

Benefits of Reliability Engineering Training programs.

We all know, that in this competitive market place, there are few important factors make our product win against the competition. The prime factor is the “Reliability”. As we see the terms ‘Reliable’ and ‘Reliability’, ‘Availability’ in many conversations or during internal meetings. Reliability has meaning and importance in our society. Product and brand reputations are made or broken by their product reliability performance. It is become more critical to achieve the set target in terms of Reliability, Availability or Maintainability values, since the stake holders lack the required knowledge in these subjects. It is essential to have the skill upgradation by a proper education course in Reliability.

Reliability engineering or the work to minimize failures, improve maintenance effectiveness, shorten repair times, and meet customer & organization expectations has many benefits. So, it is being identified as a vital course to keep up and progress in the right direction.

Here is a list of few benefits to consider when you would like to undergo a Reliability or a RCM training program.

1. To fulfil the customer expectations.

The training program will enable the participants to have the better understanding of the customer requirements, and also will enable them to transform the engineering knowledge to the required RAMS targets. For example, if the customer requirement of B10 life of 3 Years for a system, to be understood very clearly prior to the design, or other activities.

Products work under environmental and use conditions imposed by the customer. Creating a product that matches the expectations imposed by the customer permits the product to work as expected.

Understanding the conditions allows the design to meet without over designing thus optimizing product cost and customer satisfaction. The better understanding of these conditions will help your other team members including TESTING departments to have a better TEST REALISM.

2. Time management during the useful life of the system / product.

A proper training will render the understanding of the important factor "TIME". The uptime requirements and the allowed downtime also to be understood clearly by the all stake holders of the RAMS project. Unanticipated failures cost time for customers and for the organization to resolve the failures. Using reliability and availability concepts we can minimize failures and avoid wasting time.

Downtime for any reason reduces the system's throughput, downtime can be minimized by applying predictive and preventative maintenance programs. A well-maintained system minimizes operating expenses and maximizes throughput.

Some products require a burn-in to identify and eliminate early life failures or to refine and optimize system operation. Understanding the BATH TUB CURVE of your system of interest will provide the correct approach for the usage of the right reliability engineering techniques, by which, we can minimize the time and resource impact of run-in or burn-in operations. This techniques will aid in the process of eliminating / minimizing the time hence, we reduce inventory carrying costs, tooling costs, and energy requirements.

3. Warranty analysis

By understanding the warranty of the system / product the engineers will be in a better position to plan for the spares and service requirements. Products that operate as expected without failure avoid being returned or serviced under warranty. Calls to service support, troubleshooting, product returns, failure analysis, and re-engineering all part of the cost of unreliability. The warranty provides customers insurance in case of failure and with reliability engineering techniques the costs are minimized. In the best possible

strategy, some companies are also well equipped in the understanding of the warranty & durability parts.

4. Safety

The man machine interactions, or the systems which are critical to human safety, the proper training in the understanding of the factors influencing the system safety and fault tree analysis will help in the proper RAMS design through manufacturing. By not understanding these critical factors, the designs of some product failure cause unintended or unsafe conditions leading to loss of life or injury. Reliability engineering tools assist in identifying and minimizing safety risks.

Product failures can cause the loss of property. Minimizing failures and mitigating the damage caused by any failure minimizes the exposure to liability for the property loss.

5. Design

Enhancing the design team's reliability engineering capabilities through training and staffing of reliability professionals enables the entire team to make decisions fully considering the impact on product reliability. This reduces the need for expensive redesign or rework costs to address reliability related design errors.

The training program will enable the design engineers in the following aspects,

1. Prediction of Reliability values
2. Prediction of Maintainability values
3. Understanding the Failure modes and Failure analysis
4. Prototype validation
5. Designing the TEST procedures

There are many more indirect benefits of these training programs, and it is the right approach for any company which is seriously trying to implement RAMS in their Design through Manufacturing process.