

GUJARAT TECHNOLOGICAL UNIVERSITY

CHEMICAL TECHNOLOGY (36) MEDICINAL CHEMISTRY & PHYSIO-PHARMACOLOGY SUBJECT CODE: 2143601 B.E. 4th SEMESTER

Type of Course: Chemical Technology

Prerequisite: Studied subject PT-01(Introduction to Medicinal Chemistry & Biochemistry). Basic knowledge of organic chemistry is required

Rationale: The main objective of this subject is to study general Pharmacology, Bio-assay, Immuno pharmacology, mechanism of action of drugs, Chemotherapy. The study also provides knowledge of drugs acting on CNS, uterus. The study provides the knowledge of respiratory system and kidney functions.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
			ESE (E)	PA (M)		PA (V)		PA (I)		
				PA	ALA	ESE	OEP			
4	0	0	4	70	20	10	0	0	0	100

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1	Synthesis, drug profile, mechanism of action (MOA) and metabolism of: Hematinics, thrombolytics, coagulants/anticoagulants, diuretics Digestive system antacids, purgative structure & function of kidney Respiratory system	11	25
2	General pharmacology: Absorption, Distribution, Metabolism, and Excretion (ADME) of drugs, routes of administration, MOA	03	5
3	Bioassay: Histamine & antihistaminic, Pharmacology & local anesthetics	11	25
4	Central Nervous System(CNS)& drugs acting on CNS, CNS & drugs acting on uterus, oral hypoglycemic, chemotherapy	14	30
5	Drugs used in hypertensive, vasodilator: Synthesis, MOA, metabolism of drugs Immunopharmacology	08	15

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
60	10	10	10	10

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table

Reference Books:

1. Anatomy Physiology, C.C.Chatterjee, Calcutta Medical Allied agency, 1994
2. Anatomy Physiology, Toutora, Johns Wiley & Sons, NY, 10th Ed.,2003
3. Pharmacology, Tripathi, Jaypee Brother New Delhi, 4th Ed., 1999
4. Pharmacology, Satoskar – Bhandarkar, Popular Prakshan, Mumbai, 2003
5. Pharmacology, Churchill Livingstone, Seth, New Delhi, 1998
6. Handbook of in Pharmacology, S.K.Kulkarni, VallabhPrakashan, New Delhi, 1999
7. Elements of Pharmacology, Dr.R.K.Goyal, S.B.Shah, Ahmedabad, 10th Ed ,2000
8. Burger's Medicinal Chemistry & Drug Discovery: Vol. 1 to 6, A. Burger &M.E.Wolff,John Wiley & Sons – New Jersey,6th Ed, 2003
9. Foye's Principles of Medicinal Chemistry, W.O. Foye, Lippincott Williams & Wilkins-Philadelphia, Oxford, 6th Ed, 2008.
10. Organic Synthesis – The Disconnection Approach, Warren S., John Wiley & Sons –Chichester.,1st Ed., 2005
11. Textbook of Medicinal & Pharmaceuticals Chemistry, Wilson &Gisvold ., Williams &Wilkins,1st Ed, 2004.
12. Medicinal Chemistry by AshutoshKar
13. Text Book of Medicinal Chemistry by Alagarsamy

Course Outcomes:

1. To know the pharmacology, pharmacokinetics, metabolism and MOAof drugs.
2. To carry out organic synthesis of drugs and intermediates
3. To be able to apply this knowledge in the API manufacturing & Pharmaceutical Formulation industries
4. To build a bridge between theoretical and practical concept used in industry

List of Open Source Software/learning website:

- 1) Literature available in any laboratory manual of Pharmaceutical Industries.
- 2) Literature available on internet
- 3) Medical dictionaries
- 4) Delnet

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.