

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI-HYDERABAD CAMPUS
INSTRUCTION DIVISION, FIRST SEMESTER 2016-2017
Course Handout (Part II)

Date: 01/08/2016

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 G612**
Course Title : **Pharmacokinetics & Clinical Pharmacy**
Instructor In-charge : **PUNNA RAO RAVI**
Instructor : **Rimpy Diwan**

1. Course Description:

The study of pharmacokinetics and its clinical applications in the development, evaluation and use of drugs; the time course of drug and metabolite levels in different fluids, tissues and excreta of the body, mathematical relationship required to develop models to interpret the data for single and multiple dosing, study of bioavailability, dosage regimen adjustment in renal impairment, application of the pharmacokinetic principles in the therapeutic management of patients.

2. Scope and Objective of the Course:

The course is designed to impart knowledge of pharmacokinetics, its application, pharmacokinetic studies, mathematical modeling and experimental design. This will help students to gain knowledge in a very important area of pharmacy. Practicals will be designed to expose students to pharmacokinetic studies.

3. Text Book: Gibaldi, M & Perrier, D., Pharmacokinetics, Marcel Dekker, 2nd, ed., 1982.

4. Reference Books:

R1: Stephen H Curry and Robin Whelpton., Manual for Laboratory Pharmacokinetics, John Wiley & Sons, 1983.

R2: Gibaldi, M & Perrier, D., Pharmacokinetics, Marcel Dekker, N.Y., 1st ed.

R3: Gibaldi M., Biopharmaceutics and Clinical Pharmacokinetics, 4th ed.

5. Course Plan:

Lecture No.	Learning objective	Topics to be covered	Reference
1-2	Introduction to Pharmacokinetics and it's application	Pharmacokinetics & ADME characters of drugs	R 1, R2
3	Concept of compartment model in pharmacokinetics	Compartment model : one, two & multicompartment	TB
4 - 6	Pharmacokinetic study of drugs and métabolites: in plasma & urine for i.v injection	One compartment i.v. bolus	TB
7-8	Pharmacokinetics of iv infusion	One compartment i.v. infusion	TB
9-11	Pharmacokinetics of drugs administered through extravascular route	First-order absorption & zero order absorption	TB

12-14	Multi compartment pharmacokinetics, drugs in plasma, urine for iv injection	Two compartment iv injection	TB
15-16	Multi compartment pharmacokinetics of infusion, 1st order absorption	Two compartment iv infusion and first-order absorption	TB
17-19	Pharmacokinetics of one compartment multiple dosing : drug in plasma, iv injection first-order absorption	Multiple dosing: pharmacokinetics of iv injection, first-order absorption	TB
20-22	Pharmacokinetics of two compartment multiple dosing iv injection, first-order absorption	Two compartment Multiple dosing	TB
23-24	Concept of Non compartmental analysis : approach and modeling	Non compartment Analysis	TB
25-27	Study of bioavailability	Bioavailability : Rate and extent of absorption	TB
28-29	Study of non-linear pharmacokinetics	Non-linear pharmacokinetics	TB
30-32	Concept and study of apparent volume of distribution	Apparent volume of distribution	TB
33-34	Concepts on Clearance	Clearance	TB
35-36	Use and study of physiological models of pharmacokinetics	Physiological models of pharmacokinetics	TB
37-39	Various applications of pharmacokinetic studies including in renal impairment	Application of pharmacokinetic studies	TB
40-42	Experimental techniques & Analysis of Biological samples.	Analysis of drugs in biological samples	Class Notes

7. Evaluation Scheme:

EC No.	Evaluation component	Duration	Weightage	Date, Time	Nature of Component
1	Test I	60 min.	15	13/9, 4.00--5.00 PM	CB
2	Test II	60 min.	15	21/10, 4.00--5.00 PM	CB
4	Assignment/Seminar*	-	25		OB
5	Lab Sessions	-	15		OB
5	Comprehensive	3 hrs.	30	08/12 FN	CB (20) +OB (10)

*Assignments include study of certain topics and research articles from reference books and/or journals for Evaluation Component. Laboratory assignments will be given during the semester including use of computer software in pharmacokinetic study (WinNonLin). Assignments/seminar will involve 3 contact hours per week for each student. CB-closed book, OB-open book.

8. Chamber Consultation Hour: To be announced in the class.

9. Notices: The Notices concerning this course will be displayed only on the **Pharmacy Department** Notice Board. Instructor-in-charge

PHA G612