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| --- | --- |
| Teaching Scheme / week | Examination Scheme |
| TheoryHrs | PracticalHrs | TutorialHrs | Total | TheoryMarks/Duration | PracticalMarks | InternalMarks | Total |
| 4 | \_\_\_\_\_\_ | \_\_\_\_\_\_ | 4 | 40 | \_\_\_\_\_ | 10 | 50 |

**Sub Title – The Science of Hotel Engineering**

**Subject Code - 206**

**Semester – Second- Sem**

**Teaching and Examination Scheme:**

**Rationale:**

The subject will provide information regarding the basic services and different types of

systems in hotel industry. This will help the students to understand plan, co-ordinate and

integrate the functions of engineering departments for over all operations and assist in the

management of hotel.

 **Hrs. Mks**

Chapter-1 Maintenance & Replacement Policy **06 10**

1.1. Importance of maintenance dept. in Hotel Industry.

1.2. Organization of maintenance Dept . in 3/4/5 star hotel .

1.3. Duties & responsibility of chief Engg. of a hotel.

1.4. Types of maintenance with examples of each (Advantages & Disadvantages).

1.5 Kitchen equipment ( Convention Oven, Microwave, Steamers, Deep fat Fryers,

Refrigerators, Dish washing Machine)

1.6. Reasons for replacement of equipment.

1.7. Replacement factors

1.9. Contract of Maintenance Definition & procedure , types. Advantages & disadvantages

**Chapter 2 Refrigeration**  **08 05**

2.3 Unit of refrigeration

2.4 Vapour compression Refrigeration system (Block diagram)

2.5 Absorption refrigeration system (Block diagram)

2.6 Domestic Refrigerator, defrosting, Need, Methods, Maintenance of refrigerator.

2.7 Refrigerant :types , properties of good refrigerant.

2.8 Ammonia as a refrigerant.

**Chapter 3. Air-conditioning 04 04**

3.1 Factors affecting comfort AC (supply of oxygen, removal of heat &moisture proper air circulation, pure air)

3.2Types of AC systems :Central AC ,Unitary AC.AC equipment :Window AC Walk in freezer , cold storage.

**Chapter 4 Pollution & Control 04 08**

4.1 Air pollution.

4.1.1 Sources.

4.1.2 Control –Collectors, filters

4.1.3 Govt. stipulated conditions for air pollution.

4.2 Water pollution.

4.2.1 Water pollution sources in Hotels.

4.2.2 Control methods

4.2.3 Govt. stipulated conditions for water pollutio

4.3. Waste Disposal

4.3.1. Waste Handling equipment –(Shredders, Compactors, Transportation separation)

4.3.2. Controlling methods(recycled material, land filling, heat recovery by incineration )

4.4. Noise pollution control.

4.4.1. Sources of noise in Hotel & its unit.

4.4.2. Introductory control methods.

4.4.3. Govt. stipulated condition for noise pollution.

4.5. Environmental Degradation, Global warming and methods of Conservation. Concept of Recycling

**Chapter 5. Water and Sanitation. 08 05**

5.1 Water purification methods.

5.2 Various plumbing fixtures.

5.3 Types of sanitary traps and their applications.

5.4 Types of water closets and flushing.

**Chapter 6. Fuels and Electricity. 06 05**

6.1 Methods of heat transfer.

6.2 Units of heat.

6.3 Solid, Liquid, Gas, Electricity, Biogas fuels.

6.4 Importance of Earthing.

6.5 Electrical safety devices such as fuse, circuits breaker.

6.6 Electrical safety checklist

6.7 Methods of lighting (Direct, Indirect)

6.8 Electric wires and types of wiring

 6.9 Calculation of electricity bill.

**Chapter 7. Energy conservation. 04 04**

7.1 Importance of energy conservation.

7.2 Simple methods of Energy conservation

7.3 Developing energy conservation program for hotel.

7.4 Use of solar energy for various activities.

**Chapter 8. Audio visual equipments : 08 04**

8.1 Various audio visual equipment used in hotel

8.2 Care and cleaning of overhead projector, slide projector, LCD and power point presentation units

8.3. Maintenance of computers:

8.4. Care and cleaning of PC, CPU, Modem, UPS, Printer, Laptops

8.5. Sensors – Various sensors used in different locations of a hotel – type, uses and cost effectiveness

**Chapter 9. Safety in hotel Industry. 06 05**

9.1 Classification of fire ,symbols.

9.2 Methods and types of fire extinguishers.

9.3 Fire detectors, alarm.

9.4 Various security system for hotel ( Key control, Door, ).

9.5 Transport Systems . (Elevators, Escalators)

 Types& Uses of elevators . Passenger service, Freight elevators, Dumbwaiter ,Sidewalk elevators

 Stage lifts , Vehicle elevators , Residential elevator, Paternoster Scissor lift ,

 Rack-and-pinion elevator Material handling belts and belt elevators Passenger elevators, freight elevators

 Escalators - Design, components, and operation

**There should be 4 Demonstrations / Field Visits.**

1. Refrigerator/VCC system in Hotel

2. Cold storage/ walk in chiller

3. AC/ Window AC

4. Safety systems

 **Total 48 50**

Note : Glossary of Terms

Students should be familiar with the glossary of terms pertaining to above mentioned topics

**Reference Books**

1. Management of maintenance & Engineering Systems in Hospitality Industries – by

Frank D. Borsenik, John Willey & Sons

2. Industrial Organisation and Management by O.P. Khanna

3. Refrigeration & Air Conditioning by Domkondwar

4. Hotel Maintenance by Arora