GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm (Practice)

1st Year

Subject Name: Applied Pharmaceutics
Subject Code: PP105TP

Scope: This course is designed to impart a fundamental knowledge on different dosage forms and pharmacokinetic changes in the body. It helps the student to understand the basic concepts regarding, absorption, distribution, metabolism and excretion.

Objectives: Upon completion of the course student shall be able to

1. Understand the formulation principles of various dosage forms
2. Understand the basic principles of stability, storage and administration of various dosage forms
3. Learn above novel drug delivery systems
4. Understand various pharmacokinetic pathways and optimize the drug therapy.
5. Understand Pro Drugs concept.

Course duration:

Learning: 40 hours of learning by blended mode of teaching. Blended teaching includes didactic and onsite learning.

Case Presentations: During the course each student should present **5 cases** covering the diseases prescribed in the syllabus.

Assignments: Each student should complete **two assignments** covering therapeutics and pharmacy practice concepts and will be evaluated at the time Final Examination

Sr No	Course Content	Hrs
1.	Introduction to Pharmaceutical Dosage Forms	1
2.	Basics of GMP, GLP, QA, QC	1
3.	Study the following about all dosage forms: a) Need, advantage, disadvantages b) Brief of various ingredients used and need for these, basic properties of inactives. Basic overview of manufacturing without going into details. c) Storage, packaging requirements d) Possible stability and defects issues e) Proper use, special precautions while using, instructions to patients **f)** Bioavailability/biopharmaceutics aspects	15
4.	Introduction to Novel drug delivery systems, instructions to be given to patients – Transdermal, infusion pumps, genetically engineered medicines, etc	6
5.	Introduction to Bio-Pharmaceutics	1
6.	Absorption of drugs a) Introduction to absorption, structure and physiology of cell membrane	3

	b) Factors affecting drug absorption, Absorption of drugs from extra vascular routes	
7.	Distribution of Drugs **a)** Tissue permeability of drugs, Physiological barriers to drug distribution **b)** Factors affecting drug distribution. **c)** Volume of drug distribution, Drug protein, drug tissue binding	2
8.	Biotransformation of drugs a) Drug metabolizing organs and Enzymes b) Phase I reactions, Phase II reactions **c)** Factors affecting biotransformation of the drugs	3
9.	Excretion of drugs Renal excretion of drugs, Factors affecting the renal filtration, Non renal routes of drug excretion	1
10.	Prodrugs: Definition and applications of prodrugs	1
11	Bioavailability and Bioequivalence a) Definition of bioavailability and bioequivalence b) Factors affecting bioavailability c) Importance of BA, BE, BA Classification system, NTI drugs, care to be taken in prescribing and dispensing of such drugs	4

Text Books

a. Cooper and Gunns Dispensing for pharmacy students.
b. A text book Professional Pharmacy by N. K. Jain and S. N. Sharma.
c. D.M. Brahmankar and Sunil B Jaiswal. Text Book of Biopharmaceutics and Pharmacokinetics – A treatise. Vallabh Prakashan. Delhi.

Reference Books

a) Introduction to Pharmaceutical dosage forms by Howard C. Ansel.
b) Remington's Pharmaceutical Sciences