

**CHARTERED**   
INSTITUTE OF PROFESSIONAL CERTIFICATIONS

# CERTIFIED RELIABILITY- CENTERED MAINTENANCE LEADER™

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## CRCM™

**Fully Accredited  
By:**

Chartered Institute of  
Professional Certifications

CPD  
Certification Service



# PROGRAM OVERVIEW



Unplanned downtime can cost industrial organizations up to 20% of annual productive capacity, yet studies show that nearly **70% of equipment failures are preventable with effective Reliability-Centered Maintenance (RCM) strategies**. Organizations that implement structured RCM and predictive maintenance programs report up to **45% fewer breakdowns and 30% lower maintenance costs, while improving Overall Equipment Effectiveness (OEE)**.

This certified program is designed to equip maintenance leaders with the expertise to design and lead high-impact Reliability-Centered Maintenance (RCM) strategies. You will develop strong capabilities in **asset criticality analysis, Failure Mode and Effects Analysis (FMEA), and condition-based and predictive maintenance approaches**. Through practical frameworks and applied learning, you will learn how to build maintenance strategies that increase equipment uptime, improve operational performance, and reduce reliability risks.

In addition, this program will examine advanced reliability and asset management techniques such as **condition-based and predictive maintenance integration, maintenance optimization, lifecycle cost analysis, and the prevention of maintenance-induced failures**. You will gain practical insight into managing safety-critical and environmentally critical assets, prioritizing resources based on risk and consequence, and embedding RCM within broader asset management and continuous improvement frameworks. By the end of the program, you will be equipped to assume high-level maintenance leadership responsibilities, driving reliability improvement and fostering operational excellence with confidence and precision.

Upon successfully completing the program and passing the Chartered exam, you will earn the **Certified Reliability-Centered Maintenance Leader (CRCM™)** designation, demonstrating your expertise in leading structured, risk-based, and reliability-focused maintenance strategies. This globally recognized credential will position you as a trusted leader capable of **implementing world class maintenance strategy** and may also open up new career advancement opportunities and enhance your overall credibility and reputation within the industry.

## ACCREDITATIONS



4.8



4.6



# KEY SKILLS YOU WILL GAIN

## From This Program



**RELIABILITY CENTERED MAINTENANCE FRAMEWORKS  
MAINTENANCE STRATEGY DEVELOPMENT  
ASSET CRITICALITY AND RISK PRIORITIZATION  
MAINTENANCE PLANNING AND SCHEDULING  
OPTIMIZATION**

**RELIABILITY KPIS AND PERFORMANCE DASHBOARDS  
FAILURE MODE AND EFFECTS ANALYSIS (FMEA)  
CONDITION BASED MAINTENANCE TECHNIQUES  
PREDICTIVE MAINTENANCE APPLICATIONS**

**5 WHYS AND ISHIKAWA  
MAINTENANCE DATA ANALYTICS AND TREND  
ANALYSIS  
OVERALL EQUIPMENT EFFECTIVENESS OPTIMIZATION**

**TOTAL COST OF OWNERSHIP MANAGEMENT  
RELIABILITY METRICS  
RELIABILITY BENCHMARKING  
RAM (RELIABILITY AVAILABILITY MAINTAINABILITY)  
ANALYSIS**

**AI AND PRESCRIPTIVE MAINTENANCE INTEGRATION  
DIGITAL TWINS AND SMART MAINTENANCE  
TECHNOLOGIES**

# YOUR FACULTY DIRECTOR



## Eduardo Schumann

### Global Authority in Operational Excellence & Predictive Maintenance

Eduardo Schumann is a distinguished global operations leader with over 35 years of professional expertise and more than 25 years in executive leadership roles across industries including mining, food & beverage, chemicals, pharmaceuticals, auto parts, consumer goods, pulp & paper, and energy.

Having worked in 31 countries and spearheaded transformational initiatives in predictive maintenance and process optimization, Eduardo is widely recognized as a **thought leader in world-class maintenance and manufacturing optimization**. He is the **author of the World-Class Maintenance Playbook** and a sought-after lecturer and presenter. Eduardo is renowned for his ability to **design and implement advanced predictive maintenance frameworks, integrate AI and Industry 4.0 systems**, and apply data-driven strategies to reduce downtime, optimize costs, and maximize asset performance.

Throughout his career, Eduardo has consistently built and led high-performing, cross-functional teams that deliver measurable and sustainable improvements in global operations. His expertise lies in combining advanced technologies such as IoT, digital twins, and machine learning with proven management methodologies to help organizations **achieve world-class reliability, maintenance efficiency, and long-term competitive advantage**.

# OUR PARTICIPANTS

Over 70% of FORTUNE 500 Companies Have Attended Our Accredited Programs Before



Goldman Sachs



SAMSUNG



ExxonMobil



BURBERRY



Citi



IKEA



VOLVO



HYUNDAI



Pfizer

Life is our life's work



Nestlé

# PROGRAM AGENDA



## MODULE 1: PRINCIPLES OF MAINTENANCE AND RELIABILITY

- Overview: Principles of Maintenance and Reliability
- Lesson 1: The Paradox of Preventive Maintenance
- Lesson 2: Principles of Maintenance & Reliability
- Lesson 3: Moving Beyond PM – The RCM Approach
- Lesson 4: Some Acronyms

## MODULE 2: PLANNING & CRITICALITY

- Overview: Planning & Criticality
- Lesson 1: Critical Assets and Bottlenecks
- Lesson 2: Criticality Ranking
- Lesson 3: Single Minute Exchange of Dies (SMED)
- Lesson 4: Improving Preventive Maintenance
- Lesson 5: Maintenance Planning and Scheduling

## MODULE 3: RELIABILITY CENTERED MAINTENANCE (RCM)

- Overview: Reliability Centered Maintenance (RCM)

- Lesson 1: Failure Mode and Effect Analysis (FMEA)
- Lesson 2: Maintenance Strategies for Different Assets
- Lesson 3: Reliability Metrics and KPIs
- Lesson 4: Continuous Improvement Goals

## MODULE 4: CONDITION-BASED MAINTENANCE (CBM) AND PREDICTIVE MAINTENANCE (PDM)

- Overview: Condition-Based Maintenance (CBM) And Predictive Maintenance (PdM)
- Lesson 1: CBM x PdM
- Lesson 2: Optimizing Preventive Maintenance (PM) Using CBM and PdM
- Lesson 3: Optimizing Planning & Scheduling

## MODULE 5: PREDICTIVE TECHNOLOGIES

- Overview: Predictive Technologies
- Lesson 1: NASA's Predictive Table
- Lesson 2: Vibration
- Lesson 3: Ultrasound
- Lesson 4: Thermography
- Lesson 5: Oil Analysis
- Lesson 6: Tribology
- Lesson 7: Voltage, Current, and Resistance

# PROGRAM AGENDA



- Lesson 8: Impedance Imbalance, and Magnetic Symmetry
- Lesson 9: Insulation Integrity
- Lesson 10: Cavitation
- Lesson 11: High-Speed Cameras

## **MODULE 6: ROOT CAUSE ANALYSIS (RCA) AND CONTINUOUS IMPROVEMENT**

- Overview: Root Cause Analysis (RCA) and Continuous Improvement
- Lesson 1: Root Cause Analysis (RCA)
- Lesson 2: 5 Whys
- Lesson 3: Ishikawa
- Lesson 4: Paretos
- Lesson 5: Fault Elimination
- Lesson 6: Continuous Improvement

## **MODULE 7: DATA ANALYSIS AND TRENDS**

- Overview: Data Analysis and Trends
- Lesson 1: Data Collection and Preparation
- Lesson 2: More Detailed Equipment History
- Lesson 3: Data Cleaning and Organization
- Lesson 4: Analysing Data and Patterns
- Lesson 5: Anomalies and False Alarms
- Lesson 6: Statistical Analysis

- Lesson 7: Machine Learning Algorithms
- Lesson 8: The Need for Good Data

## **MODULE 8: ARTIFICIAL INTELLIGENCE AND PRESCRIPTIVE MAINTENANCE**

- Overview: Artificial Intelligence and Prescriptive Maintenance
- Lesson 1: Using Machine Learning
- Lesson 2: Generative AI
- Lesson 3: Prescriptive Maintenance
- Lesson 4: Digital Twins

## **MODULE 9: OPTIMIZING COSTS THE RIGHT WAY**

- Overview: Optimizing Costs the Right Way
- Lesson 1: Asset Lifecycle Management
- Lesson 2: Total Cost of Ownership
- Lesson 3: Maintainability and Reliability
- Lesson 4: Reliability and Costs
- Lesson 5: Alternative Spare Parts

## **MODULE 10: PUTTING ALL TOGETHER**

- Overview: Putting All Together
- Lesson 1: Maintenance as Value Driver
- Lesson 2: Implementing a World-Class Maintenance Program

# PROGRAM AGENDA



- Lesson 3: Optimizing a World-Class Maintenance Program
- Lesson 4: Measuring Success and Sustaining Excellence
- Lesson 5: People as a Cornerstone
- Lesson 6: Wrapping Up

## EXAMINATION

# YOUR CHARTER DESIGNATION



Chartered Institute of Professional Certifications' programs are unique as they provide you with professional charter designations and marks that can be used across your lifetime once you have completed our programs.

Upon successfully attending this program, you will be awarded with the **Certified Reliability-Centered Maintenance Leader (CRCM™)** designation that can be used in your resume, CV and other professional credentials. This certification is industry-recognized with lifelong validity.

Globally recognized, the CRCM™ certification affirms your expertise in designing and implementing data-driven, risk-based reliability-centered maintenance frameworks across asset-intensive operational environments. It demonstrates your capability in developing RCM frameworks, optimizing asset reliability and lifecycle performance, and driving operational excellence across critical infrastructure and industrial operations. Developed by **Chartered Institute of Professional Certifications**, the content of this program has been independently accredited by **CPD Certification Service** as adhering to the highest standards of continuing professional principles.

# ABOUT US

49,525

Business Leaders Have  
Attained Their Chartered  
Certifications Since 2009

390

Certified and Fully  
Accredited Programs

87%

Chartered Leaders Have  
Reported Career Promotions  
and Enhancements

## Chartered Institute of Professional Certifications

All of Chartered Institute of Professional Certifications programs are fully accredited programs. The professional charters and designations are trademarked credentials that can only be used by professionals who have completed and passed our accredited program. It is also independently accredited by CPD as adhering to the highest standards of continuing professional principles.

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# OUR FACULTY DIRECTORS

We Collaborate With  
Instructors From  
Renowned Institutions



**HARVARD**  
UNIVERSITY



**Wharton**  
UNIVERSITY of PENNSYLVANIA



**Stanford University**



**UNIVERSITY OF MICHIGAN**



**THE LONDON SCHOOL  
OF ECONOMICS AND  
POLITICAL SCIENCE**



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Business  
School**

**London  
Business  
School**



# CONTACT US TODAY

We Thank You for Your Ongoing Support  
of Our Programs

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