

ELECTIVE PAPER-B: PHARMACEUTICAL CHEMISTRY

Semester	Subject Code	Category	Instruction Hours						Credits
			Lecture		Theory		Practical		
			Per Week	Per Semester	Per Week	Per Semester	Per Week	Per Semester	
II	21CPCH2Da	Elective	3	45	3	45	0	0	3

COURSE OBJECTIVES:

- ❖ To study about the drug metabolism and effect of various drugs.
- ❖ To enhance the knowledge in the various areas of molecular modelling, molecular docking, drug design techniques with detail concepts of all the mentioned areas.

COURSE OUTCOME:

- On completion of the course, the student should be able to:

CO Number	CO statement	Knowledge level
CO1	Acquire knowledge on the importance of drugs, drug administration, drug metabolism, elimination and discuss the challenges faced in each step of the drug discovery process.	K2 & K3
CO2	Get knowledge about the industrial methods using for drug preparation and formulation.	K3 & K4
CO3	Understand the pharmaceutical industry regulation for manufacturing, packing and marketing.	K3 & K4
CO4	Gain knowledge about important drugs and its adverse effects.	K2 & K3
CO5	Acquire knowledge about anaesthetics, antihistamines and organic pharmaceuticals.	K3 & K4

* CO-Course Outcomes

Knowledge level K1-Remember; K2-Understand; K3-Apply; K4-Analyze

MAPPING WITH PROGRAM OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	M	S	S	M	M	M
CO2	M	S	M	M	S	M
CO3	M	S	S	S	S	M
CO4	M	S	S	M	S	M
CO5	M	M	S	S	M	S

UNIT - I: CLASSIFICATION OF DRUGS**9 hours**

Classification of drugs based on sources - mode of administration - site of action, absorption of drugs - Drugs distribution and elimination - Role of kidney in elimination.

Drug design- Development of new drugs - procedures followed in drug design, concepts of prodrugs and soft drugs.

UNIT - II : INDUSTRIAL ASPECTS - I**9 hours**

Unit operation – Principle – extraction - maceration and percolation method – Drying: Tray dryer and drum dryer – Evaporation - Climing film evaporators and calandria – Distillation - Fractional distillation and bubble cap column steam distillation – Centrifugation - Supercentrifugation and non-perforated basket – Filtration: filter press and drum filter – Comminution - mortar and pestle type and Bal mills - types of formulation - Importance of it – factors affecting formulation - finished pharmaceuticals - packing materials - polymers, plastics and metals – closures - repacking.

UNIT - III : INDUSTRIAL ASPECTS –II**9 hours**

Regulations - pharmacopeia - Good manufacturing practices (GMP) – Material Management- Laboratory controls- Validations- Drug analysis - aspirin, paracetamol and ciprofloxacin.

UNIT - IV : EFFECT OF DRUGS**9 hours**

Adverse responses and side effects of drugs, allergy - Drugs intolerance - Drug addiction, drug abuses and their biological effects.

Anticancer drugs: Anticancer drugs and their mechanism of action-Natural and man made radioisotopes and their applications.

Antipsychotic drugs- the neuroleptics, antidepressant, butyrophenones, serendipity and drug development.

UNIT - V: ANAESTHETICS, ANTIHISTAMINES AND ORGANIC PHARMACEUTICALS**9 hours**

Anaesthetics - General and local - gaseous anaesthetics - ether and vinyl ether - halogenated hydrocarbons like chloroform - intravenous anesthetics - thiopentalsodium and cocaine - Antiseptics and disinfectants – Phenols and related compounds - formaldehyde and ethanol.

Antihistamines – classification H1 and H2 receptor antagonists.

Organic Pharmaceuticals – their role as preservatives and food additives.

Distribution of Marks: Theory-100%

TEXT BOOKS

S.No	Authors	Title	Publishers	Year of publication
1.	Foye, Williams O	Principles of Medicinal Chemistry, 7 th edition	Wolters kluwer, lippincoatt Williams and vikkins	1996
2.	G.R Chatwal	Synthetic Drugs	Himalaya Publisher	2009
3.	Dr. Jayashree Gosh, S. Chand	A Textbook of Pharmaceutical Chemistry	S. Chand and company limited	2014
4.	A. O Bentley	Textbook of Pharmaceutical Chemistry	Oxford Univ., Press.	1925
5.	M.N Chatterje and Rana shinde	Text book of Medical Biochemistry, 8 th edition	Jaypee Brothers pub	2012
6.	A. Berger	Medicinal Chemistry, Vol 1 &2	Wiley Interscience, New York	1990
7.	Asutoshkar	Medicinal Chemistry	Wiley Eastern Ltd., Chennai	1992
8.	Bentely and Driver's	Textbook of Pharmaceutical Chemistry	Oxford Univ. Press.	1985

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of publication
1.	Asuthosh Kar,	Medicinal Chemistry, Revised, 3 rd edition	New Age, International Publishers	2005
2..	G.R. Chatwal, Madhu Arrora	Pharmaceutical Chemistry organic	Himalaya Pub	2008
3.	H.J Roth, A. Kleemann	Pharmaceutical Chemistry : vol.1 Drug synthesis	Ellis horwood Ltd.	2001

TEACHING METHODOLOGY:

- Board and chalk
- PowerPoint presentation
- Models
- Group discussion
- Seminar and Assignments
- Animated videos

SYLLABUS DESIGNERS:

1. Dr. T. Gomathi, Assistant Professor, Department of Chemistry
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