## 4533 - BUILDING SERVICES - II

| Teaching Schedule Per Week | | | Progressive Assessment | | Examination Schedule (Marks) | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Theory | | Practical Ex. | Total |
| Lectures | Practical | Credit | | | | | | |
| 2 | 2 | 4 | 25 | 25 | 3 Hrs | 100 | -- | 150 |

| Pre-requisite | Source | U |
|---|---|---|
| Nil | ARC | |

| Semester | Theory | Test | Total | TW | PR | Gr Total |
|---|---|---|---|---|---|---|
| | 75 | 25 | 100 | – | – | 100 |

RATIONALE: - This curriculum teaches the students the more advanced services related to the building industry viz. air conditioning, acoustics & fire protection.

| COURSE CONTENTS | Hrs | Mks |
|---|---|---|
| **1. VENTILATION & AIR CONDITIONING** | 16 | 24 |
| Ventilation: Definition & Necessity, Factors affecting ventilation,. Systems of ventilation: Natural., Mechanical ( supply, exhaust, air conditioning), General considerations in natural ventilation: Air conditioning – Definition & purpose, Principles of air conditioning., Classification according to purpose,. Basic refrigeration cycle, Humidification & Dehumidification, Systems of air conditioning. ( depending upon location of a/c unit), Components of a/c system including air distribution system | | |
| **2. THERMAL INSULATION** | 12 | 20 |
| 1 Definition, objective & advantages.<br>2 Definition of related terms. (Conceptual).<br>3 General principles of thermal insulation<br>4 Constructional techniques used in insulation of roofs, exposed walls, doors, windows, and floors, foundations.<br>5 Types of insulating materials with examples of each | | |
| **3. ACOUSTICS** | 16 | 20 |
| 1 Definition ,<br>2 Characteristics of audible sound.<br>3 Acoustical defects.<br>4 Requirements & conditions of good acoustics.<br>5 General principles of acoustical design.<br>6 Classification of acoustical materials with examples of each | | |
| **4. SOUND INSULATION** | 12 | 20 |
| Definition & purpose. Noise – types & transmission, General considerations for noise control, Constructional Techniques used in insulation of walls, floors, windows, doors, sanitary fittings, and machinery. | | |
| **5. FIRE PROTECTION** | 8 | 16 |
| Important considerations in fire protection of buildings, Fire resisting properties of common building materials, Constructional techniques used for fire resistance of buildings, Fire safety devices | | |

**TERM WORK :-**

The term work shall be based on the above syllabus & shall consist of the following: -
1 sheet on layouts of air-conditioning systems (unit & central systems)
1 sheet on thermal insulation of various building components.
1 sheet on various arrangements & constructional details used in sound insulation & acoustical design of buildings.

**SITE VISITS:-**

Visits to appropriate sites to be conducted to give the student a practical understanding of air-conditioning systems, constructional details for thermal & sound insulation & fire fighting devices.

**METHOD OF TEACHING:**

Visits to appropriate sites (viz. auditorium, recording studios, a/c plants etc.) shall be conducted for a practical understanding of acoustical air conditioning.

**REFERENCE BOOKS:-**


| | |
|---|---|
| 1) A Textbook of Building Construction | S.P. Arora. & S.I. Bindra |
| 2) Building Construction | Sushil Kumar |
| 3) Building Construction | Dr. B. C. Punmia . |
| 4) Building Construction | Rangwala. |