

PHARMACEUTICAL CHEMISTRY

Semester	Subject Code	Category	Lecture hours		Theory hours		Practical Hours		Credits
			Per week	Per sem.	Per week	Per sem.	Per week	Per sem.	
V	21CCH5E	Elective - II (Option-1)	3	45	3	45	-	-	3

COURSE OBJECTIVES:

The students will be able to

- Gain knowledge about common diseases and their treatment, Indian medicinal plants, different types of drugs, hormones and vitamins.
(Synthesis and structural elucidation are not required for the compounds mentioned.)

COURSE OUTCOMES:

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Study about the important terminologies of Pharmaceutical Chemistry and brings about the knowledge towards Indian medicinal plants.	K3
CO2	Understand Antibiotics and their classifications and also know the information about Antiseptics and Disinfectants.	K2
CO3	Provide the definition and importance of Analgesics and its classifications and study the Antipyretic drugs, Drugs that influences CNS.	K2
CO4	Gain knowledge about Anaesthetics, Antineoplastics, Hypoglycemic agents, Blood grouping and Blood pressure.	K2
CO5	Gain knowledge about classification of Vitamins, Sex hormones and Organic diagnostic agents.	K3

*CO – Course Outcomes

Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING WITH PROGRAMME OUTCOMES:

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

(S – Strong; M – Medium; L – Low)

UNIT – I: Common Diseases and Indian Medicinal Plants**9 Hours**

- 1.1 Definition of the following terms: Drug, Pharmacy, Pharmacopore, Pharmacology, Pharmacopeia, Pharmacodynamics, Pharmacokinetics, Bacteria, Virus, Chemotherapy and Vaccine – Drugs and their classification – Causes, symptoms and treatment for Jaundice (IV fluid and its composition), Cholera, Malaria, Typhoid and Dysentery.
- 1.2 Indian Medicinal Plants – Chemical constituents and medicinal uses – Tulasi, Neem, Aloe Vera, Amla, Adadodai, Semparuthi, Ginger, Mango, Grasses, Kizhanelli and Greens.

UNIT – II: Antibiotics, Antiseptics and Disinfectants**9 Hours**

- 2.1. Antibiotics – Definition – Action of Penicillin, Streptomycin and Erythromycin – Tetracyclins – Structure and Activity Relationship – Antibacterials: Sulpha drugs – Definition and examples – Mode of action of sulpha drugs – Uses of Sulphathiazole, Sulphafurazole and Prontosil.
- 2.3. Antiseptics and Disinfectants – Definition, distinction and properties of good antiseptics and disinfectants – Dettol and chloro compounds.

UNIT – III: Analgesics and Psychedelic Drugs**9 Hours**

- 3.1 Analgesics – Definition and actions – Narcotic and non-narcotic analgesics – Morphine and its derivatives - pethidine and methadone – Disadvantages and uses – Antipyretics – Aspirin and paracetamol – Antipyretic analgesics – Salicylic acid derivatives – Ibuprofen.
- 3.2. Drugs affecting CNS – Definition – Types of CNS agents – Examples for Tranquilisers, Sedatives (Phenobarbital and Diazepam) – Hypnotics and Psychedelic Drugs – LSD and Hashish – Their effects.

UNIT – IV: Anaesthetics and Blood**9 Hours**

- 4.1 Anaesthetics – Definition – Local and General– Volatile – Nitrous Oxide, Ether, Chloroform and Cyclopropane – Uses and disadvantages – Non-volatile Intravenous anaesthetics – Thiopental Sodium, Methohexitone and Propofol – Local anaesthetics – Procaine Hydrochloride, Benzocaine and Lignocaine Hydrochloride – Uses.
- 4.2 Causes, medicines and their mode of action for the treatment of Cancer – Antineoplastics – Diabetes – Hypoglycemic Agents – AIDS – AZT, DDC, Causes, symptoms and vaccines of COVID-19, Omicron – Blood: Grouping – Composition – Coombs' Test – Rh factor – Blood Pressure – Hypertension and Hypotension.

UNIT – V: Vitamins and Hormones**9 Hours**

- 5.1 Vitamins – Classification – Vitamin A, Vitamin B Complex, Vitamin C, Vitamin D, Vitamin E and Vitamin K – Sources and deficiency diseases caused by vitamins – Organic Diagnostic agents – X-Ray Contrast Media – Drugs for testing organ function.
- 5.2. Hormones – Definition – Classification – Physiological functions of Insulin, Adrenaline, Thyroxine and Oxytocin – Sex hormones – Androsterone, Testosterone, Progesterone and Estrogen – Biological functions – Disorders of hyposecretion and hypersecretion of hormones – Steroids – examples, uses and side effects.

TEXT BOOKS:

S. No.	Authors	Title	Publishers	Year of publication
1.	Jayashree Ghosh	A Textbook of Pharmaceutical Chemistry	S. Chand and company Ltd.	2015
2.	S. Lakshmi	Pharmaceutical Chemistry	Sultan Chand	1995
3.	Mathew George and Lincy Joesph	A Textbook of Pharmaceutical Chemistry	Viva books Pvt. Ltd. New Delhi.	2009

REFERENCE BOOKS:

S. No.	Authors	Title	Publishers	Year of publication
1.	Ashutosh Kar	Medicinal Chemistry	New Age International Publishers	2016
2.	Gudeep R. Chatwal	Medicinal Chemistry	Himalaya Publishers House	2012
3.	V. K. Ahluwalia and Madhu Chopra	Medicinal Chemistry	Ane Books Pvt. Ltd	2008

TEACHING METHODOLOGY:

- Power Point Presentations
- Assignments
- Animated videos
- Chalk and Board
- Group discussion

SYLLABUS DESIGNER:

- Dr. R. Arunadevi, Assistant Professor of Chemistry