



## **RSA RELIABILITY COMPLETE TRAINING PACKAGE ON TOTAL PRODUCTIVE MAINTENANCE**

### **TPM Courses Includes :**

- Understanding Total Productive Maintenance
- TPM's Planned Maintenance Pillar
- TPM's Autonomous Maintenance Pillar
- TPM's Focused Improvement Pillar
- Understanding OEE and Equipment Losses

### **Who should attend ?**

- This course is best suited for those who lead or influence the direction and success of their manufacturing plants including Maintenance Managers / Supervisors, Production Managers / Supervisors, Facilities Managers Key shop floor personnel, those in charge of Continuous Improvement Programs in their Plants most specially industries adopting a Total Productive Maintenance strategy. Key people who have the authority or leadership to drive the day to day process for improving their plant's reliability & performance



### **About the resource speaker**

- Rolly Angeles has a wide range of training capabilities his portfolio of technical trainings includes TPM, Reliability-Centred Maintenance Oil Analysis, Condition-Based Maintenance, P-M Analysis, Planned Maintenance, World Class Maintenance Strategies & many more
- Rolly previously worked w/ Amkor/Anam and spearheaded Amkor's Planned Maintenance Organization composed of Maintenance Managers and responsible for the dramatic reduction of breakdowns in their TPM Journey as well as RCM implementation on Facilities AHU and Sub-stations
- Nominated as Key Technical Person 1998 A BSME graduate of Mapua batch 85' and Licensed ME, Rolly as he wanted to be called provides a wide range of experience on the best maintenance practices





## **SEMINAR TITLE : TOTAL PRODUCTIVE MAINTENANCE - JIPM Approach (3 days)**

**Reasons why you need to attend this course, learn . . . . .**

***NO OTHER COURSE AVAILABLE CAN GIVE YOU THIS WEALTH OF INFORMATION***

- The history of TPM and where did it originate ?
- What TPM can achieve to your company if done correctly ?
- The role TPM Office will play in its implementation
- The goals of each TPM pillar
- TPM's 12 Developmental Steps and why they should be implemented in sequence
- What are the major strengths of RCM & TPM respectively ?
- What TPM pillars will bring the most impact and why ?
- Role of Planned Maintenance in Autonomous Maintenance activities
- Common pitfalls in implementing TPM and save time in your TPM implementation by reversing them ?
- What TPM is not ?
- Strength of RCM and TPM respectively.
- What are the major reasons why many companies fail in their TPM ?
- How to make TPM a focal strategy for continuous improvement ?
- Requirements for attaining TPM Excellence Awards from JIPM
- Sample actual case study on TPM's Planned Maintenance
- How to prepare for the JIPM -TPM Excellence Awards ?
- My personal experiences with JIPM consultants and what they are looking for in your TPM implementation





## SEMINAR TITLE : TOTAL PRODUCTIVE MAINTENANCE - JIPM Approach (3 days)

### Brief Course Overview

- In today's manufacturing industries, more and more companies are seeking ways to improve their plant's performance through the application of continuous improvement tools such as TPM. Although it originated from Japan, TPM is not culture bound but rather its principles can be applied to any culture as long as the people accept TPM as a way of life
- TPM improves the manufacturing process through utilization of employee involvement, empowerment and closed loop measurement of results
- Learn and apply the Basic Principles of TPM and the correct way of implementation as patterned from Japan Institute of Plant Maintenance (JIPM)

### Who Should Attend

- These course is best suited for the following people in charge of implementing TPM and continuous improvement in their plant
  - TPM Manager, facilitators,
  - TPM Office Staff
  - Reliability Managers, engineers
  - Continuous Improvement Manager
  - Maintenance Engineers and Managers
  - Facilities Engineers and Managers
  - Quality Control group
  - Production Supervisors and Managers
  - Technical Training Engineers

illuminate

the possibilities...

with

**Total Productive Maintenance**

### Course Objective

**At the end of the seminar participants will be able to . . . . .**

- Provide a clear picture on Total Productive Maintenance (TPM) & how to implement it successfully
- Know the pitfalls of TPM and why many have failed in their implementation and most importantly learn from them
- Decide if TPM is right for your plant to implement
- Understand the different ways of measuring OEE in your equipment



## SEMINAR TITLE : TOTAL PRODUCTIVE MAINTENANCE - JIPM Approach (3 days)

### Program Proper

#### DAY 1

- 0745 - 0815 - Coffee and Registration
- 0815 - 0830 - Welcome and Introduction of resource speaker
- 0830 - 0900 - Take Pre Test on TPM IQ Quiz
- 0900 - 1000 - **Module 1 : TPM Introduction**
  - Lessons learn from Japan
  - Kaizen and Innovation
- 1000 - 1015 **Morning Break / Meals**
- 1015 - 1200 - **Module 2 : TPM Basic Concept**
  - History of TPM
  - TPM and RCM Strengths
- 1200 - 1300 - **Lunch**
- 1300 - 1500 - **Module 3 : TPM 12 Developmental Steps**
  - TPM Preparatory Stage
  - TPM Pillars
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1600 - Take TPM Exercises
- 1600 - 1700 - **Module 4 : TPM Pitfalls**
- 1700 - End of Day 1

#### DAY 2

- 0745 - 0815 - Coffee
- 0815 - 1000 - **Module 5 : Implementing TPM**
  - TPM Fastrack - 3 years
  - **Bonus Module: Visual Control**
- 1000 - 1015 - **Morning Break / Meals**
- 1015 - 1200 - Continuation of Visual Control
- 1200 - 1300 - **Lunch**
- 1300 - 1430 - **Module 6 : Major Equipment Losses**
- 1430 - 1500 - Exercises on Equipment Losses
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1700 - Perform Workshop on TPM
- 1700 - End of Day 2

#### DAY 3

- 0745 - 0815 - Coffee
- 0815 - 0900 - **Module 7 : Understanding OEE**
  - Understanding Availability
  - Performance Rate & Quality Rate
- 0900 - 1000 - Workshop on OEE
- 1000 - 1015 - **Morning Break / Meals**
- 1015 - 1200 - Continue workshop on OEE
  - Present Answer on OEE
- 1200 - 1300 - **Lunch**
- 1300 - 1400 - **Module 8 : JIPM Certification**
  - Criteria for JIPM Awards
- 1400 - 1500 - **Bonus : Sample Case Study of TPM Success**
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1630 - **TPM Workshop**
  - **TPM Lessons**
- 1630 - 1700 - Take Post Test on TPM
  - **Awarding of Certificates**
  - **Summary and Closing**
  - **Final Quote on TPM**
- 1700 - End of Seminar





## **SEMINAR TITLE : TPM's Planned Maintenance 4 Phases To Zero Unplanned Breakdown (3 days)**

### **Brief Course Overview**

- This course covers the principles of TPM's Planned Maintenance 4 Phases to Zero unplanned breakdown strategy.
- Phase 1 deals with Stabilizing MTBF, main activity involved here is restoration by establishing equipment's Basic Equipment Condition
- Phase 2 deals with Addressing Equipment's Weaknesses in Design and addressing them to prolong lifespan of parts
- Phase 3 and 4 of Planned Maintenance deals w/ developing a Maintenance Tasks Selection Diagram in order to classify which parts will fall on the different maintenance tasks available
- Phase 4 of Planned Maintenance is about Predicting Failures through a system known as Condition-Based Maintenance and the use of Diagnostic tools to monitor condition of parts



### **PM4P Course Objective**

- Provide a detailed and structured approach through the application of TPM's Planned Maintenance
- Realize the importance of establishing basic equipment condition in our equipment's
- Provide an understanding on what Planned Maintenance is and what it wants to achieve
- Learn how to implement the four phases of Planned Maintenance
- Learn the 6 failure pattern and how it affects us in our day to day maintenance activities





## SEMINAR TITLE : TPM's Planned Maintenance 4 Phases To Zero Unplanned Breakdown (3 days)

<b>Program Proper</b>	
<b>DAY 1</b>	
0745 - 0815	- Coffee and Registration
0815 - 0825	- Welcome and Introduction of resource speaker
0830 - 0900	- Take Planned Maintenance Pre-post IQ Quiz
9:00 - 10:00	- <b>Introduction : Changing The Change The Mtce Culture</b>
	- Domino Effect of being reactive
1000 - 1015	- <b>Morning Break / Meals</b>
1015 - 1200	- <b>Module 1 : Planned Maintenance Overview</b>
	- Planned Maintenance defined
	- 4 Phases of Planned Maintenance
	- PM Preparatory Stage
	- Planned Maintenance Versions
	- Knowing MTBF and MTTR
	- Comparing Planned Maintenance and other maintenance systems
1200 - 1300	- <b>Lunch</b>
1300 - 1500	- <b>Module 2 : Phase 0 - PM Preparatory Stage</b>
	- Establishing PM Vision and Mission
	- Importance of Machine Ranking
	- Phase 0 Roadmap of Activities
1500 - 1515	- <b>Afternoon Break / Meal</b>
1500 - 1700	- <b>Module 3 : Phase 1 Stabilize MTBF</b>
	- The need to restore
	- Roadmap of Activities for Phase 1
1700	- End of Day 1
<b>DAY 2</b>	
0745 - 0815	- Coffee
0815 - 1000	- Continue Module 3 : Why-why <b>Perform Exercise on why-why</b>
	<b>Module 4 : PM Phase 2 Addressing Design Weakness</b>
	- Addressing design weaknesses
	- Roadmap of Activities for Phase 2
1000 - 1015	- <b>Morning Break / Meals</b>
1015 - 1200	- Understanding Wear <b>Perform Exercise on Wear</b>
1200 - 1300	- <b>Lunch</b>
1300 - 1500	- <b>Module 5 : PM Phase 3 Periodically Restore Deterioration</b>
	- Preparing FMEA
1500 - 1515	- <b>Afternoon Break / Meal</b>
1515 - 1700	- Continuation of Module 5
	- Understanding The Consequences of Failure
	<b>- Consequences Exercise</b>
1700	- End of Day 2
<b>DAY 3</b>	
0800 - 1000	- <b>Module 6 : PM Phase 4 Predict Equipment Lifetime</b>
	- Understanding Predictive Mtce
	- P-F Curve
	- Run To Fail, Modification, Stand-by
	- Algorithm and Decision Worksheet
	- Phase 3 & 4 Roadmap
1000 - 1015	- <b>Morning Break / Meals</b>
1015 - 1200	- <b>PM WORKSHOP 1 : Perform PM Board game</b>
1200 - 1300	- <b>Lunch</b>
1300 - 1500	- <b>PM WORKSHOP 2 : Perform Phase 3 and 4 Activities</b>
1500 - 1515	- <b>Afternoon Break / Meal</b>
1515 - 1600	- Continue PM Workshop
	- Case Study : Planned Maintenance at Amkor / Anam
1600 - 1630	- Take Post Quiz on PM
1630 - 1700	- Starting an Improvement Reliability
	<b>- Summary and Closing</b>
1700	- End of Seminar



## SEMINAR TITLE : Understanding TPM's Autonomous Maintenance Step's 1 to 3 or Jishu-Hozen (2 days)

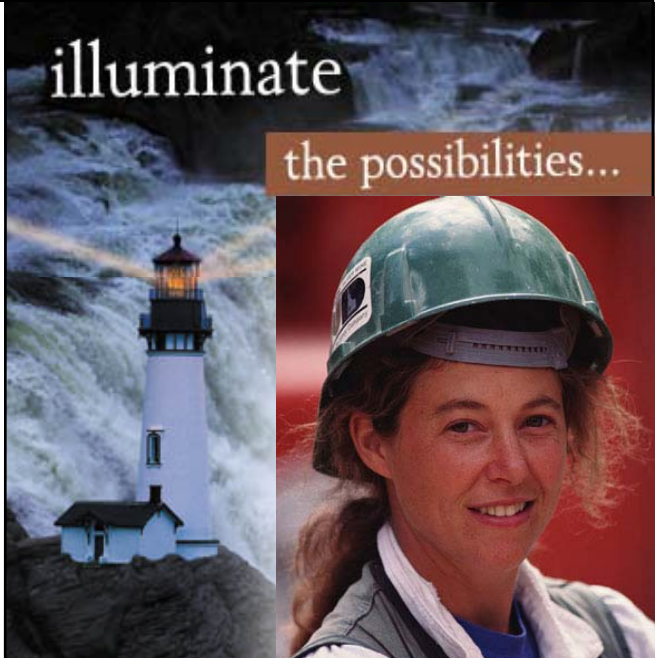
### Brief Course Overview

- This course shows the importance and benefit of introducing an Autonomous Maintenance program and what it will achieve if correctly applied in the workplace
- Autonomous Maintenance is the activities in which each worker performs daily cleaning, lubrication, inspection and parts replacement in order to establish Basic Equipment Condition
- This course tells us the importance that Autonomous Maintenance is not just the transfer of task to operators but teaching operator that their responsibility does not end from just operating the machine itself
- Autonomous Maintenance is changing the mindset of operators from the traditional "I FIX YOU OPERATE to WE OPERATORS TAKE CARE OF OUR EQUIPMENT

### What you will learn ?

- Provide an understanding on what TPM is
- Know the different Visual Control that can be adapted in the workplace
- Understand how oil is contaminated and how to control contamination at its source
- Understand the importance of Initial Cleaning and the need to expose abnormalities
- Understand how to implement the details of Step's 1 to 3 of Autonomous Maintenance
- Learn the different types of abnormalities and contamination at the workplace

**And much, much more !!!**



## Autonomous Maintenance

### Course Objective

- To provide an overview and awareness on the benefits that can be derived in implementing Autonomous Maintenance
- Understand the detailed step by step approach in implementing Autonomous Maintenance pillar
- To develop reliable manufacturing assets through the involvement of all shop floor people in a structured and detailed step
- To develop an in house Autonomous Maintenance people that will drive the implementation of the pillar in their plant
- Understand the importance of establishing Basic Equipment Condition



## SEMINAR TITLE : Understanding TPM's Autonomous Maintenance Step's 1 to 3 or Jishu-Hozen (2 days)

### Program Proper

#### DAY 1

- 0745 - 0815 - Coffee and Registration
- 0815 - 0830 - Take AM IQ Quiz
- 0830 - 1000 - **Module 1 : TPM Overview**
  - Getting the edge with TPM
  - TPM Basic Concept
  - TPM 8 Pillars and goals
  - OEE Measurement
  - JIPM Certification
- 1000 - 1015 - **Morning Break / Meals**
- 1015 - 1100 - Continue Module 1
- 1100 - 1200 - **Module 2 : AM Overview**
  - Concept of Jishu-Hozen
  - Establishing Basic Equip Condition
  - Skills operators need
- 1200 - 1300 - **Lunch**
- 1300 - 1500 - Exercise on why-why analysis
  - **Module 3 : Step 0 : Basic Training & Preparation**
  - Understanding Basic Machine Function
  - PM Guidance to Jishu-Hozen
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1630 - **Module 4 : Step 1 : Initial Cleaning**
  - Goal of Step 1
  - Importance of Cleaning
  - Types of Contamination
  - Step 1 Flow of Activities
  - Horizontal Replication
- 1515 - 1700 - Exercise on types of Abnormality
- 1700 - End of Day 1

#### DAY 2

- 0745 - 0815 - Coffee
- 0815 - 9000 - **Module 5 : Visual Control In The Workplace**
  - Samples of Visual Control
- 0900 - 1000 - **Module 6 : Step 2 : Address Sources of Contamination**
  - Improving Hard to access areas
  - Types of Contamination
  - Step 2 Flow of Activities
- 1000 - 1015 - **Morning Break / Meals**
- 1015 - 1100 - Continue Module 6
  - Take quiz on Types of Contamination
- 1100 - 1200 - **Module 7 : AM Basics of Lubrication & Contamination Control Awareness**
  - Understand how oil is contaminated
  - What contamination can do ?
  - Contamination Control Awareness
- 1200 - 1300 - **Lunch**
- 1300 - 1400 - Continue Module 7
- 1400 - 1500 - **Module 8 - Step 3 : Establish Equipment Standards**
  - Types of standards
  - Step 3 Flow of Activities
- 1500 - 1515 - **Afternoon Break / Meal**
- 1515 - 1600 - Exercise
- 1600 - 1700 - Take final IQ Quiz on AM
  - Closing Remarks
- 1700 - End of Seminar on AM1**



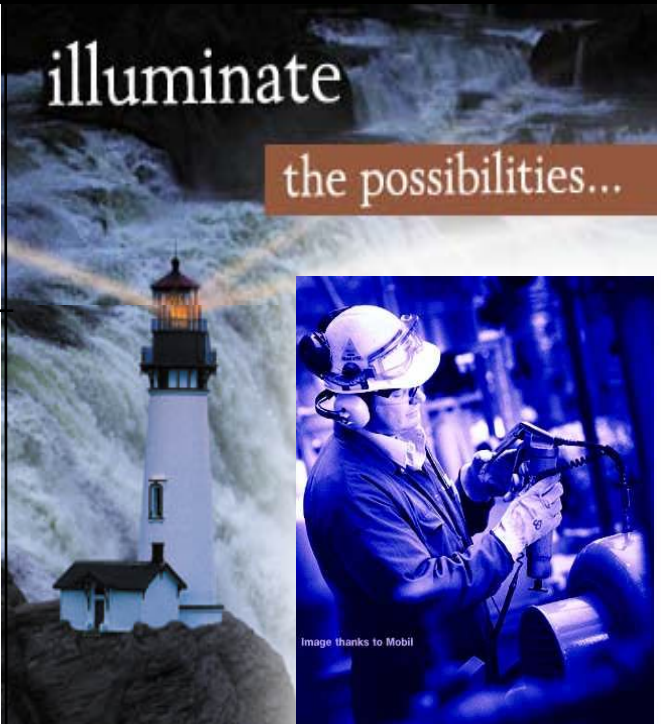
## SEMINAR TITLE : Relationship Between Equipment Losses and Overall Equipment Effectiveness (1 day)

### Seminar Package Includes

- Complete Handouts on the course
- Articles on OEE Performance
- Exercises and Handouts
- Certificate of completion
- Workshop on OEE

### Brief Course Overview

- OEE is the primary measure of performance in TPM. It is calculated by multiplying the availability, efficiency and quality rate of an equipment. This course allows us to understand the 7 major equipment losses encountered on our equipment each day and its relationship to OEE. Each loss is being discussed in detail and how it can be reduced or eliminated. What is important is for our people to understand what losses our equipment is suffering & how to measure it.
- An ideal factory equipment would operate at 100% and 100% good Quality however in real life that is not true, the difference between the ideal and actual state would be attributed to losses which we encounter on a day to day basis. Learn if something can be done to reduce or otherwise eliminate these losses on our equipment.
- But before we can begin will be to understand why these losses occur In our equipment's



## Relationship Between OEE And Equipment Losses

### Course Objective

- Understand equipment losses and its major component including how to related these losses to Overall Equipment Effectiveness
- Learn how to analyze OEE data in order to determine equipment constraint and bottleneck
- Understand the 7 Major Equipment Losses and how to minimize them in order to improve OEE
- Understand how to deal with these individual losses and the best maintenance indices to use
- Provide guidelines on how to improve these types of losses



## SEMINAR TITLE : Relationship Between Equipment Losses and Overall Equipment Effectiveness (1 day)

### Program Proper

( 1 Day Course)

- 0745 - 0830 - **Coffee & Registration**
- 0830 - 0900 - Welcome and Introduction of resource speaker
  - Define Objective of the course
  - Discuss different modules to be covered
  - Take OEE Pre-Test
- 0900 - 1000 - **Module 1 : Breakdown Loss**
  - What constitute a Failure ?
  - Understand Primary and Secondary Failures
  - Lessons about failure
  - MTBF to measure breakdown loss
  - Take quiz on What to Include and Exclude on Failure
- 1000 - 1015 - **Morning Break time**
- 1015 - 1045 - **Module 2 : Set-up and Conversion Loss**
  - Set-up and conversion defined
  - Shigeo Shingo on reducing conversion time
- 1045 - 1130 - **Module 3 : Start-up Losses**
  - Infant Mortality and Random Failures
  - How PM affects start-up losses
  - How to reduce start-up losses
- 1130 - 1200 - **Module 4 : Idling and Minor Stoppages**
  - Understanding Chokotei
  - Best pillar to address Minor stoppages
  - Performing MTBA Snapshots
- 1200 - 1300 - **Lunch**
- 1300 - 1330 - **Module 5 : Design Speed Loss**
  - Speed loss defined
  - Reducing speed losses
- 1330 - 1400 - **Module 6 : Defect and Rework Losses**
  - Understanding chronic defects
  - Take quiz on equipment losses
- 1400 - 1430 - **Module 7 : Understanding OEE**
- 1430 - 1500 - **Afternoon Break**
- 1500 - 1515 - **Conduct OEE Workshop**
- 1515 - 1600 - **Answer to OEE workshop**
- 1600 - 1700 - **Take final OEE pre-post quiz**
  - Check final pre-post quiz
- 1700 - **End of seminar on OEE**





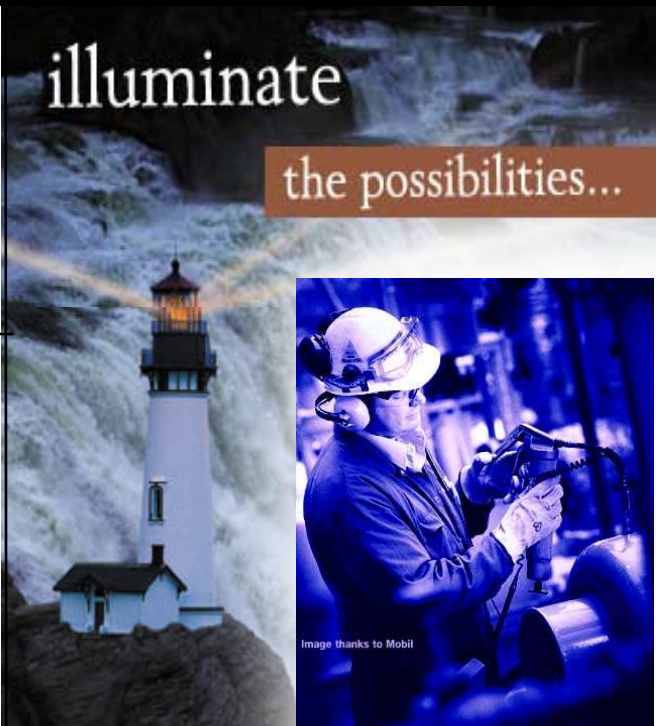
## SEMINAR TITLE : Understanding TPM's Focused Improvement – Kobetsu-Kaizen

### Seminar Package Includes

- Morning / Afternoon meals and Lunch
- Complete Handouts on the course
- Articles on Meaningful Measures of Performance
- Exercises and Handouts
- Certificate of completion

### Brief Course Overview

- Focused Improvement activities is used to accomplish maximum efficiency of individual facilities, equipment and manufacturing processes as well entire plants by thoroughly eliminating losses and improving performance. According to Suzuki, Focused Improvement includes all activities that maximizes the overall equipment effectiveness of equipment processes and plants through uncom-promising eliminating of improvement losses and the improvement of performance.
- Focused improvement is an arena of self-accomplishment for engineers and technical staff. These people upgrade their analytical skills in problem solving in order to improve the equipment and find abnormality which may take precautionary measures to eliminate them and improve OEE and eliminate all equipment losses.



## Understanding TPM's Focused Improvement – Kobetsu-Kaizen

### FI Course Objective

- Provide an understanding on what Focused Improvement is and why it is important in any TPM implementation.
- Learn how Focused Improvement is set-up correctly
- Learn the most common analytical and problem solving tools Focused Improvement needs
- Provide a detailed step by step on how Focused Improvement is performed



## SEMINAR TITLE : Understanding TPM's Focused Improvement – Kobetsu-Kaizen

### Focused Improvement Program Proper

( 1 Day Course)

- 0745 - 0830 - **Coffee and Registration**
- 0830 - 0900 - **Welcome and Introduction of resource speaker**
- Define Objective of the course
  - Discuss different modules to be covered
  - Take Focused Improvement Pre-Test
- 0915 - 1000 - **Module 1 : What is Focused Improvement**
- TPM 12 Developmental Stage
  - Focused Improvement Defined
  - Objectives of Focused Improvement
- 1000 - 1015 - **Morning Breaktime**
- 1015 - 1100 - **Module 2 : How Focused Improvement is Performed**
- Pilot Machine Selection
  - How Equipment is improved by Focused Improvement
  - Cases on OEE
- 1100 - 1200 - **Module 3 : Analytical Problem Solving Tools for Focused Improvement**
- Root Cause Failure Analysis
- 1200 - 1300 - **Lunch**
- 1300 - 1530 - **Continue Module 3**
- Fishbone or Ishikawa Diagram
  - Why-why Analysis
  - P-M Analysis
- 1530 - 1545 - **Afternoon Break**
- 1545 - 1630 - **Module 4: How do we start a Focused Improvement Process**
- Focused Improvement Step by Step
- 1630 - 1700 - Take final FI post quiz
- Check final pre-post quiz
  - Awarding of Certificates
  - Closing
- 1700 - End of seminar on OEE

