

# AMAC-24 ERECTION & MAINTENANCE OF REFRIGERATION & AIR-CONDITIONING EQUIPMENTS

## UNIT-1 ENERGY SCENARIO

- 1.1 Role of energy in economic development and social transformation:
- 1.2 Energy & GDP,GNP and its dynamics
- 1.3 Energy Sources and Overall Energy demand and Availability
- 1.4 Energy Consumption in various sectors and its changing pattern
- 1.5 Status of Nuclear and Renewable Energy: Present Status and future promise

## UNIT-2 FORECASTING MODEL

- 2.1 Forecasting Techniques- Regression Analysis- Double Moving Average
- 2.2 Double Experimental Smoothing- Triple Exponential Smoothing
- 2.3 ARIMA model- Validation techniques
- 2.4 Qualitative forecasting- Delphi technique- Concept of Neural Net Works.

## UNIT-3 OPTIMIZATION MODEL

- 3.1 Principles of Optimization - Formulation of Objective Function
- 3.2 Constraints- Multi Objective Optimization
- 3.3 Mathematical Optimization Software
- 3.4 Development of Energy Optimization Model
- 3.5 Development of Scenarios
- 3.6 Sensitivity Analysis- Concept of Fuzzy Logic.

## UNIT-4 PROJECT MANAGEMENT

- 4.1 Project Preparation- Feasibility Study
- 4.2 Detailed Project Report- Project Appraisal
- 4.3 Social-cost benefit Analysis- Project Cost Estimation
- 4.4 Project Risk Analysis- Project Financing- Financial Evaluation

## UNIT-5 ENERGY POLICY

- 5.1 National & State Level Energy Issues
- 5.2 National & State Energy Policy - Energy Security
- 5.3 National solar mission - state solar energy policy
- 5.4 Framework of Central Electricity Authority (CEA),
- 5.5 Central & States Electricity Regulatory Commissions (CERC & ERCs)

## References Books:

1. S. Makridakis, Forecasting Methods and applications. Wiley 1983
2. Yang X.S. Introduction to mathematical optimization: From linear programming to Metaheuristics, Cambridge, Int. Science Publishing, 2008
3. Austin H. Church, centrifugal pumps and blowers, John Wiley and sons, 1980.