

Welcome to the class....

Maintenance Management (FRSI 2153)

Lecture 3: 5S

Lecturer:

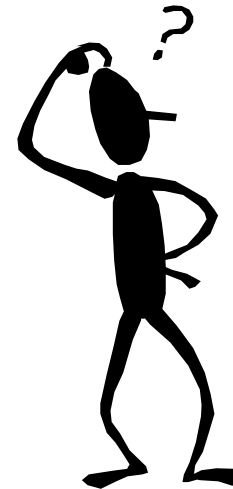
Assoc. Prof. Dr. Astuty Amrin (astuty@utm.my, 019-7318800)

Dr. Saardin Abd Aziz (saa.kl@utm.my)

Dr Roslina Mohammad (mroslina.kl@utm.my)

5S IN MAINTENANCE

What is 5S and why do we want to do it?



5S

THE SECRET TO JAPANESE SUCCESS

IDEA BEHIND 5S

In order to achieve high levels of quality, safety and productivity, workers must have a conducive working environment

WHAT IS 5S?

- Developed by the Japanese
- Housekeeping System
- Helps Create a Better Working Environment and a Consistently High Quality Process

DISCOVERY OF 5S

- 30 years ago researchers started studying the secret of success of Japanese manufacturing companies
- 5S turned out to be the most **impressive "secret"**
- The factories were so well organized that abnormal situations were readily apparent

DISCOVERY OF 5S

- **Equipments were so clean and well maintained** that any problem such as a loose bolt or leaking oil could be easily seen
- This passion of **cleanliness and orderliness** became a hallmark of Japanese organizations

ADVANTAGES OF 5S

- If tools and materials are **conveniently located** in uncluttered work areas



- Operators spend **less time** looking for items
- This leads to **higher workstation efficiency**, a fundamental goal in mass production

ADVANTAGES OF 5S

- Health and Safety is ensured
- Machine maintenance
- Quality
- Productivity
- Lean Manufacturing

ADVANTAGES OF 5S

- results in a place easier to manage
- smooth working → no obstruction
- no deviation, no problems



- because everyone knows where the things are supposed to be

ADVANTAGES OF 5S

- TIME SAVING
- QUICK RETRIEVAL
- ACCIDENTS & MISTAKES MINIMIZED
- INCREASES SPACE
- CREATES WORKPLACE OWNERSHIP

ADVANTAGES OF 5S

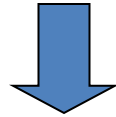
- FOUNDATION OF ALL QC TOOLS



- CONTINUOUS QUALITY IMPROVEMENT
- LEAN MANUFACTURING
- KINDERGARTEN OF QUALITY TOOLS & TECHNIQUES

ADVANTAGES OF 5S

- visual management system



- visual control to see the abnormalities
- simple signals that provide an understanding of the condition(normal/ abnormal)
- a look at the process reveals its direction (right/wrong)

METHODOLOGY OF 5S

THE 5S PRINCIPLES

- **SEIRI** – Organisation/Sort out
- **SEITON** – Orderliness/Systemize
- **SEISO** – The Cleaning/Shining
- **SEIKETSU** – STANDARDIZE
- **SHITSUKE** - Sustain/Discipline

5S

- 1. Sort** - All unneeded tools, parts and supplies are removed from the area
- 2. Set in Order** - A place for everything and everything is in its place
- 3. Shine** - The area is cleaned as the work is performed
- 4. Standardize** - Cleaning and identification methods are consistently applied
- 5. Sustain** - 5S is a habit and is continually improved

Also - Work areas are safe and free of hazardous or dangerous conditions

1. ORGANISATION (SEIRI)

- Decide what you need
- Remove unnecessary clutter
- All tools, gauges, materials, classified and then stored
- Remove items which are broken, unusable or only occasionally used

RED TAG TECHNIQUE



**RED
TAG**

- give staff red labels
- ask staff to go through every item in the work place
- ask if needed & those that are needed, in what quantity
- not needed → red tag it
- store in the red tag area

For wavering items

- place the suspected items in the red tag area for one week
- allow the staff to re-evaluate the needed items
- at the end of week those who need items should be returned

ORGANISATION

PRIORITY	FREQUENCY OF USE	HOW TO USE
Low	Less than once per year Once per year	Throw away Store away from the workplace
Avg.	Once per month Once per week	Store together but offline
High	Once Per Day	Locate at the workplace

2. ORDERLINESS (SEITON)

- once you have eliminated all the unneeded items
- now turn to the left over items

ORDERLINESS(SEITON)

Organise layout of tools and equipment

- Designated locations
- Use tapes and labels
- Ensure everything is available as it is needed and at the “point of use”

ORDERLINESS(SEITON)

Workplace Checkpoints:-

- Positions of aisles and storage places clearly marked?
- Tools classified and stored by frequency of use?
- Pallets stacked correctly?
- Safety equipment easily accessible?
- Floors in good condition?

3. SEISO (CLEAN/SHINE)

- Create a spotless workplace
- Identify and eliminate causes of dirt and grime – remove the need to clean
- Sweep, dust, polish and paint

SEISO (CLEAN/SHINE)

- Divide areas into zones
- Define responsibilities for cleaning
- Tools and equipment must be owned by an individual
- Focus on removing the need to clean

4. SEIKETSU (STANDARDISE)

- Generate a **maintenance system** for the first three
- Develop procedures, schedules, practices
- Continue to assess the use and disposal of items
- Regularly audit using checklists and measures of housekeeping
- Real challenge is to keep it clean

5. SHITSUKE (SUSTAIN / DISCIPLINE)

- Means inoculate courtesy & good habits
- Driving force behind all 5S
- Deming's point number 1: Consistentancy of purpose
- Make it a way of life
- Part of health and safety
- Involve the whole workforce*
- Develop and keep good habits

LITMUS TEST FOR 5S

- 30 second rule
- one must locate the item within 30 seconds if 5s is properly implemented
- also applies to the electronic records retrieval

WHAT U HAVE COME ACROSS

AT THE END OF DAY

Followings can be harnessed form the 5S

1. NEAT & CLEAN WORKPLACE
2. SMOOTH WORKING
3. NO OBSTRUCTION
4. SAFETY INCREASES
5. PRODUCTIVITY IMPROVES

Cont.

6. QUALITY IMPROVES
7. WASTAGE DECREASE
- 8. MACHINE MAINTENANCE**
9. VISUAL CONTROL SYSTEM
10. EMPLOYEES MOTIVATED
11. WORKSTATIONS BECOME SPACIOUS

Some 5S Examples



Before 5S



After 5S - Cleaned,
organized and drawers
labeled (less time and
frustration hunting)

5S Examples - Sort, Set in Order



See the difference?

1. **Sort** - All unneeded tools, parts and supplies are removed from the area
2. **Set in Order** - A place for everything and everything is in its place

5S Examples - Shine



3. Shine - The area is cleaned as the work is performed (best) and/or there is a routine to keep the work area clean.

The Good, Bad and the Ugly

First the Bad and the Ugly - Life Without 5S



The Good



