

### RCM PROCESS FLOW

- ✓ Introduction
- ✓ Approach
- ✓ Methodology for how to describe the RCM process flow

### DIFFERENCES IN RCM APPROACH

- ✓ Operate to failure (OTF) approach
- ✓ Time-based maintenance (TBM) approach
- ✓ Condition-based maintenance (CBM) approach
- ✓ Fault-finding maintenance (FFM) approach

### IMPORTANCE OF DATA STRUCTURE AND CONTENT BEFORE YOU DO ANY KIND OF STRATEGY WORK

### REVIEW & Q/A

## DAY - 2

### IMPORTANCE OF IDENTIFYING AND CATEGORIZING ASSETS

- ✓ Introduction
- ✓ Approach
- ✓ Methodology to recognize and categorize assets

### CRITICALITY APPROACH

- ✓ Probability of Failure
- ✓ Consequences of Failure
- ✓ Pareto Analysis
- ✓ Quantitative Approach of Criticality Analysis

### FMECA APPROACH

- ✓ Defining Functions
- ✓ Functions of an asset
- ✓ Defining Failure modes
- ✓ Effects of failure modes
- ✓ Examples of FMECA Approach

### REVIEW & Q/A

## DAY - 3

### DEVELOP AN RCM ANALYSIS

- ✓ Introduction
- ✓ Methodology
- ✓ Examples

### IMPLICATIONS OF MAKING A STRATEGY WORK

- ✓ How RCM is tied to strategic planning and decision planning

### CONDUCTING A TASK COMPARISON

### POST ASSESSMENT

## PROGRAM SCHEDULE

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