JHARKHAND Rai University
UGC RECOGNISED UNIVERSITY
ACCREDITED BY NAAC

Lesson plan & Tracking

Programe : B. Pharma	**Session : 2021-2025**	**Year : SECOND YEAR**	**Sem: III**

Course: PHARMACEUTICAL ENGINEERING (Theory)

Name of the Faculty: RANEET DAS	**Commencement Date:**	**Date of Closure:**

Lecture No.	Week	Unit	Topics to be Covered	Blended Mode			Date	Duration	Tracking of Lectures	Related Course Outcome	Signature of Faculty	Signature of HoD	Remarks (if any)
				ICT Tool/Platform/ LMS	Resources	Activity							
1	WEEK 1		concept of pharmaceutical engineering										
2			introduction of pharmaceutical engineering										
3			Introduction; Types of manometers, Reynolds number and its significance										
4			Bernoulli's theorem and its applications, Energy losses										
5	WEEK 2		Orifice meter										
6			Venturimeter										
7			Pitot tube										
8			Rotometer										

9	WEEK 3	UNIT 1	Objectives, Mechanisms & Laws governing size reduction, factors affecting size reduction,										
10			principles, construction, working, uses, merits and demerits of Hammer mill, ball mill, fluid energy mill										
11			principles, construction, working, uses, merits and demerits of , Edge runner mill & end runner mill.										
12			Objectives, applications & mechanism of size separation, official standards of powders, sieves, size separation										
13	WEEK 4		Principles, construction, working, uses, merits and demerits of Sieve shaker, cyclone separator, Air separator, Bag filter & elutriation tank.										
14			Principles, construction, working, uses, merits and demerits of Air separator, Bag filter & elutriation tank.										
15			Objectives, applications & Heat transfer mechanisms.										
16			Fourier's law, Heat transfer by conduction, convection & radiation.										
17	WEEK 5		Heat interchangers & heat exchangers.										
18			Objectives, applications and factors influencing evaporation, differences between evaporation and other heat process.										

19		UNIT 2	principles, construction, working, uses, merits and demerits of Steam jacketed kettle, horizontal tube evaporator,										
20			principles, construction, working, uses, merits and demerits of horizontal tube evaporator										
21			principles, construction, working, uses, merits and demerits of climbing film evaporator, forced circulation evaporator, multiple effect evaporator& Economy of multiple effect evaporator.										
22	WEEK 6		principles, construction, working, uses, merits and demerits of forced circulation evaporator										
23			principles, construction, working, uses, merits and demerits of multiple effect evaporator.										
24			principles, construction, working, uses, merits and demerits of Economy of multiple effect evaporator.										
25			principles, construction, working, uses, merits and demerits of multiple effect evaporator& Economy of multiple effect evaporator.										
26	WEEK 7		Basic Principles and methodology of simple distillation,flash distillation, fractional distillation, distillation under reduced pressure, steamdistillation & molecular distillation										

27		UNIT 3	Objectives, applications & mechanism of drying process, measurements & applications of Equilibrium Moisture content, rate of drying curve.										
28			principles, construction, working, uses, merits and demerits of Tray dryer, drum dryer spray dryer, fluidized bed dryer, vacuum dryer, freeze dryer.										
29	WEEK 8		Objectives, applications & factors affecting mixing, Difference between solid and liquid mixing, mechanism of solid mixing, liquids mixing and semisolids mixing.										
30			Principles, Construction, Working, uses, Merits and Demerits of Double cone blender, twin shell blender, ribbon blender, Sigma blade mixer,										
31			Principles, Construction, Working, uses, Merits and Demerits of planetary mixers, Propellers, Turbines, Paddles & Silverson Emulsifier,										
32			Objectives, applications, Theories & Factors influencing filtration, filter aids, filter medias.										
33			Principle, Construction, Working, Uses, Merits and demerits of plate & frame filter, filter leaf, rotary drum filter,										
34			Principle, Construction, Working, Uses, Merits and demerits of Meta filter &Cartridge filter, membrane filters and Seidtz filter.										

35	WEEK 9	UNIT 4	Objectives, principle & applications of Centrifugation, principles, construction, working, uses, merits and demerits of Perforated basket centrifuge,										
36			Objectives, principle & applications of Centrifugation, principles, construction, working, uses, merits and demerits of Non-perforated basket centrifuge,										
37	WEEK 10		Objectives, principle & applications of Centrifugation										
38			principles, construction, working, uses, merits and demerits of semi continuous centrifuge & super centrifuge.										
39		UNIT 5	Materials of pharmaceutical plant construction, Corrosion and its prevention:										
40			Factors affecting during materials selected for Pharmaceutical plant construction,										
41	WEEK 11		Theories of corrosion, types of corrosion and there prevention. Ferrous and nonferrous metals, inorganic and organic non metals,										
42			basic of material handling systems.										
43			RIVISION CLASS										
44			RIVISION CLASS										
45			RIVISION CLASS										