

16EE101 **BASICS OF ENGINEERING PRODUCTS**

I Year I semester

UNIT-1

L-9

WORKING PRINCIPLE OF AC, REFRIGERATOR, PUMPS, IC ENGINES AND SCREW

JACK: Working principle of Air - Conditioner and Refrigerator, Components, Assembly and disassembly; Working principle of Centrifugal and Reciprocating pumps - Types, Parts and applications, Working principle of Screw jack and its components, Working principle of IC engines- 2 stroke and 4 stroke.

UNIT-2

L-10

BRICKS: General, Qualities and Classification of bricks, Tests for bricks, Size and Weight of bricks, Timber - Definition, Qualities of good timber, Decay of timber and Advantages of timber in construction. **CEMENTS:** Types and composition of Cement, Setting of cement, Tests for physical properties of cement, Different grades of cement.

AGGREGATES: Classification of aggregates, Source, Size and Shape of aggregates, Tests for aggregates.

STEEL: Types of steel, Physical properties and Mechanical properties of steel, Simple layout design, Paints, Tiles, fittings, Ventilation, Furniture and green house aspects.

UNIT - 3

L-8

ELECTRIC ENERGY SYSTEMS: Overview of Power System Structure, Conventional and Non Conventional Generations, Types of Turbines, Generators, Substations, Towers, Earthing procedure, Protection schemes, Single Phase and Three Phase Systems, Methods of Electrical Wiring Systems, Wiring procedure and calculations, Wiring methods, Un-Interruptible Power Supply (UPS), Components in UPS, Its functionality, Calculation of ratings for UPS components to a specific load.

UNIT - 4

L-10

LIGHT: Light Energy, Evolution of Light sources, Working of Incandescent, Fluorescent, MV, SV and LED Lamps, Comparison and Applications.

HEAT: Heat Energy, Modes of Heat Transfer, Resistance and Induction Heating, Comparison and applications.

MOTOR: Electric Motors, Classification, Construction and working principles of motors used in Domestic applications, Mixer grinder, Ceiling and exhaust fan, Hair dryer, Washing machine, Water pump, Air coolers, Vacuum cleaner, Computer cooling motor, Electric bike.

UNIT - 5

L-8

HOUSE HOLD ELECTRONIC APPLIANCES: Working principles of television, Radio, Remote control, Telephone, Microwave oven, Cell phone, PA system, Induction stove, WiFi router and DTH.

TEXT BOOKS:

1. M.S.Shetty, "Concrete Technology", 1st edition, S.Chand and Co, 2005.
2. S. C. Rangwala, "Engineering Materials", 36th edition, Charotar Publishing House, Anad, 2009.

3. Govindasamy and A Ramesh, "Electrical engineering - Electrical machines and Appliances Theory, 1st edition, Tamilnadu text book corporation, 2010.
 4. Janakaraj, A Sumathi et al, "Electrical engineering - Electrical machines and Appliances Theory", 1st edition, Tamilnadu text book corporation, 2011.
 5. Marshall Brain, "How Stuff Works", 1st edition, John Wiley&Sons, 2001.
 6. Pravin Kumar, "Basic Mechanical Engineering", 1st edition, Pearson Publishers, 2013.
-