Maintenance & Asset Care Department Organization for Manufacturing Industries

An Online Continuing Education Course for Engineers

Course Number: I-1005

Credit: 1 Hours / 1 PDH / 1 CPD

Maintenance & Asset Care Department Organization for Manufacturing Industries

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Introduction

This course describes how Maintenance & Asset Care Departments are structured and operated within the manufacturing & distribution industries. No prior experience in Maintenance & Asset Care is required!

If your background is in an A&E or MEP firm and you have worked with a manufacturing client on a project, you probably have many questions from that experience. If you would like to know more about how Maintenance & Asset Care Departments operate so that you can better meet their customer requirements, this course is for you.

If you work in the Maintenance & Asset Care field and want to learn more about theory and best practices, this course is for you.

If you are transitioning into the Maintenance field from Operations or Project Engineering and want to learn how to translate your skillsets into the Maintenance & Asset Care field, this course is for you.

This course is designed to benefit professionals who may not engage frequently with these teams, such as engineers at MEP and architectural firms, by offering insights into their clients' daily operations. Additionally, factory-based professionals, including Reliability Engineers and Maintenance Managers, will gain value from a refresher on key theories and an in-depth discussion of best practices. No Maintenance Experience Required!

Sections

- Course Outline
- Mission of Maintenance & Asset Care Departments
- Why Maintenance Matters (Historical Examples)
- Description of Management, Supervisory, and Skilled Trades Positions within a Maintenance Team
- Example of a Maintenance Team Organization Chart
- Conclusion

Course Outline

The course will begin with an overview of the mission and objectives of a Maintenance/Asset Care Organization. This section will emphasize the critical role of a well-functioning maintenance organization by showcasing historical catastrophic failures and their associated human and economic impacts.

Next, the course will provide an in-depth look at the Skilled Trades professionals within a Maintenance Organization. It will cover key roles such as Maintenance Mechanics, PLC Technicians, Electromechanical Technicians, Facilities Technicians, Reliability Engineers, MRO Purchasers, and Stockroom Attendants, detailing their required skill sets and typical training backgrounds.

A discussion on essential Key Performance Indicators (KPIs) used to measure the effectiveness of Maintenance Organizations will follow.

The course will then explore common organizational structures for Maintenance/Asset Care teams, analyzing why certain structures contribute to technical success and operational efficiency.

Subsequently, best practices in Maintenance/Asset Care—including Total Productive Maintenance (TPM)—will be examined in detail, with a focus on their practical applications.

Finally, the course will conclude with a summary of key takeaways, reinforcing the importance of a high-functioning maintenance organization and how strategic investment in this critical technical function drives long-term success in manufacturing.

Missions of Maintenance & Asset Care Departments

- This course will begin with foundational concepts in industrial maintenance management and organization before transitioning into practical strategies for implementing best practices in manufacturing environments.
- Maintenance is a term traditionally used to describe reactive and proactive tasks completed to keep equipment operational, ensuring manufacturing and logistics activities can continue.
- Asset Care is a term that has become more common within the industry and is far more encompassing in its scope. It describes the management of a program to maximize the useful life and minimize unplanned downtime of equipment. It is a holistic approach to maintenance that considers how to ensure equipment is in the optimal condition to meet business needs.
- It is becoming more common for Maintenance Departments to adopt the name “Asset Care” or “Maintenance & Asset Care.”
- The missions of Maintenance & Asset Care Departments often vary depending upon the operational philosophy of the company to which they belong.

- Historically, Maintenance Departments were focused on reactive maintenance, responding to breakdowns by doing emergent repairs. This is an expensive approach to maintenance as it leads to unplanned downtime.
    - Within manufacturing, unplanned downtime is incredibly expensive as it involves payment to production associates to wait for maintenance to repair the production line. Paying production associates for time that is non-value added to the final product while simultaneously expediting repair of equipment is very detrimental to the P&L (Profit and Loss) for a manufacturing facility.
- Organizations that embrace Lean Six Sigma and/or TPM (Total Productive Maintenance) principles seek to migrate into a "Maintenance & Asset Care" approach in which Maintenance Team members have a mission of minimizing unplanned downtime through effective preventative and predictive maintenance practices.
    - By minimizing unplanned downtime, these types of organizations can deliver breakthrough results in meeting customer demands with an advantageous P&L (Profit and Loss) for a manufacturing facility.

Why Maintenance Matters

Proper maintenance is critical to the success of any operation. It is analogous to conducting maintenance on your personal vehicle. If you were to decide to forgo completing oil changes, you would expect the life expectancy and reliability of your vehicle to be degraded. Industrial Maintenance has a similar effect on the health of an organization by efficiently ensuring the critical facilities and machine assets are ready to meet operational needs.

Asset Care is not just about changing oil or replacing wear parts. It involves a holistic approach to ensuring facility and machine assets meet needs.

Some examples are given regarding why maintenance matters.
(Source: https://www.csb.gov/imperial-sugar-company-dust-explosion-and-fire/)

Imperial Sugar Company Dust Explosion and Fire

Aerial Picture showing the aftermath of the explosion and fire suffered by the plant

One can read the OSHA report from the aftermath of the Imperial Sugar Company's plant explosion that occurred in 2008, killing and injuring multiple people. Contributing factors appear to have been maintenance-related, which included housekeeping maintenance (leading to the large buildup of an explosive dust) coupled with a potentially overheated bearing (ignition source).

Fortunately, such disasters are not common occurrences due to the successful efforts of maintenance teams throughout various industries.

Management, Supervisory, and Skilled Trades Positions within a Maintenance Team

Maintenance Team Structures exist in a variety of forms within various companies and industries. However, some common themes are given in this section, along with some examples of organization charts.

Maintenance Manager

Typically, within a factory or distribution center, one will find a Maintenance Manager. The Maintenance Manager is the individual tasked with the responsibility of asset care and ensuring maintenance is carried out properly within the facility. They have responsibility for oversight of the maintenance team as well as the maintenance budget for the site.

Maintenance Managers have a couple of common career paths:

1. The more traditional approach is that the individual started as a junior operations associate who moved into the maintenance department, or that they were hired into the maintenance department early in their career. The individual then typically worked their way through the hierarchy of the department (Group Lead, Maintenance Supervisor, etc.), culminating in a promotion to Maintenance Manager. Based on company policies and/or the goals of the individual, some folks who follow this path will go back to school in parallel to working their job to get a degree. Individuals who follow this career path often have decades of experience working within maintenance at the company and understand the operation incredibly well.

2. Some companies have begun requiring Maintenance Managers to have engineering degrees. This is becoming more common, especially within large companies. The concept is to provide junior engineers with an opportunity to promote into a field supporting operations to gain technical leadership positions.

Maintenance Supervisors

Usually, teams of maintenance technicians and skilled trades workers will have a Maintenance Supervisor. Oftentimes, the Maintenance Supervisor is a salaried position, and the individuals are usually assigned to the shift of the maintenance team that they are supervising. With many manufacturing and warehouse operations, the Maintenance Supervisor is the “glue” that connects the corporate and onsite management group with the team of associates at the production floor level. Having a well-respected, knowledgeable, and experienced Maintenance Supervisor is key to the success of day-to-day operations, along with helping ensure strategic initiatives are successfully deployed.

1. The traditional and most common path for folks to become Maintenance Supervisors is by starting as an entry-level Maintenance Associate and going through on-the-job training with progressive promotions to become a Maintenance Supervisor. By working in various maintenance roles and gaining experience with maintaining and troubleshooting equipment, these individuals have the technical acumen needed to ensure smooth operations. Usually, there is a bit of a learning curve for these individuals when moving into a salaried leadership role, as many of these individuals are highly skille nical contrib have not always been afforded the opportunity to gain experie sonnel issues, etc. Those individuals w ng with technical troub in Maintenance Supervisor role

2. A small but grow ers and Engineering Tech are pros and cons to this appro e is incredibly helpful in a Mainte atch. However, those wh more background on tech e organization.

3. A hybrid approach ca within the organization have exc h some Maintenance Supervis hool. This often provides a m ip recent graduates experience a smoother vironment.

Industrial Electrical/Controls Supervisor

In facilities of significant size, it is very common for the electricians, controls technicians, and calibration technicians to report to an Industrial Electrical/Controls Supervisor who has significant experience in industrial electrical systems as well as industrial controls. This individual usually has many years of on-the-job experience. Often, but not always, they will have either a background as an electrician or potentially as a PLC technician/programmer.

In day-to-day operations, their teams are completing preventative maintenance tasks as well as responding to difficult breakdown situations in which electrical components and/or programming changes will be required. On projects, they are often assisting with one-line diagrams/schematics and ensuring that a proper understanding of all programs being developed has been properly documented and retained.

Having world experience troubleshooting electrical systems and adjusting PLC programs is critical in this role.