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**SECOND SEMESTER 2015-2016**

Date: 07/01/16

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 G632  
**Course Title** : Dosage Form Design  
**Instructor-in-charge** : Dr. Anil Jindal  
**Instructor** : Dr. Anil Jindal, Mr. Murali M. Pandey

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

It is a course intended to give the students an idea of various aspects of designing of different dosage forms particularly for new drugs, and factors to be considered for such designs, studies of effects of different additives used for designing different dosage forms. This course also deals with different controlled release delivery systems, aerosols, and various newer and novel modern drug delivery systems, packaging materials.

**2. Text Book:** G.S. Banker and C.T. Rhodes, Modern Pharmaceutics, 4<sup>th</sup> Ed., Marcel Dekker Inc. New York;

**3. Reference Books:**

The students should refer to the following Books & Literatures for further knowledge

1. B.M. Mithal, A Text Book of Pharmaceutical Formulations, 6<sup>th</sup> ed., 1997, Vallabh Prakash, Delhi.
2. Y.W. Chien, Novel Drug Delivery Systems, 2<sup>nd</sup> ed. Marcel Dekker Inc., New York.
3. P.B. Deasy, Microencapsulation and Related Drug Processes, Marcel Dekker Inc., New York.
4. J. Swarbrick, Current concepts in Pharmaceutical Sciences: Dosage Form Design, 1970, Lea & Fediger, Philadelphia.
5. R.L. Juliano, Drug Delivery Systems, 1980, Oxford Univ. Press, New York.
6. Prescott and Nimmo, Novel Drug Delivery, John Wiley & Sons, Chichester.
7. B.T. Loftus and R.A. Nagh, Pharmaceutical Process Validation, Marcel Dekker Inc., New York.
8. Lachmann, Liebermann and Kanig, The Theory & Practice of Industrial Pharmacy, K.M. Vergesh, 3<sup>rd</sup> Edition, 1990. New Delhi.
9. Remington's Pharmaceutical Sciences.
10. P. Tyle, Drug Delivery Devices: Fundamentals and Applications; Marcel Dekker Inc., New York.
11. E. J. McNally, Protein Formulation and Delivery, Marcel Dekker Inc., New York.
12. P. Tyle, Specialized Drug Delivery Systems, Marcel Dekker Inc., New York.





13. Recent Journals

4. Course Plan:

Topic	No. of Lect.	Ref. to Text Book (Chap.)
1. Introduction to Dosage Form Design: Preformulation studies & decision of Dosage Forms.	2	1 & 7
2. Physical, Chemical and biological properties and their importance in the design & stability of dosage form.	2	Ref. 1
3. Biopharmaceutical Classification, Dissolution studies	2	Ref. 9
4. Selection of Additives, their interactions and effects on stability, absorption & Bioavailability.	1	Ref. 4
5. Controlled release dosage forms: Concept, principle, design & study.	5	15
6. Controlled release dosage forms: Parenteral	2	Ref. 2
7. Microencapsulation: theoretical consideration, methods.; applications.	2	Ref. 8
8. Aerosols: Definition, applications, Components & their study, manufacturing & quality control.	1	14
9. Novel Drug Delivery Systems:		Ref. 2
a. Transdermal drug delivery systems	2	8
b. Ocular drug delivery systems	2	13
c. Nasal and buccal drug delivery system	1	Ref. 6
d. Drug delivery via respiratory tract	1	Ref. 6
e. Intra-uterine and Vaginal devices	1	Ref. 2
f. Targeted drug delivery systems	3	16
10. Proteins and peptide drug delivery	2	22
11. Prodrugs	2	Ref. 5
12. Latest developments on drug delivery systems	3	Journals
13 Pharmacokinetic studies in drug delivery	1	Journals





## 5. Evaluation Scheme:

Components	Duration	Weightage (%)	Remarks	Date
Mid-sem Examination	90 mins	30	Close book	17/3 4:00- 5:30 PM
Project/Lab components	-	30	-	
Seminar/assignment	-	10	-	
Comprehensive Examination	3 hours	30	Close book	11/5 AN

## 6. Mid-Semester Evaluation: To be done after Mid sem Test.

7. Under Lab Component students will be given several small projects/practicals which they have to do during the assigned lab time and other free time. They can consult I/C or instructors for any doubts or clarification.

## 8. Grading Procedure:

1. Grading would be done by the "bunching" procedure. the total marks obtained by students will be arranged in descending order, bunches identified and grades will be awarded accordingly.
2. In borderline cases subjective judgment, based attendance, sincerely etc., will be used to award the grades.
3. It is not mandatory to award all the five grades (i.e. from A to E) Subjective judgment would be used in the award of A and E grades.
4. The student shall not be considered as "exposed" to the course, unless he/she demonstrates appreciable skill in the course.

## 9. Make-up Policy:

The facility of make-up tests is meant to take care of 'Unavoidable' absence from scheduled tests. It is expected that the students will "keep faith" in this respect and avoid any misuse of this useful feature. There will be no insistence on "certificates" but all decisions to give or not to give make-up tests would be based on mutual faith and trust.

## 10 Chamber Consultation Hour: To be announced in class

11. **Notice :** Notice, if any, concerning the course will be displayed on the notice Board of Pharmacy Department Notice Board.

Instructor-in-Charge

PHA G632

