GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF PHARMACY

Semester: VI

Subject Name**: Pharmaceutical Chemistry – VIII (Medicinal Chemistry)**

Subject Code**: 260004**

Sr. No.	Course contents		Teaching Hours
1.	Receptors and Drug action: • Types of receptors • Theory of receptors • Drug-receptor interaction and factors affecting the drug-receptor interaction		3
2.	Drug metabolism • Introduction, importance of CYP450, general pathways of Xenobiotics metabolism (functional group based classification of both phases with examples), site of drug metabolism, factors affecting drug metabolism.		4
3.	Introduction, history, classification, nomenclature, mechanism of action, adverse effects, therapeutic uses, structure activity relationship (SAR) and synthetic procedures of selected drugs and recent developments of following categories to be covered.		
	(1)	Drugs acting on ANS	
		Cholinergics: • SAR- Acetylcholine mimetics- Muscarinic agonists	3
		Anticholinergics: • SAR:- Acetylcholine Antagonists- Muscarinic antagonists • Synthesis:- Neostigmine, Dcyclomine hydrochloride	3
		Adrenergics: • SAR:- Phenylethanolamines • Synthesis:- Adrenaline, Dopamine, Isoprenaline, Ephedrine	2

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		Adrenergic antagonists: • Synthesis:- Naphazoline, Salbutamol	2
		Neuromuscular blocking agents and ganglionic blockers:	1
	(2)	**Drugs Acting on CNS:**	
		CNS stimulants: Analeptics, Antidepressants, hallucinogens • SAR:- Tricyclic antidepressants • Synthesis:- Amphetamine, Nikethamine, Fluoxetine, Imipramine, Amitriptylline	4
		CNS Depressants: General and local anesthetics, Sedative and hypnotics, Anxiolytics, Antiepileptics, Antipsychotics • SAR:- Benzoic acid and Anniline derivatives with Local anesthetic activity, Barbiturates, Benzodiazepines, Phenothiazines, Butyrophenones • Synthesis:- Halothane, Lignocaine, Procaine, Benzocaine, Thiopental sodium, Phenobarbitone, Chlordiazepoxide, Meprobamate, Phenytoin, Sodium valproic acid, Ethosuximide, Carbamazepine, Chlopromazine, Trifluperazine	11
		Antiparkinson's agents	1
		Opiod Analgesics and Non-Opiod Analgesics; • SAR:- Morphine, Pethidine, Benzomorphan, Morphinan • Synthesis:- Pethidine, Methadone	4
		Non Steroidal Anti-Inflammatory Agents, Anti Gout and Dmards: • Synthesis:- Paracetamol, Aspirin, Diclofenac, Ibuprofen, Indomethacin, Allopurinol, Mefenamic acid, Nimesulide, Naproxen	5
		Alzheimer's disease	1
		Cognition enhancers	1

Pharmaceutical Chemistry-VIII (Medicinal Chemistry) – Practical 3 hr/week

1. Separation and qualitative analysis of Organic binary mixtures containing water insoluble components having acidic, phenolic, amphoteric, basic and neutral nature (Solid + Solid, Solid + liquid, Liquid + liquid and Eutectic mixtures) with derivative preparations.
2. Synthesis of specified drugs:
   Aspirin, paracetamol, methyl salicylate, phenytoin

Books Recommended:

1. J. N. Delagado and W. A. R. Remers, edn, Wilson and Giswolds Textbook of organic medicinal and pharmaceutical chemistry, J. Lippincott Co. Philadelphia
2. W. C. Foye, Principles of medicinal chemistry, Lea and Febiger, Philadelphia
3. H. E. Wolff, edn, Burgers Medicinal chemistry, John Wiley and sons, New York
   Oxford University Press, Oxfords
4. Daniel Lednicer, Strategies for organic drug synthesis and design, John Wiley and Sons USA
5. B. N. Ladu, H. G. Mandel and E. L. Way. Fundamentals of drug metabolism and disposition. William and Willkins co. Baltimore
6. I. L. Finar. Organic chemistry Vol. I and Vol. II. ELBS/Longman, London
7. Vogel's Text books practical organic chemistry, ELBS/Longman, London
8. Mann and Saunders, Practical organic chemistry, Orient Longman, UK
9. Shriner, Hermann, Morill, Curtin and Fusion. The systematic identification of organic compounds, John Wiley and Sons
10. Hans Thacher Clarke, A Handbook of Organic Analysis Qualitative and Quantitative, Fourth edition, Orient Longmans Ltd.
11. Arthur Vogel, Elementary Practical Organic Chemistry, Part-I and II, Second edition, CBS Publisher.