



**INSTRUCTION DIVISION**  
**SECOND SEMESTER 2015-2016**  
**COURSE HANDOUT (Part-II)**

Date: 05.01.2016

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

**Course No.** : PHA F244  
**Course Title** : Physical Pharmacy  
**Instructor-in-charge** : ANUPAMA MITTAL

**1. Scope and Objective of the course:**

This course deals with the applications of physiochemical principles to the study of drug stability, behavior of drug powders and their pharmaceutical systems. It also includes discussion on the surface properties, kinetics and rheology.

**2. Text Book:**

a) Alfred Martin, Bustamante P., Chan A.H.C. "Physical Pharmacy". B.I. Waverly, New Delhi, 4th Edn, 1994.

**Reference Books:**

- (i) Gennaro, A.R., "Remington Pharmaceutical Sciences, Hack Pubs. Pennsylvania, 17th Ed. (1995)
- (ii) Liberman, H and Lachman, L, "Theory and Practice of Industrial Pharmacy". Verghese Pubs., Bombay., 1994, 3rd Edn.
- (iii) Liberman, H and Lachman, L, "Pharmaceutical dosage forms": Tablets Vol.2, Marcel Dekker, New York, 1980.
- (iv) Liberman, H and Lachman, L, "Pharmaceutical dosage forms": Disperse systems Vol.1, Marcel Dekker, New York, 1987.

**3. Course Plan:**

Sr.No.	Learning objectives	Topics to be covered	Reference Chap/Sec
1	Physical Pharmacy: Introduction and Application.	Introduction to Physical Pharmacy	2(a) ch 14
2-4	Preformulation studies	Polymorphs, solubility, pH, pKa, Log P etc.	Ref (ii)
5-8	Powder characterization (Particle size, measurement & analysis.	Micrometrics	2(a) ch 16
9	Concept of viscosity	Rheology - Introduction	2(a) ch 17
10-13	Viscosity measurement & pharmaceutical applications	Rheology	2(a) ch 17
14	Knowledge of various methods for determining surface tension	Determination of surface tension	2(a) ch 14
15-17	Applications of adsorption at solid/liquid	Adsorption at interfaces	2(a) ch 14





	interfaces		
18	Principles of diffusion & dissolution	Diffusion & Dissolution	2(a) ch 13
19-20	Mathematical models & applications	Diffusion & Dissolution	2(a) ch 13
21-22	Order of reactions & its determination	Kinetics	2(a) ch 12
23	Determination of shelf life of pharmaceuticals	Accelerated Stability testing	2(a) ch 12
24-27	Applications of colloids & molecular weight determination	Colloids	2(a) ch 15
28	Factors influencing properties of suspensions	Suspensions	2(a) ch 18
29	Factors influencing properties of Emulsions	Emulsions	2(a) ch 18
30-32	Applications of complexes and method of analysis	Complexation	2(a) ch 11

#### 4. Evaluation Schedule:

Component	Duration	Weightage (%)	Date & Time	Venue	Remarks
Mid Term Test	90 min	25	15/3 9:00 - 10:30 AM		CB
Assignment/Surprise Quiz #/Seminar		15			
Compre Exam	3 hrs.	35	12/5 FN		CB + OB
Laboratory component		25			

# Multiple Quizzes will be conducted during the lecture hours and the average will be taken for final total.

5. Laboratory attendance is must and no make-up will be given.

6. **Chamber consultation hour** : To be announced in the class.

7. **Notices** : All notices regarding this Course will be displayed on Pharmacy notice Board.

8. **Make-up Policy**: Make-ups are not given as a routine. It is solely dependent on the “genuineness” of the circumstances under which a student fails to appear in a scheduled evaluation component. Prior permission should be sought from the instructor-in-charge in advance.

Instructor-in-charge  
PHA F244

