

Syllabus for Technical / Professional Knowledge ^{Operations}
Technician

Topics	Sub-Topics
Chemical Reaction Engineering	Reactor Types – Performance – Industry Applications.
Fluid Mechanics	Pumps -Mechanism -Types -Industry Applications
	Pumps -Operation -Trouble shooting
	Performance Characteristics of pumps
	Losses, Cavitation & priming in pumps
	Compressor -Mechanism -Types-Industry Applications
	Compressor - Operation -Trouble shooting
	Valves- Mechanism -Types -Industry Applications
Fans- Mechanism -Types -Industry Applications	
Heat Transfer	Heat Exchanger- Energy Balance -Types-Applications
	Performance Equations -LMTD - Overall HTC
	Fouling Factor - Correction charts
	Basic construction of Shell and Tube Heat Exchanger
Mass Transfer	Distillation Column - Types -Trays-Reflux
	Cooling Tower -Types-Operation-Industry Applications
Process Instrumentation	Pressure -Units -Types - Measurement
	Vacuum Measurement
	Temperature Measurement -scales -Thermometers
	Thermocouples, Pyrometers, transmitters
	Flow Measurement- types of flowmeters- Applications
	Principle & working of flow meters
	Level Measurement- types- Industry Applications
Principle & working of level meters	
Mechanical Operations	Filtration -Filter Medium-Filter Aids
	Types of Filtration Equipments
Mechanical Engineering	Steam Turbines-Operation -Types -Industry Applications
Industrial Safety	Plant Safety -Safe Operation Procedures -Codes -PPE
	Accident Causes & Prevention -Exposure Evaluation
	Emergency Planning, MSDS
Unit Operation	Stoichiometric Calculation – Medium
	Evaporation – Low
	Distillation - High
Plant Utilities	Water –Steam
	Energy Efficiency- pumps, valves, Reactors
	Energy Efficiency -Heat Exchangers, Columns, Cooling Towers