Best Technology Soultions **(BTS)**

Training Program

Certified Maintenance and Reliability Professional (CMRP)

COURSE OVERVIEW:

An interactive training course covering Maintenance and Reliability best practices as defined by the Society for Maintenance and Reliability Professionals (SMRP) Body of Knowledge (BOK).
This course will enable participants to develop a strategy for outstanding maintenance and reliability performance, tools to improve reliability at equipment level, and an insight to the latest practices in planning, scheduling, and control.

The Certified Maintenance and Reliability Professional standard is the leading accreditation for modern maintenance and reliability professionals. This is a top tier qualification which was established to set a consistent, recognized standard in industry, is the only certification of its kind accredited by the American National Standards Institute (ANSI) and follows the global standards of the Organization for Standards (ISO) for its accreditation process. Participants who pass the exam will be able to use the designation "CMRP".

Known Best Practices will be explained, demonstrated, and attendees will work on real-world issues in each functional area in maintenance and reliability.

The course will explain the concepts, tools, and processes of each element of the five pillars according to the body of knowledge guide.

LEARNING OBJECTIVES:

The objective of this program is to equip participants with current best practices and also prepare them for the Certified Maintenance and Reliability Professional (CMRP) Exams.

- Learn how the SMRP Body of Knowledge can be applied to optimize asset reliability and maintainability
- Identify how to use SMRP Metrics with their definitions and why this is critical to optimization of reliability
- Create a Vision, Mission and Guiding Principles for your Maintenance Organization
- Define Known Maintenance and Reliability Best Practices
- How to develop a plan to implement Maintenance and Reliability Best Practices
- Develop Maintenance Leading and Lagging KPIs for an Organization
- The most effective approach and process to Maintenance Planning and Scheduling
- Develop a PM Procedure
- Define Failures Modes for Specific Components and Assets
- Identify the difference between Reactive vs Proactive Maintenance Attributes
- How to use SMRP Metrics to develop an organization into a more proactive state
- How the SMRP Body of Knowledge is mapped to SMRP Metrics and why
- Benefits of becoming a member of SMRP
- How to create a Maintenance Strategy (PM/PdM)
- How to Manage Change
- Failure Reporting, Analysis, and Corrective Action System (FRACAS)

Upon successful completion of this course, participants will have:

- Clearer direction for career development and education
- Improved visibility and recognition within your current organization
- Develop effective methodologies to improve Manufacturing Process Reliability
- Describe the key aspects of improving reliability at equipment level
- Utilize leadership skills to achieve maintenance and reliability excellence
- Demonstrate best practice in Work Management, including the principles of managing workflow and planning and scheduling
- Assists in job promotion
- Greater job effectiveness

- Fewer frustrations with gaps in knowledge
- Improved ability to differentiate between candidates in the hiring and promotion process

Top 10 Benefits of Attendance:

1. "Known Best Practices in Maintenance and Reliability" from around the world.
2. Maintenance Work Process Management
3. Barriers and Solutions to Effective Work Force Management
4. Operator Driven Reliability. Importance of 5S and Total Productive Maintenance
5. Maintenance Strategy Development & Reliability Centered Maintenance
6. Types of Predictive maintenance tools and its uses.
7. Designing Reliability Asset Life Cycle Cost.
8. Inventory Management, and Economic Order Quantity (EOQ)
9. Maintenance & Reliability tools such as RCA, FMEA and OEE.
10. Leading & Lagging KPIs, Benchmarking for Proactive Maintenance

TARGET AUDIENCE:

Certified Maintenance & Reliability Professional (CMRP) is ideal for:

- Maintenance and Reliability Professionals at all levels.
- Experienced supervisors, planners, project engineers, operations managers, functional specialists, and those seeking to achieve the CMRP designation will also benefit from this course
- Production/Operations Professionals
- Senior Managers

Training Methodology:

This is an interactive course. There are open question and answer sessions, regular group exercises and activities, videos, case studies as well as presentations on best practice and the fundamentals of reliability improvement. Participants will be trained on the CMRP real exam questions with many examples.

Course Outline:

Day 1 – Introduction - Pillar 1: Business & Management

- **Pre-course Assessment Test**
- **Introduction about CMRP Certification**
  - What is CMRP?
  - Why become a CMRP?
  - CMRP Certification
  - CMRP Exam
  - Re-certification
  - CMRP Body of Knowledge Overview
  - CMRP Roadmap
  - CMRP Exam Study Resources

CMRP Body of Knowledge (BOK) Pillars as Stated by SMRP Organization:

- **Pillar 1- Business & Management:**
  This subject includes skills used to translate an organization's business goals into appropriate maintenance and reliability goals that support and contribute to the organization's business results.
  - Pillar 1 Goals
  - Pillar 1 Roadmap

Defining Terms

- Asset
- Maintenance
- Maintainability
- Reliability
- Availability
- Asset Management
- AMP/SAMP
- Risk and Stakeholders
- Business Management
  - **1.1 Create Strategic Direction and Plan for M&R Operation**
  - **1.2 Administer Strategic Plan**
  - **1.3 Measure Performance (select KPIs, Track and report)**
  - **1.4 Manage Organizational Changes**
  - **1.5 Communicate with stakeholders**
- Pillar 1 Summary and Metrics

Day 2 - Pillar 2: Manufacturing Process Reliability

- **Pillar 2 – Manufacturing Process Reliability**
  This section includes maintenance and reliability activities to the manufacturing process of the organization to ensure that maintenance and reliability activities improve the manufacturing process.
  - **2.1. Understand the applicable processes**
  - **2.2. Apply process improvement techniques**
  - **2.3. Manage effects of Change to processes and equipment**
  - **2.4. Maintain Processes in accordance with applicable standards and regulations**
- Pillar 2 Summary and Metrics

Day 3 - Pillar 3: Equipment Reliability

This subject area describes two kinds of activities that apply to the equipment and processes for which the maintenance and reliability professional is accountable. **First** are those activities used to assess the current capabilities of the equipment and processes in terms of their reliability, availability, maintainability, and criticality? **Second** are the activities used to select and apply the most appropriate maintenance practices, so that the equipment and processes continue to deliver their intended capabilities in the safest and most cost-effective manner?

- **3.1. Reliability expectations**
- **3.2. Asset Health Tracking (Evaluate equipment reliability and identify improvement opportunities)**
- **3.3. Establish a strategic plan to assure reliability of existing equipment**
- **3.4. Establish a strategic plan to assure reliability of new equipment (Design for Reliability)**
- **3.5. Cost-justify selected plans for implementation**
- **3.6. Implement selected plans to assure equipment reliability**
- **3.7. Review reliability of equipment and adjust reliability strategy**

- Pillar 3 Summary and Metrics

Day 4 - Pillar 4: Organization & Leadership

This subject area includes processes for assuring that the maintenance and reliability staff is the most qualified and best assigned to achieve the maintenance and reliability organization goals.

- **4.1 Determine organizational requirements**
- **4.2 Analyze organizational capability**
- **4.3 Develop the organization structure**
- **4.4 Develop personnel**
- **4.5 Lead and manage people**

- Pillar 4 Summary and Metrics

Day 5 - Pillar 5: Work Management

This module focuses on the skills used to establish Maintenance & Reliability Culture to get the maintenance and reliability work done. It includes planning and scheduling activities, quality assurance of maintenance activities, stores, and inventory management.

- **5.1 Identify, validate, and approve work**
- **5.2 Prioritize work**
- **5.3 Plan Work**
- **5.4 Scheduling**
- **5.5 Work Execution**
- **5.6 Document work (Closing Work Orders)**
- **5.7 Analysis and Follow up**
- **5.8 Measure work management performance**
- **5.9 Plan and execute projects**
- **5.10 Use information technologies effectively**
- **5.11 Manage resources and materials**

- Pillar 5 Summary and Metrics

- **Post course assessment test**

Separate Session:

CMRP Certification Exam Question and Answer Examples