

EE8015 ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION

UNIT I ILLUMINATION

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Importance of lighting – properties of good lighting scheme – laws of illumination – photometry - types of lamps – lighting calculations – basic design of illumination schemes for residential, bcommercial, street lighting, factory lighting and flood lighting – LED lighting and energy efficient

lamps.

UNIT II REFRIGERATION AND AIR CONDITIONING

Refrigeration-Domestic refrigerator and water coolers - Air-Conditioning-Variou types of air-conditioning system and their applications, smart air conditioning units - Energy Efficient motors: Standard motor efficiency, need for efficient motors, Motor life cycle, Direct Savings and payback analysis, efficiency evaluation factor.

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UNIT III HEATING AND WELDING 9

Role of electric heating for industrial applications – resistance heating – induction heating – dielectric heating - electric arc furnaces. Brief introduction to electric welding – welding

generator, welding transformer and the characteristics.

UNIT IV TRACTION

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Merits of electric traction – requirements of electric traction system – supply systems – mechanics of train movement – traction motors and control – braking – recent trends in electric

traction.

UNIT V DOMESTIC UTILIZATION OF ELECTRICAL ENERGY

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Domestic utilization of electrical energy – House wiring. Induction based appliances, Online and OFF line UPS, Batteries - Power quality aspects – nonlinear and domestic loads – Earthing – Domestic, Industrial and Substation.

TOTAL : 45 PERIODS