

Planned Maintenance Training Planning

For planning purposes, the following guidelines should be used.

Course length (days)	Course
1	Overview for Managers and Supervisors
1	Overview for PM Technicians and Data Collectors
3	Introduction to Program Development
5	Program Development
5	Reliability Centered Maintenance
TBD	Specific equipment and software training.

Planned Maintenance concepts and principles can be taught as an overview, an introduction or a full program development course. The depth and breadth of coverage increases with the length of the course. The course may be presented from a management perspective or from a technical perspective. A general list of objectives appears on the next page. Use these to decide what course content you need. Custom topics may also be included.

Length of training on specific equipment and software will depend on the equipment, software and coverage desired. These should be determined in consultation with the instructor and the client. As a rough guideline, usually one to three days for each will provide reasonable competency.

The basic modules include Objectives 1 thru 5 on the next page. Prerequisites for the basic module include basic industrial math including solving formulas, ratio problems, vectors and graphing. A module covering these can be included. To cover the math will take an added _ day.

Prerequisites

	Module	Prerequisites
1	Planned Corrective Maintenance	Basic
2	Spares Management system	Basic + Module #1
3	Reliability Engineering system	Basic + Module #1
4	Planned Maintenance program setup	Basic + Module #1
5	Reliability Centered Maintenance	Basic
6	Total Productive Maintenance	Basic

In addition to training, the following services are available:

1. Program setup — including database development, task and path design, procedure and work instruction development, report development and on-the-job training. Usually one to ten days depending on the size of the equipment database.

2. Program mentoring — Mentoring includes program setup plus follow-up visits to fine-tune the program. Its goal is to maximize chances for a successful program. Follow-up visits at one month, three months, six months, and twelve months, and annually thereafter is recommended.
3. Reliability Centered Maintenance facilitation — because RCM is most effective when done by the actual maintenance and production staffs, facilitation involves guiding those people through the process.

Planned Maintenance Course Objectives

At the completion of this course, the student who actively participates will:

- 1. Understand how machines fail, including the answers to the following questions:**
 - What are the failure modes commonly seen in machinery?
 - What causes those failure modes?
 - When does machinery fail?
- 2. Understand how reliability is measured, including answers to the following questions:**
 - What is reliability?
 - What are common reliability measures?
 - What is availability?
 - What is OEE?
 - What is the reliability impact of multiple machines?
- 3. Describe how to reduce the effect of machine failures, including the answers to the following questions:**
 - What are the different kinds of maintenance?
 - What's needed to support this maintenance?
- 4. Describe a Preventive Maintenance system, including the answers to the following questions:**
 - What are the various types of tasks in a Preventive Maintenance system?
 - How do we decide what tasks to do?
 - How do we decide when to do the tasks?
- 5. Describe a Predictive Maintenance system, including the answers to the following questions:**
 - What is Predictive Maintenance?
 - How does it differ from Preventive Maintenance?
 - How do we use trending?
 - What are some of the commonly used technologies?
- 6. Describe a Planned Corrective Maintenance system, including the answers to the following questions:**
 - What is Corrective Maintenance?
 - How does it differ from Preventive Maintenance?
 - How do we use a work backlog list?
 - How do we plan work?
 - How do we schedule work?
- 7. Describe a Spares Management system, including answers to the following questions:**
 - What is spares management?
 - What are available spares management strategies?
 - How do we determine what spares fit in each category?

8. Describe a Reliability Engineering system, including the answers to the following questions:

What is Reliability Engineering?

How is reliability engineering applied in a planned maintenance system?

What are the inputs to a reliability engineering system?

What are the outputs from a reliability engineering system?

9. Describe how to setup a Planned Maintenance program, including the answers to the following questions:

How do we select which machinery to cover?

How do we rank the machines in order of priority?

How do we develop Planned Maintenance tasks for specific machines?

What are the phases of program start-up?

What procedures and work instructions do we need?

How do we communicate our findings?

10. Understand how to perform Reliability Centered Maintenance, including the answers to the following questions:

What is Reliability Centered Maintenance?

What is Failure, Modes, Effects and Criticality analysis?

What is the RCM Decision tree?

What is the RCM Process?

11. Describe Total Productive Maintenance (TPM), including the answers to the following questions:

What is TPM?

What are the big losses addressed by TPM?

What is operator-performed maintenance?

How does TPM relate to a planned maintenance system?