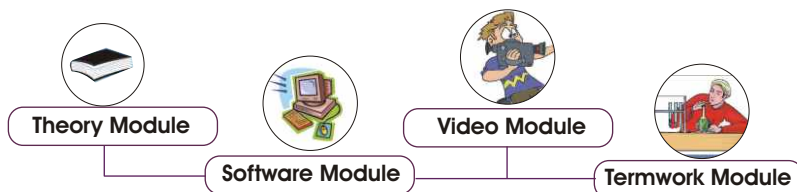


Energy Conversion Systems



Introduces, Global e-Learning System in Education & Training in the form of Learning Resources with Computer Aided Instructions



System Requirement:- IBM-PC Compatible Min P-III with Window-OS, 128 MB RAM/Multimedia Kit

Theory module

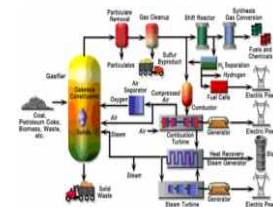
Features : Theory, Figures, Photographs, Animations with controller, Highlighter tool, Note creation Facility, Systematic page navigation, Printing facility Access to Videos at appropriate locations.

List of Topics

Introduction to Energy Conversion Systems

- ✍ Introduction
- ✍ Pressurized fluidized-bed combustion
- ✍ Integrated gasification combined cycle
- ✍ Indirectly fired cycle

- ✍ Fuel cells, Advanced gas turbine,
- ✍ Magneto-hydrodynamics,
- ✍ Basic concepts
- ✍ Cyclic process.



Non Conventional Energy Sources



- ✍ Introduction
- ✍ Wind power plants
- ✍ Wind-powered battery chargers
- ✍ Wind electricity in small independent grids
- ✍ Tidal power plants, Solar power plants

- ✍ Collectors in various ranges and application
- ✍ Solar pond technology
- ✍ Geothermal power plants
- ✍ Geothermal sources
- ✍ Bio gas plants

Bio Energy Conversion System

- ✍ Introduction
- ✍ Biomass technologies
- ✍ Combustion, Gasification
- ✍ Stirling engines

- ✍ Internal combustion engines Biomass implementation
- ✍ Fuel production from biomass
- ✍ Direct photosynthetic production of hydrocarbons



Steam Power Plant System



- ✍ Introduction
- ✍ Classification of steam power plants
- ✍ Layout of a modern steam power plant
- ✍ Air and gas circuit
- ✍ Cooling water circuit
- ✍ Requirement of good coal handling plant

- ✍ Layout of a fuel handling equipment
- ✍ Cochran boilers
- ✍ Locomotive boiler
- ✍ Stirling boilers
- ✍ LaMont boiler
- ✍ Loeffler boiler
- ✍ Benson boiler

Gas Turbine Power Plant System

- ✍ Gas turbines-general aspects
- ✍ Energy cycle for a simple-cycle gas turbine
- ✍ Constant pressure combustion gas turbines
- ✍ Reheating

- ✍ Regeneration
- ✍ Constant volume combustion turbines
- ✍ Combination gas turbine cycles
- ✍ Operation of a gas turbine



Diesel Engine Power Plant System



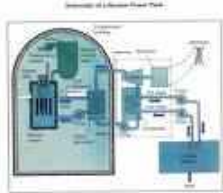
- ✍ Introduction
- ✍ Applications of diesel power plant
- ✍ Heat engines
- ✍ Four stroke cycle diesel engine
- ✍ Two stroke cycle diesel engine
- ✍ Layout of a diesel engine power plant

Hydro-Electric Power Plant System

- ✍ Introduction
- ✍ Power house and equipment
- ✍ Medium head power plants
- ✍ Low head power plants Hydraulic turbines
- ✍ Reaction turbines
- ✍ Francis turbines
- ✍ Propeller and Kaplan turbines
- ✍ Hydro-plant controls



Nuclear Power System



- ✍ Nuclear power systems
- ✍ Nuclear reactors
- ✍ Boiling water reactor
- ✍ CANDU reactor
- ✍ Liquid metal cooled reactors
- ✍ Breeder reactor
- ✍ Total energy costs

Electrical Equipments in Power Plants

- ✍ Introduction
- ✍ Generating equipment
- ✍ Principle of generator
- ✍ Elementary generator
- ✍ Conversion of alternating current into direct current by means of commutator
- ✍ Construction of D.C. Machines
- ✍ Series generator
- ✍ Compound wound generator
- ✍ Cooling alternators
- ✍ Hydrogen cooling
- ✍ Transformers
- ✍ Switchgear
- ✍ Conductor material
- ✍ Line insulators
- ✍ Distribution systems
- ✍ Underground cables



Inverters



- ✍ Introduction
- ✍ Thyristor inverter classification
- ✍ Series inverters
- ✍ Self commutated inverters
- ✍ Parallel inverters
- ✍ Three phase bridge inverters
- ✍ Voltage control of single phase inverter
- ✍ Voltage control of three phase inverter
- ✍ Harmonic reduction
- ✍ Harmonic filters
- ✍ Current source inverters

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