St.James College of Pharmaceutical Sciences St.James medical Academy River Bank, Chalakudy			
Programme:	**B. Pharm**	Sem.:	IV
Name of Course: (*Subject*)	PHYSICAL PHARMACEUTICS II	Course Code:	BP403T
Teaching faculty of the course	RINKU JAYAPRAKASH		

Summary of the Lecture Plan

Topic	Lectures	Hours
Drug Stability	Reaction kinetics	3
	factors influencing the chemical degradation of pharmaceutical product	3
	Stabilization of medicinal agent	2
	Accelerated stability testing in expiration dating of pharmaceutical dosage forms	2
Rheology	Types of systems	3
	Thixotropy	3
	viscocity	1
	Determination of viscocity	2
	Deformation of solids	1
Coarse dispersion:	Suspension,	3
	Physical stability of emulsions	2
	Emulsions	2
	Theories of emulsification	2
	Rheological properties	1
Surface and interfacial phenomenon	surface & interfacial tensions,	3
	spreading coefficient	2
	adsorption at liquid interfaces	2
	surface active agents	1
Colloidal dispersions	Classification of dispersed systems	3
	Optical, kinetic & electrical properties	2
	Effect of electrolytes	2

Major issues or Core aspects to be addressed/ covered:

Drug Stability
Basic concepts regarding reaction kinetics
First, second & third order kinetics and determination of the order of reaction
Physical and chemical factors like temperature, solvent, ionic strength, dielectric

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constant, specific & general acid base catalysis affecting reactions
Simple numerical problems of reaction kinetics
Stabilization of medicinal agents against common reactions like hydrolysis & oxidation
Accelerated stability testing methods & Photolytic degradation and its prevention
Rheology
Newtonian systems, law of flow, Non Newtonian systems &dilatant system
Thixotropy in formulations
Methods to determine viscosity, & about viscometers like capillary, falling Sphere,&rotational viscometers
Plastic and elastic deformation, Heckel equation,
Stress, Strain, Elastic Modulus
Coarse dispersion
Suspensions .advantage & disadvantages ,Interfacial properties of suspended particle
Settling in suspensions & formulation of suspension
Emulsion, advantages& disadvantages, identification tests& formulation
Micro emulsions &multiple emulsions& also about the preservation of emulsion
Different theories of emulsification
Rheological properties of emulsions
Surface and interfacial phenomenon.
Liquid interface surface &interfacial tensions, methods to determine the surface &interfacial tensions
surface free energy definition &derivations
spreading coefficient , definition , derivations, & applications
adsorption at liquid interfaces & at solid interfaces, HLB scale, detergency and the concept of solubilization
Colloidal dispersions
Colloids, definition, properties and classification
Optical properties
Kinetic properties& electrical properties
Effect of electrolytes, coacervation, peptization & protective action
Topic Title

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Sample Questions

Drug Stability
Derive the zero order reaction rate constant and its half life.
Derive the second order reaction rate constant and its half life.
What are the factors affecting degradation of pharmaceutical product?
Derive the first order reaction rate constant and its half life.
Note on accelerated stability studies
Describe about the stabilization of medicinal agents against hydrolysis & oxidation
Rheology
Explain about Newtonian &non newtonian systems
Note on dilatant systems
What are the different methods to determine viscocity
Note on thioxotropy
Note on plastic &elastic deformation
Coarse dispersion
Explain about the formulation of suspension
Note on settling in suspension
What are the different identification tests for emulsion
Note on formulation of emulsions
What are the different theories of emulsification
Note on preservation of emulsion
Surface and interfacial phenomenon.
What are the different methods to determine surface &interfacial tension
Note on surface free energy
Note on spreading coefficient
Explain in detail about surface active agent &HLB scale
Colloidal dispersions
What are colloids ,classify it and compare the properties
Note on kinetic properties of colloid
Describe in detail about the electrical &optical properties of colloids
Note on peptization
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