

Centre for Continuing Education (CCE), SVNIT, Surat
Value Added Certificate Course
Energy Conservation, Management & Audit
Course Content

General Aspects of Energy Conservation, Management and Audit

Fuels and Combustion

Introduction to Fuels, Properties of Fuel oil, Coal and Gas, Storage, handling and preparation of fuels, Principles of Combustion, Combustion of Oil, Coal, and Gas

Boilers: Types, Combustion in boilers, Performances evaluation, Analysis of losses, Feed water treatment, Blow down, Energy conservation opportunities, Industrial Case Studies

Steam System: Properties of steam, Assessment of steam distribution losses, Steam leakages, Steam trapping, Condensate and flash steam recovery system, Identifying opportunities for energy savings, Industrial Case Studies

Insulation: Insulation-types and application, Economic thickness of insulation, Heat savings and application criteria

Cogeneration: Definition, Need, Application, Advantages, Classification, Saving potentials, Industrial Case Studies

Waste Heat Recovery: Classification, Advantages and applications, Commercially viable waste heat recovery devices, Saving potential.

Electrical system: Electricity billing, Electrical load management and maximum demand control, Power factor improvement and its benefit, Selection and location of capacitors, Performance assessment of PF capacitors, Distribution and transformer losses.

Electric motors: Types, Losses in induction motors, Motor efficiency, Factors affecting motor performance, Rewinding and motor replacement issues, Energy saving opportunities with energy efficient motors.

Compressed air system: Types of air compressors, Compressor efficiency, Efficient compressor operation, Compressed air system components, Capacity assessment, Leakage test, Factors affecting the performance and efficiency

HVAC and Refrigeration System: Vapor compression refrigeration cycle,

Refrigerants, Coefficient of performance, Capacity, Factors affecting Refrigeration and Air conditioning system performance and savings opportunities. Vapor absorption refrigeration system: Working principle, Types and comparison with vapor compression system, Saving potential

Cooling Tower: Types and performance evaluation, Efficient system operation, Flow control strategies and energy saving opportunities, Assessment of cooling towers

Lighting System: Light source, Choice of lighting, Luminance requirements, and Energy conservation avenues

Diesel Generating system: Factors affecting selection, Energy performance assessment of diesel conservation avenues