

CHEMICAL ENGINEERING DEPARTMENT
LESSON PLAN

Discipline :- CHEMICAL	Semester:- 5th	Name of the Teaching Faculty YAYATI KISHORE MOHANTA
Subject:- Entrepreneurship And Management & Smart Technology	No of Days/per Week Class Allotted :-04	Semester From:- 15th September 2022 To:- 22nd December 2022
Course Code : TH 1		
Week	Class Day	Theory/ Practical Topics
1 st	1 st	Chapter 1: Entrepreneurship Concept /Meaning of Entrepreneurship
	2 nd	Need of Entrepreneurship
	3 rd	Characteristics, Qualities and Types of entrepreneur,
	4 th	Entrepreneur's vs. Manager
2 nd	1 st	Forms of Business Ownership: Sole proprietorship, partnership forms and others
	2 nd	Types of Industries, Concept of Start-ups
	3 rd	Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc.
	4 th	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks
3 rd	1 st	Functions and Barriers in entrepreneurship
	2 nd	Chapter 2: Market Survey and Opportunity Identification (Business Planning) Business Planning
	3 rd	SSI, Ancillary Units, Tiny Units, Service sector Units
	4 th	Time schedule Plan, Agencies to be contacted for Project Implementation
4 th	1 st	Assessment of Demand and supply and Potential areas of Growth
	2 nd	Identifying Business Opportunity
	3 rd	Final Product selection
	4 th	Chapter 3: Project report Preparation Preliminary project report
5 th	1 st	Detailed project report,
	2 nd	Techno economic Feasibility
	3 rd	Project Viability
	4 th	Chapter 4: Management Principles Definitions of management
6 th	1 st	Principles of management

	2 nd	Functions of management (planning, organising, staffing, directing and controlling etc.)
	3 rd	Level of Management in an Organisation
	4 th	Chapter 5: Functional Areas of Management Production management: Functions, Activities
7 th	1 st	Productivity Quality control Production Planning and control
	2 nd	Inventory Management
	3 rd	Need for Inventory management
	4 th	Models/Techniques of Inventory management
8 th	1 st	Financial Management
	2 nd	Functions of Financial management
	3 rd	Management of Working capital, Costing (only concept)
	4 th	Break even Analysis
9 th	1 st	Brief idea about Accounting Terminologies: Book Keeping, Journal entry
	2 nd	Marketing Management, Concept of Marketing and Marketing Management
	3 rd	Marketing Techniques, Concept of 4P s (Price, Place, Product, Promotion)
	4 th	Human Resource Management
10 th	1 st	Functions of Personnel Management
	2 nd	Manpower Planning, Recruitment, Sources of manpower,
	3 rd	Selection process, Method of Testing, Methods of Training & Development, Payment of Wages
	4 th	Chapter 6: Leadership and Motivation Definition and Need/Importance
11 th	1 st	Qualities and functions of a leader, Manager Vs Leader
	2 nd	Style of Leadership (Autocratic, Democratic, Participative)
	3 rd	Definition and characteristics of motivation, Importance of motivation
	4 th	Factors affecting motivation, Theories of motivation (Maslow)
12 th	1 st	Methods of Improving Motivation
	2 nd	Importance of Communication in Business
	3 rd	Types and Barriers of Communication
	4 th	Chapter 7: Work Culture, TQM & Safety Human relationship and Performance in Organization
13 th	1 st	Relations with Peers, Superiors and Subordinates
	2 nd	TQM concepts: Quality Policy, Quality Management, Quality system
	3 rd	Accidents and Safety, Cause, preventive measures,
	4 th	General Safety Rules , Personal Protection Equipment(PPE)
14 th	1 st	Chapter 8: Legislation Introduction
	2 nd	Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights
	3 rd	Features of Factories Act 1948 with Amendment (only salient points)

	4 th	Features of Payment of Wages Act 1936 (only salient points)
15 th	1 st	Chapter 9: Smart Technology Concept of IOT, How IOT works
	2 nd	Components of IOT, Characteristics of IOT,
	3 rd	Categories of IOT
	4 th	Applications of IOT- Smart Cities, Smart Transportation, Smart Home, Smart Healthcare, Smart Industry, Smart Agriculture, Smart Energy Management etc

LESSON PLAN OF 5th SEMESTER(2022-2023) CHEMICAL ENGINEERING DEPARTMENT

Discipline: Chemical	Semester: 5th	Name of the Teaching Faculty: Sanjukta Nayak
Subject: Theory-2	No of Days per week class allotted:4	Semester From: 15th September 2022 To 22nd December 2022
Mass Transfer -2		No of Weeks :15
Week	Class days	Theory/ Practical Topic
1 st	1 st	Chapter – 1: Humidification and Dehumidification Introduction about humidification and dehumidification
	2 nd	Define temperature, wet bulb temperature and dry bulb temperature
	3 rd	The principle of wet blub temperature theory
	4 th	Illustrate humidity chart
2 nd	1 st	Different methods of measurement of Humidity
	2 nd	Practice to identify different lines, temperatures, humidity in humidity chart
	3 rd	Different methods of humidification
	4 th	Different methods of dehumidification
3 rd	1 st	The construction and working of natural cooling tower
	2 nd	The construction and working of mechanical draft cooling tower
	3 rd	Solve simple problems
	4 th	Revision of the chapter
4 th	1 st	Doubt clearing and practicing class
	2 nd	Chapter – 2: Drying Introduction to drying
	3 rd	Types of Moisture content-equilibrium, unbound, free moisture
	4 th	Showing different types of moisture content in the graph
5 th	1 st	Concept of drying rate with graphical view
	2 nd	Practicing numerical
	3 rd	The methods of removing liquids from solids
	4 th	Illustrate constant rate and falling rate period
6 th	1 st	The construction and working principle of tray dryer
	2 nd	The construction and working principle of rotary dryer, spray dryer
	3 rd	The construction and working principle of tunnel dryer, flash dryer
	4 th	The construction and working principle of dryer fluidized bed dryer

7 th	1 st	Dryer for heat sensitive materials
	2 nd	Solve simple problem
	3 rd	Solve simple problem
	4 th	Revision of the chapter
8 th	1 st	Practicing previous year questions
	2 nd	Chapter – 3: Extraction Introduction to extraction
	3 rd	Liquid extraction and leaching
	4 th	Different types of extraction
9 th	1 st	Learning concentration on the triangular diagram
	2 nd	The principle of solid liquid extraction
	3 rd	Revision of the chapter
	4 th	Define Batch leaching with example
10 th	1 st	Continuous leaching operation
	2 nd	Construction and working of Solid-Liquid extraction equipment
	3 rd	Construction and working of Solid-Liquid extraction equipment
	4 th	The principal of liquid-liquid extraction
11 th	1 st	The parameter in choice of solvent for liquid-liquid extraction
	2 nd	Revision and doubt clearing class about the chapter
	3 rd	Practice questions based on the chapter
	4 th	Construction and working principle of liquid-liquid extraction equipment
12 th	1 st	Construction and working principle of solid liquid extraction equipment
	2 nd	Solve simple problems
	3 rd	Solve simple problems
	4 th	Chapter – 4: Crystallization Introduction to crystallization
13 th	1 st	Principle of crystallization
	2 nd	Construction and working of different types of batch crystallizer
	3 rd	Construction and working of different types of continuous crystallizer
	4 th	Solve simple problems
14 th	1 st	Solve simple problems
	2 nd	Practice previous years question related to the chapter
	3 rd	Revision of the chapter-1

	4 th	Revision of the chapter-2
15 th	1 st	Revision of the chapter-3
	2 nd	Revision of the chapter-4
	3 rd	Practice previous year questions
	4 th	Practice previous years questions

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CHEMICAL ENGINEERING DEPARTMENT LESSON PLAN

Discipline :- CHEMICAL	Semester:- 5th	Name of the Teaching Faculty Mr SIBASISH MAHAPATRA
Subject:- Chemical Process Industries – II	No of Days/per Week Class Allotted :-04	Semester From:- July To:- December
Course Code : TH 3		
Week	Class Day	Theory/ Practical Topics
1 st	1 st	CHAPTER-1: PESTICIDES Introduction
	2 nd	Pesticides, Classification
	3 rd	Manufacture of DDT
	4 th	DDT flow sheet description & application
2 nd	1 st	CHAPTER-2: PAINTS AND VARNISHES Introduction about paint, varnishes, lacquers, enamels and their components
	2 nd	Constituents of paints and their characteristics
	3 rd	Manufacturing process of paints and varnishes.
	4 th	Failure of paints
3 rd	1 st	Advance technologies in paint industries
	2 nd	CHAPTER-3: EXPLOSIVES Introduction about explosives
	3 rd	Classification of different explosives
	4 th	Manufacture of cellulose nitrate
4 th	1 st	Broad application of cellulose nitrate
	2 nd	Manufacture nitroglycerine and dynamite
	3 rd	CHAPTER-4: PLASTICS Introduction about plastics, types
	4 th	Differentiate between thermoplastic and thermosetting
5 th	1 st	Classification of plastics
	2 nd	Properties and manufacture of phenol formaldehyde and its application
	3 rd	Properties and manufacture of urea formaldehyde and its application
6 th	4 th	Properties and Manufacture of polyethylene and its application
	1 st	Properties and Manufacture of P.V.C and its application
	2 nd	CHAPTER-5: SYNTHETIC FIBERS Introduction about fibre and its classification
	3 rd	Properties of polyamides
7 th	4 th	Manufacture of Nylon and its application
	1 st	Properties and Manufacture of Viscose rayon and its application
	2 nd	Properties and Manufacture of Cupro ammonium rayon and its application

	3 rd	Properties and Manufacture of Acetate rayon and its application
	4 th	Properties and Manufacture of Polyester and its application
8 th	1 st	CHAPTER-6: RUBBER Introduction about rubber and its classification
	2 nd	Vulcanization of rubber
	3 rd	Natural and synthetic rubber
	4 th	Manufacture of SBR and their properties
9 th	1 st	Manufacture of Nitrile rubber and their properties
	2 nd	CHAPTER-7: SUGAR Introduction
	3 rd	Manufacture of sugar from sugarcane
	4 th	Manufacture of industrial alcohol and uses
10 th	1 st	Classification of alcoholic beverages
	2 nd	Properties of Alcohols
	3 rd	Manufacture of Beer
	4 th	Cont..
11 th	1 st	CHAPTER-8: OILS AND FATS Classify different types of oil
	2 nd	Manufacture of vegetable oil
	3 rd	Differentiate edible and essential oil
	4 th	Differentiate oil and fats
12 th	1 st	Hydrogenation of oil and application
	2 nd	Advance technologies in oil production
	3 rd	CHAPTER-9: SOAPS AND DETERGENTS Introduction on soaps and detergent
	4 th	Differentiate between soap and detergent
13 th	1 st	Properties of surfactant
	2 nd	Cleaning action of soap
	3 rd	Types of soap
	4 th	Manufacture of soap and uses
14 th	1 st	Manufacture of detergent and uses
	2 nd	Industrial application of surfactants
	3 rd	CHAPTER-10: PHARMACEUTICAL INDUSTRY Classification of pharmaceutical industry
	4 th	Major pharmaceutical industry in India
15 th	1 st	Pharmaceutical industry products
	2 nd	Properties and structure of penicillin
	3 rd	Manufacture of penicillin by fermentation
	4 th	Application of penicillin

LESSON PLAN OF 5TH SEMESTER(2022-23) CHEMICAL ENGINEERING

DISCIPLINE: CHEMICAL	Semester:-5TH	<u>NAME OF THE TEACHING FACULTY</u> Sibasish Mahapatra
SUBJECT: CHEMICAL ENGINEERING THERMODYNAMICS	No of days per Week Allotted : 04	Semester from:15Th September 2022 TO 22nd December 2022 No of Weeks:- 15
Week	Class/ Day	Theory/ Practical Topics
1 ST	1 st	Scope and limitations of Thermodynamics
	2 nd	System, surrounding and boundary
	3 rd	Different types of systems
	4 th	Processes, state, properties
2 ND	1 st	Path and State functions
	2 nd	Heat and Work
	3 rd	Equilibrium state and phases
	4 th	Zeroth law of Thermodynamics
3 rd	1 st	State and explain first law of Thermodynamics
	2 nd	State and explain first law of Thermodynamics
	3 rd	Concept of internal energy, Enthalpy, heat capacity
	4 th	Concept of internal energy, Enthalpy, heat capacity
4 th	1 st	First law of thermodynamics for cyclic process, non-flow process, and flow process
	2 nd	First law of thermodynamics for cyclic process, non-flow process, and flow process
	3 rd	First law of thermodynamics for cyclic process, non-flow process, and flow process
	4 th	Solve numerical on application of 1 ST law of thermodynamics
5 th	1 st	Solve numerical on application of 1 ST law of thermodynamics
	2 nd	Constant volume process for ideal gases
	3 rd	Constant pressure process for ideal gases
	4 th	Constant temperature process for ideal gases
6 th	1 st	Adiabatic process for ideal gases
	2 nd	Polytropic process for ideal gases
	3 rd	Solve simple problems
	4 th	Solve simple problems
7 th	1 st	Solve simple problems

	2 nd	Equation of state and ideal gas
	3 rd	P-V-T behavior of pure fluid
	4 th	P-V-T behavior of pure fluid
8 th	1 st	Concept of heat reservoir, heat engine, and heat pump
	2 nd	Concept of heat reservoir, heat engine, and heat pump
	3 rd	State and explain second law of thermodynamics
	4 th	Concept of entropy
9 th	1 st	Concept of entropy
	2 nd	Calculate change of entropy for various conditions
	3 rd	Calculate change of entropy for various conditions
	4 th	Calculate change of entropy for various conditions
10 th	1 st	Third law of Thermodynamics
	2 nd	Solve simple problems
	3 rd	Solve simple problems
	4 th	Classify thermodynamic properties
11 th	1 st	Work function and Gibb's free energy
	2 nd	Work function and Gibb's free energy
	3 rd	Gibb's phase rule
	4 th	Various relationships among thermodynamic properties
12 th	1 st	Maxwell equation
	2 nd	Maxwell equation
	3 rd	Clapeyron equation
	4 th	Entropy-heat capacity relation
13 th	1 st	Differential equation for entropy
	2 nd	Effect of temperature, pressure and volume on U,H and S, relationship between Cp and Cv
	3 rd	Effect of temperature, pressure and volume on U,H and S, relationship between Cp and Cv
	4 th	Gibb's-Helmholtz equation
14 TH	1 st	Fugacity co-efficient, effect of temperature and pressure on fugacity, fugacity of pure gases, solids and liquids
	2 nd	Fugacity co-efficient, effect of temperature and pressure on fugacity, fugacity of pure gases, solids and liquids
	3 rd	Concept of activity, Effect of pressure and temperature on activity
	4 th	Concept of activity, Effect of pressure and temperature on activity

15 TH	1 st	Concept of Refrigeration and liquefaction process
	2 nd	Previous Year Questions discussion
	3 rd	Previous Year Questions discussion
	4 th	Objective Questions discussion

Discipline: Chemical		Semester: 5 th	Name of Faculty: Satya Sankar Raj	
Subject: Theory-5 Instrumentation & Chemical Analysis		No of Days per week class allotted	Semester From: 15 th September 2022 to 22 nd December 2022 No of Week-15	
Week	Class No	Class days	Chapter	Theory Topic
			Chapter -1 Instrument	
1 st	1	1 st	1.1	Introduction to instrumentation, Measurement, and its aim
	2	2 nd	1.2	Standards of measurements- International standard, basic standards
	3	3 rd	1.3	Functional elements of an instrument
	4	4 th	1.4	Performance characteristics of an instrument
2 nd	5	1 st	1.5	Errors in instrumentation, Sources, Units of measurement
			Chapter -2 Measurement of Characteristics	
	6	2 nd	2.1	Viscosity measurement, Principle, capillary viscometer, Efflux Cup viscometer
	7	3 rd	2.1	Redwood viscometer, falling sphere viscometer, Continuous viscometer
	8	4 th	2.2	Nature of radiant energy, Electromagnetic spectrum
3 rd	9	1 st	2.2	Phenomena related with energy: Absorption & Emission, Fluorescence
	10	2 nd	2.2	Type of Spectroscopy-Microwave, Ultraviolet and visible spectroscopy
	11	3 rd	2.2	Fundamental laws and working of a spectrometer, Colorimeter, applications
	12	4 th	2.3	Optical activity & polarimetry, Specific and molecular rotation
4 th	13	1 st	2.3	Working of polarimeter and application of polarimeter
	14	2 nd	2.4	Concept of refractometry, Snell's law, principle of refractometer
	15	3 rd	2.4	Measurement of refractive index by refractometer, application in Industry
			Chapter -3 pH and Conductivity Measurement	
	16	4 th	3.1	pH measurement working principle
5 th	17	1 st	3.1	Construction of pH electrodes and its operation
	18	2 nd	3.1	Operation of pH meter, advantages, disadvantages, and applications
	19	3 rd	3.2	Principles of measurement of electrical conductivity
	20	4 th	3.2	Operation of Conductivity meter, advantages, disadvantages, and applications
6 th			Chapter -4 Temperature Measurement	
	21	1 st	4.1	Different temperature scales and its interconversions
	22	2 nd	4.1	Basic fixed points, secondary fixed points
	23	3 rd	4.2	Methods of temperature measurement- principle and applications
	24	4 th	4.3	Measurements of temperature in liquid in glass thermometer
Week	Class No	Class days	Chapter	Theory Topic
7 th	25	1 st	4.4	Working of resistance thermometer, advantages, and disadvantages

	26	2 nd	4.4	Thermocouples, material used in thermocouples and its advantages
	27	3 rd	4.4	Working of radiation pyrometer, advantages, disadvantages, and application
	28	4 th	4.4	Working of Optical pyrometer, advantages, disadvantages, and application
8 th	29	1 st	4.4	Fiber optics temperature measurement and ultrasonic thermometers
	30	2 nd	4.4	Calibration of thermometers, miscellaneous measurement techniques
			Chapter -5 Pressure Measurement	
	31	3 rd	5.1	Different types of pressures, units, and interconversions
	32	4 th	5.2	Methods of pressure measurements
9 th	33	1 st	5.3	Elastic Pressure transducers, components in Bourdon tube Pressure Gauge
	34	2 nd	5.3	Adjustments in Bourdon tube Pressure Gauge, advantages, disadvantages
	35	3 rd	5.3	Diaphragm pressure transducers, advantages, disadvantages, and application
	36	4 th	5.3	Bellows type gauge advantages, disadvantages, and application
10 th	37	1 st	5.3	Measurement of vacuum-Capsule gauge, McLeod gauge-applications
	38	2 nd	5.3	Calibration of pressure measuring instrumentations
	39	3 rd	5.4	Maintenance of pressure measuring instruments-Inspection, care, and repair
	40	4 th	5.4	Troubleshooting of pressure measuring instruments.
			Chapter -6 Automatic Control	
11 th	41	1 st	6.1	Automatic control system and explain the application with example.
	42	2 nd	6.1	Working of a heat exchanger Control system
	43	3 rd	6.1	Working of a liquid level tank Control system
	44	4 th	6.2	Elementary idea on transfer functions for a first order system & time constant
12 th	45	1 st	6.2	Block diagram and components of Process Control system
	46	2 nd	6.2	Function of sensors and transmitters, transfer function of a control system
	47	3 rd	6.2	Working of sensor transmitter combination
	48	4 th	6.3	Types of process control system, advantages, and disadvantages
13 th	49	1 st	6.3	Working of open loop control system with examples
	50	2 nd	6.3	Working of Closed loop control system with examples
	51	3 rd	6.3	Working of Feed Forward control system with examples
	52	4 th	6.3	Working of cascade control system with examples
14 th	53	1 st	6.4	Elementary idea about different types of automatic controllers.
	54	2 nd	6.4	Ratio control system, analog and digital control system
	55	3 rd	6.5	Application based control system- sequential control system, Numerical CS
	56	4 th	6.5	I,D,PI, PD,PID Pneumatic, Hydraulic and electronic controller
Week	Class No	Class days	Chapter	Theory Topic
15 th	57	1 st	6.5	Principle of PLC, computer Aided measurement and control

	58	2 nd	6.5	PLC Architecture, PLC basic structure and programming
	59	3 rd	6.5	Role of computers in measurement and control
	60	4 th	6.5	Elements of computer aided measurement and control, architecture

Discipline: Chemical		Semester: 5 th – Group-A	Name of Faculty: Satya Sankar Raj	
Subject: Student Centric Activity		No of Days per week class allotted-03	Semester From: 15 th September 2022 to 22 nd December 2022 No of Week-15	
Week	Class No	Class days		
1 st	1	1 st	September 4 th Week	Orientation Program and Mentor Mentee Meet
	2	2 nd		
	3	3 rd		
2 nd	4	1 st	October 2 nd week	Poster Making on Emerging trends in different Chemical Industry/Energy Conservation/
	5	2 nd		
	6	3 rd		
3 rd	7	1 st	October 3 rd week	Seminar by Industry Expert- latest trend in Plastic Processing- Proprietor Sree Plast Limited or Functioning of State Pollution Control Board- RO Regional Office OSPCB
	8	2 nd		
	9	3 rd		
4 th	10	1 st	October 4 th week	Laboratory Maintenance- 1.Cleaning of equipment,2. Lubrication 3. Running of equipment 4.Removal of residue material 5.Pianting of parts, 6.Arranging glass ware, Chemicals 7. Minor maintenance of equipment
	11	2 nd		
	12	3 rd		
5 th	13	1 st	November 1 st week	Creativity & Idea Presentation-
	14	2 nd		
	15	3 rd		
6 th	16	1 st	November 2 nd week	Seminar by Industry Expert- Pharmaceutical Intermediate Processing- Dept of Pharmacy BU/ Roland Institute of pharmacy
	17	2 nd		
	18	3 rd		
7 th	19	1 st	November 4 th week	Field Visit or Industry visit- JK paper/ Waste Treatment plant Mahuda/Sree Plast limited
	20	2 nd		
	21	3 rd		
8 th	22	1 st	December 1 st week	CV/ Interview preparation/Career Counseling Program
	23	2 nd		
	24	3 rd		
9 th	25	1 st	December 2 nd week	Laboratory Maintenance-1.Cleaning of equipment,2. Lubrication 3. Running of equipment 4.Removal of residue material 5.Pianting of parts, 6.Arranging glass ware, Chemicals 7. Minor maintenance of equipment
	26	2 nd		
	27	3 rd		
10 th	28-30	1 st - 3 rd	December 3 rd week	Seminar by Industry Expert- From IISER/ CoE BU in the latest area of research

LESSON PLAN OF CHEMICAL ENGINEERING DEPARTMENT WINTE 2022

Discipline: Chemical	Semester: 5th	Name of Faculty: Siddhibinayak Pradhan
Subject: Practical-1 Instrumentation Laboratory	No of periods per week allotted:6	Semester From: 15 th September 2022 to 22 nd December 2022
Week	Experiment	Experiment Topic
1 st	1	Separation of Iron using solvent extraction technique
2 nd	2	Determine pH and conductivity of a given solution by pH-meter
3 rd	2	Determine pH and conductivity of a given solution by pH-meter
4 th	3	Determine the concentration of sugar in sugar solution by Polarimeter
5 th	3	Determine the concentration of sugar in sugar solution by Polarimeter
6 th	4	Determine the refractive index of different liquids by Abbe's Refractometer
7 th	4	Determine the refractive index of different liquids by Abbe's Refractometer
8 th	5	To determine Maximum wavelength of a solution of cobalt chloride
9 th	5	Verify Beer's Law and apply it to find the concentration of the given unknown solution by Spectrophotometer
10 th	6	To verify Beer's law of solution of KMnO ₄ and K ₂ Cr ₂ O ₇ using calorimeter
11 th	7	Demonstrate different types of pressure gauges and temperature measuring device
12 th	8	Determine the viscosity of an Oil by Red Wood Viscometer at different temperature and plotting a graph between viscosity and temperature
13 th	8	Determine the viscosity of an Oil by Red Wood Viscometer at different temperature and plotting a graph between viscosity and temperature
14 th	9	Calibration of a thermocouple
15 th	10	Demonstrate function of digital multi-meter

LESSON PLAN OF 3rd SEMESTER (2022-2023) CHEMICAL ENGINEERING DEPARTMENT

Discipline: Chemical	Semester: 3rd	Name of The Teaching Faculty: YK Mohanta
Subject: Practical-3 Mechanical Operation	No of Days per week class allotted:3	Semester From: 15 September 2022 To 22 December 2022 No of Weeks: 15
Week	Practical days	Practical Topic
1 st	1 st	A. Demonstration of operation of a Cooling Tower B. Determination of humidity, humid volume, humid heat, percentage of humidity by psychometric method.
	2 nd	
	3 rd	
2 nd	1 st	A) Demonstration of operation of the wetted wall column B) Determination of Psychometric parameter of outlet air
	2 nd	
	3 rd	
3 rd	1 st	A) Demonstrate operation of a tray dryer (Vacuum / Atmospheric type) B) Plot the rate of drying curve for a given sample of wet solid
	2 nd	
	3 rd	
4 th	1 st	Demonstrate operation of a Fluidized bed dryer
	2 nd	
	3 rd	
5 th	1 st	A) Demonstrate operation of an open pan crystallizer B) Find the yield of crystal from a given solution
	2 nd	
	3 rd	
6 th	1 st	Mid Term Viva
	2 nd	
	3 rd	
7 th	1 st	Demonstrate operation of Swanson Walker Crystallizer
	2 nd	
	3 rd	
8 th	1 st	MID TERM VIVA
	2 nd	
	3 rd	

9 th	1 st	Separate a solution into its component by using liquid liquid extraction metho
	2 nd	
	3 rd	
10 th	1 st	Demonstrate operation of a solid-liquid extractor
	2 nd	
	3 rd	
11 th	1 st	Demonstrate operation of spray tower
	2 nd	
	3 rd	
12 th	1 st	To determine the partition coefficient of Iodine between water and carbon tetrachlorid
	2 nd	
	3 rd	
13 th	1 st	Demonstrate operation of liquid-liquid extractor
	2 nd	
	3 rd	
14 th	1 st	END TERM VIVA
	2 nd	
	3 rd	
15 th	1 st	RECORD SUBMISSION AND VIVA BY EXTERNAL
	2 nd	
	3 rd	