SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

COURSE NAME : 19OE114 –TOTAL QUALITY MANAGEMENT

III YEAR / VI SEMESTER

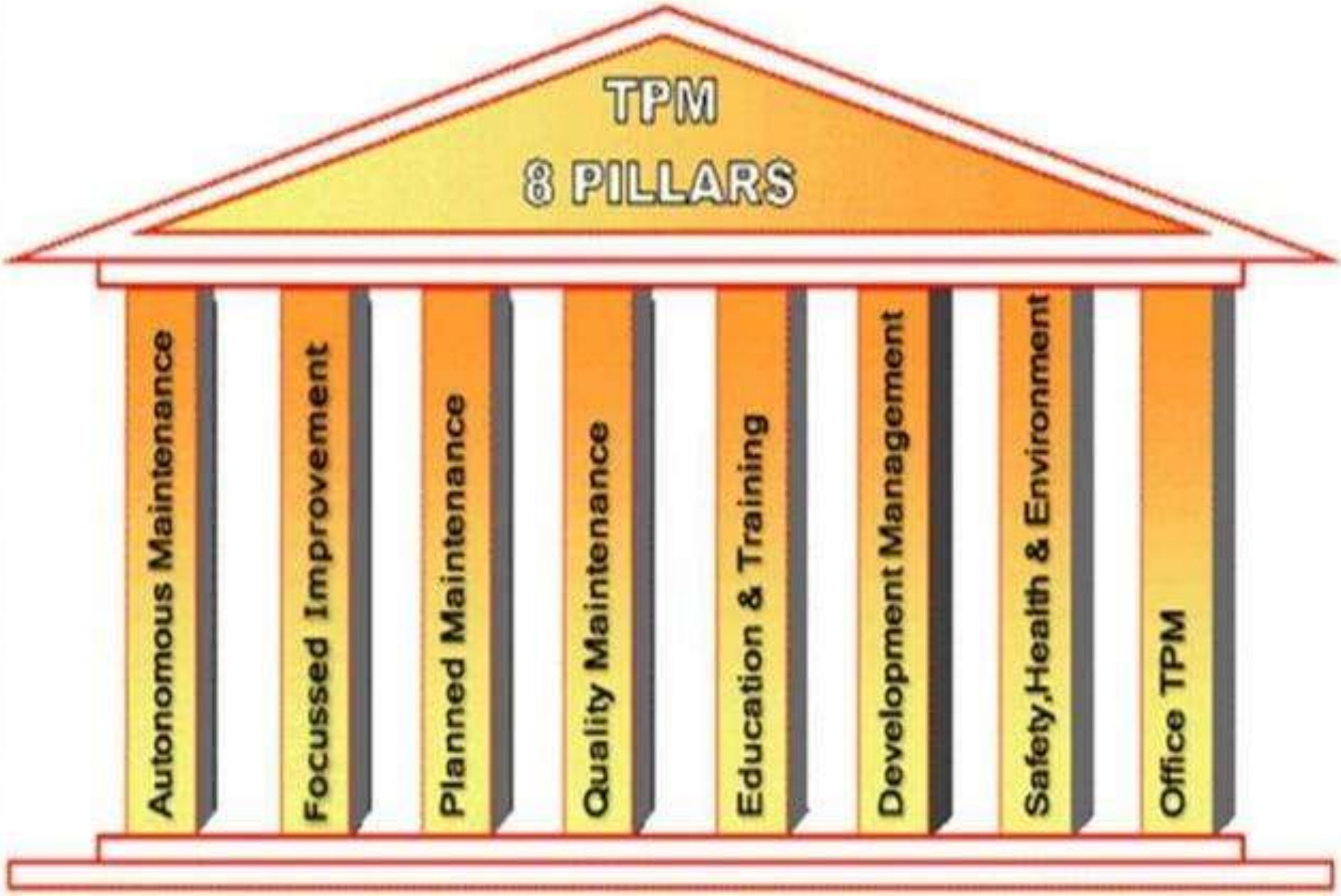
Unit 4 - TQM TOOLS & TECHNIQUESII

TOTAL QUALITY MANAGEMENT

TPM – Total Productive Maintenance

- TPM is for improving productivity by making processes more ***reliable*** and ***less wasteful***.
- The objective of TPM is to **maintain the plant or equipment in good condition.**
- To achieve this objective, preventive and predictive maintenance is required.

Pillars of TPM



TPM – Total Productive Maintenance

- **Autonomous Maintenance**, one of the features of TPM.
- The operator has a better understanding of the how the equipment works and can tell :
- if an issue is appearing,
- if quality is decreasing,

TPM – Total Productive Maintenance .

Operators are Trained and Motivated to :

Develop ownership attitude toward their equipment

They are encouraged to :

- Perform initial cleaning
- Remove the causes and effects of dirt and dust
- Conduct general inspection
- Lubricating periodically
- Workplace management.

TPM – Total Productive Maintenance

- Maintenance group makes changes that lead to maintenance prevention.

- Thus *preventive maintenance* along with *maintenance prevention* grouped as **Productive Maintenance**

TPM – Total Productive Maintenance .

TPM has 3 goals :

- Zero Product Defects
- Zero Equipment Failures
- Zero Accidents.

- Note : On the surface this may seem impossible, but **if it can be run without accident for an hour, it can be done** for two hours, a shift, a day, and so on.

TPM – Total Productive Maintenance .

- **TPM performance Metrics is :**

OEE = **O**verall **E**quipment **E**ffectiveness

The metric is calculated :

Availability x Performance x Quality

- **EXAMPLE:** if Availability is 95%, Performance is 97%, and Quality is 98%, then **OEE** is .95 x .97 x .98 = 90.3%

TPM – Total Productive Maintenance .

- **TPM identifies the 6 losses (types of waste)**
- Set-up and initial adjustment time,
- Equipment breakdown time,
- Idling and minor losses,
- Speed (cycle time) losses,
- Start-up quality losses, and
- Process quality losses,

TPM – Total Productive Maintenance .

The Base for the TPM Activity is 5S

- Seiri (Sort)
- Seition (Set-in-Order/Arrange)
- Seiso (Shine/Clean)
- Seiketsu (Standard)
- Shitsuke (Sustain)

5S Explanation

Sort	Set in Order	Shine	Standardize	Sustain
When in doubt, move it out – Red Tag technique	A place for everything and everything in its place	Clean and inspect or Inspect through cleaning	Make up the rules, follow and enforce them	Part of daily work and it becomes a habit

S -Shift

- Shift unnecessary items to stores or dump (if obsolete)
- Separate those which are necessary for the job from those which are not.
- Single out priority items, keep them as close as possible and at convenient location.
- Label up (tag) all equipment to returned to stores or dumped.

S -Shine

- Sweep and shine the work place
- Spring clean the work place
- Secure safety and health
- Stop leaks

S - Sort

- Secure a place for everything and store everything in its place like
- Tools
- Consumables
- Shop floor material
- Clearly identify work areas, equipment and routes

S - Standardize

- Operating procedures in pictures and photos and not words
- Simplify the usage instructions
- Store contents of cupboards visibly
- Keep the place tidy, clean and organized

S - Stick to Rules

- Support the process throughout
- Seek to eliminate root cause of the problem
- Conduct audit
- Make the improvements visible so that everyone gets motivated.

TPM – Total Productive Maintenance .

Results in:

- Equipment condition is known at all times
- Unexpected breakdowns are minimized.
- Corrosion is prevented; wear is delayed; machine life is extended.
- Spare parts need is reduced.
- Knowledge of the machine is increased
- Machine operation ration is improved

TPM – Total Productive Maintenance .

- **Benefits of effective TPM include the following:**
- Safer Working Environment
- Improved Equipment Reliability - Uptime
- Increased Capacity
- Increased Productivity
- Improved Quality
- Company Financial Performance and Job Security

ABB 's Experience

"5S is the starting point for any improvement

Our experience shows about 40% productivity improves by just getting organized".

THANK YOU