UNIT-1

HOTEL MAINTENANCE MANAGEMENT
RANGE

- Definition of maintenance
- Objectives & functions of maintenance
- Scopes of maintenance
- Pre-requisites of maintenance
- Types of maintenance
- Repairs & Replacement
DEFINITION OF MAINTENANCE

- Maintenance is a set of combined actions undertaken to retain an item/machine equipment/system/plant in order to restore it to an acceptable condition.
- Maintenance can also be defined as a set of organised activities that are carried out in order to keep an item in its best operational condition with minimum cost acquired.
- Hotel is a 24 hours operation since the systems in a hotel keep on working even if guests are fast asleep. For e.g. air conditioning, water supply, desk clerks, night auditors etc.
The term maintenance covers the following topics:

- **INSPECTION**: i.e. carefully examining the item, machinery and equipments.
- **REPAIRING**: i.e. to rectify any defects.
- **MODIFICATION**: i.e. any adjustments or alterations done to reduce maintenance efforts.
MAINTENANCE HISTORY

- In the period of pre-World War II, people thought of maintenance as an added cost to the plant which did not increase the value of finished product.

  Therefore, the maintenance at that era was restricted to fixing the unit when it breaks because it was the cheapest alternative.
MAINTENANCE HISTORY

During and after World War II at the time when the advances of engineering and scientific technology developed, people developed other types of maintenance, which were much cheaper such as preventive maintenance.

In addition, people in this era classified maintenance as a function of the production system.
MAINTENANCE HISTORY

Fix the equipment when it breaks

- Term terotechnology introduced.
- Recognition of need to present equipment failures.
- Models for preventive maintenance developed.

Increased awareness of:
- Environment
- Safety
- Quality
- Need for reliable equipment.
- Reduction in costs.

Pre-World War II  Post-World War II  1980 Onwards

Development of Maintenance

Figure 2.2 Maintenance History
(Adapted From Shenoy, Bhadury 1998)
MAINTENANCE HISTORY

Nowadays, increased awareness of such issues as environment safety, quality of product and services makes maintenance one of the most important functions that contribute to the success of the industry.

World-class companies are in continuous need of a very well organised maintenance programme to compete world-wide.
SCOPES OF MAINTENANCE

- In hotel industry, the maintenance of the following items/systems should be done:
  - Land(ground) – lawn
  - Site development – boundary wall, septic tank, storage tank etc.
  - Plants, machinery, equipments & systems
  - Water supply system
  - Water heating system
  - Gas distribution system
  - Fuel supply line system
SCOPES OF MAINTENANCE (CONTD)

- Drainage system
- Water disposal system
- Pollution control system
- Power supply equipments
- Ventilation, refrigeration & air conditioning system
- Fire fighting equipments
- Maintenance equipments & hand tools
- Laundry equipments
SCOPES OF MAINTENANCE (CONTD)

- Kitchen equipments or ranges
- Telephone system, fax, telex, E-mail
- TV cable system etc.
FUNCTIONS OF MAINTENANCE

- WATER SYSTEM
- ELECTRICAL SYSTEM
- REFRIGERATION SYSTEMS
- FIRE SAFETY
- COMMUNICATION SYSTEMS
- COMPUTER SYSTEMS
- AUDIO-VISUAL SYSTEMS
- LANDSCAPE
- FURNITURE & FIXTURES
OBJECTIVES OF MAINTENANCE

- Increase operational efficiency
- Customer satisfaction
- Safety of Guests & employees
- reliability
- Maximum Return on investments
- Operationally stable
- Save Energy costs
- Increase shelf life
- Available When required
- Are in operation At all times
PRE-REQUISITES OF MAINTENANCE

- Good information for analysis of equipment failure mode.
- Planning to maintenance programme.
- Availability of spare parts for equipments.
- Keeping track of pending maintenances.
- Development of maintenance standards.
- Evaluation & control of maintenance costs.
MAINTENANCE

PLANNED MAINTENANCE

IMPROVEMENT MAINTENANCE

UNPLANNED MAINTENANCE

DESIGN OUT MAINTENANCE

ENGINEERING SERVICES

SHUT DOWN MAINTENANCE

PREDICTIVE MAINTENANCE

PREVENTIVE MAINTENANCE

CORRECTIVE MAINTENANCE

RELIABILITY CENTERED MAINTENANCE

CONDITION BASED

STATISTICAL BASED

BREAKDOWN MAINTENANCE

SHUTDOWN MAINTENANCE

DEFERRED MAINTENANCE

RUNNING MAINTENANCE

OPPURTUNITY MAINTENANCE

WINDOW MAINTENANCE

SHUTDOWN MAINTENANCE

ROUTINE MAINTENANCE

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PLANNED MAINTENANCE

- Work is organized & carried out with forethought, control & record.
- In this type, the work is planned beforehand to avoid random failures.
- It not only decides when & what of maintenance but also by whom it should be undertaken.
- Work studies are carried out to decide the periodicity of maintenance.
- Time study can also suggest ways & means of devising optimal maintenance schedules for the given system.
PLANNED MAINTENANCE

- Some factors that must be taken care of:
  - UTILISATION OF EQUIPMENT/SERVICE
  - WORKING CONDITIONS
  - SPECIAL FACTORS
  - SPECIFIC INSTRUCTIONS
PLANNED MAINTENANCE

Planned maintenance can be classified as:

i) PREVENTIVE MAINTENANCE

ii) CORRECTIVE MAINTENANCE

iii) PREDICTIVE MAINTENANCE

iv) RELIABILITY CENTERED MAINTENANCE.
PREVENTIVE MAINTENANCE

- **PREVENTIVE MAINTENANCE:**
- Action to prevent breakdowns & failures.
- Inspections, minor adjustments, lubrications.
- Recommendations or measurements done by manufacturer.
PREVENTIVE MAINTENANCE

PREVENTIVE MAINTENANCE is of following types:

- Running maintenance
- Oppurtunity maintenance
- Window maintenance
- Shutdown maintenance
- Routine maintenance
PREDICTIVE MAINTENANCE

- PREDICTIVE MAINTENANCE
- TYPES OF PREDICTIVE MAINTENANCE
  - 1) CONDITION BASED
  - 2) STATISTICAL BASED
CORRECTIVE MAINTENANCE

CORRECTIVE MAINTENANCE:
It is of following types:
1. Break down maintenance
2) Shutdown maintenance
3) Deferred maintenance
4) Remedial maintenance
CORRECTIVE MAINTENANCE

- BREAKDOWN MAINTENANCE
- SHUTDOWN MAINTENANCE
- DEFERRED MAINTENANCE
- REMEDIAL MAINTENANCE
PLANNED MAINTENANCE

- RELIABILITY CENTERED MAINTENANCE:
  Maintenance scheme based on the reliability of the various components of the system or product in question.
  Developing an effective RCM requires extensive knowledge about the reliability & maintainability of the system & all of its subsequent components.
  Important factors include:
  1. MTTR (mean time to repair)
  2. FAILURE RATE (number of failures in given period of time)
  3. FMEA (failure mode & effect analysis)
  4. FTA (fault tree analysis)
  5. ETA (event tree analysis)
IMPROVEMENT MAINTENANCE

- The main aim is to reduce or completely eliminate the need for maintenance. This type of maintenance is subdivided into three types:
  - 1) DESIGN-OUT MAINTENANCE
  - 2) ENGINEERING SERVICES
  - 3) SHUTDOWN MAINTENANCE
UNPLANNED MAINTENANCE

- This includes emergency maintenance work caused by unforeseen damage and accidents. This includes all those maintenances which have not been thought out with or prepared in advance.
OTHER TYPES OF MAINTENANCE

- SCHEDULED MAINTENANCE
- CONTRACT MAINTENANCE
SCHEDULED MAINTENANCE

- This includes all those work which require longer duration to complete.
- Proper planning of manpower, tools & materials are required as well as coordination is required with other trades as well as contractors.
- Replacement or maintenance on any major equipment may also result in shutdown of other departments or blocks of guest rooms.
- Major works like building of walls or complete painting of areas can also come under scheduled maintenance.

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CONTRACT MAINTENANCE

- It is One-time or periodic maintenance performed by a third party under a contract.
- TYPES OF CONTRACT MAINTENANCE:
  - 1. LUMPSOME/COMPREHENSIVE CONTRACT
  - 2. PIECE RATE CONTRACT
  - 3. SERVICE CONTRACT
  - 4. STANDARD CONTRACT
REPAIRS & REPLACEMENT

- Repairs are done immediately at the cost of other maintenance activities.
- Replacement is done when the shelf life of the machinery or its component is over & repair costs become very costly.
- There are two types of equipments:
  - 1) Which deteriorates with time e.g. a/c, washing machine etc.
  - 2) Which fails suddenly. E.g. bulbs.
REPAIRS & REPLACEMENT

- The equipments which fail with time are replaced under the following circumstances:
  - **INADEQUACY**: (not satisfactory or acceptable)
  - **OBSOLESCENCE**: (i.e. obsolete means no longer produced)
  - **EXCESSIVE MAINTENANCE**
  - **DECREASING EFFICIENCY**
  - **COMBINATION OF CAUSES**
REPAIRS & REPLACEMENT

- PROBABILITY THEORY
- SPOT REPLACEMENT
- GROUP REPLACEMENT
- COST DATA
REVIEW

- Definition of maintenance
- Functions & objectives of maintenance
- Pre-requisites of maintenance
- Maintenance definition & classification.
- Spot replacement & group replacement
ASSIGNMENT

- Draw the classification chart of “TYPES OF MAINTENANCE” on a chart paper & explain briefly each type of maintenance.
- Explain the following terms:
  - Impeller
  - Volute
  - RCM
  - SPOT REPLACEMENT & GROUP REPLACEMENT.
THANK YOU