

GUJARAT TECHNOLOGICAL UNIVERSITY
PHARM.D
3rd Year

Subject Name: MEDICINAL CHEMISTRY
Subject Code: 838805

Scope: This subject will delve upon QSAR, computer aided drug design and synthesis of various anti-infective agents, antineoplastic agents and hormones and their antagonists.

Objectives:

- a. To study QSAR, CADD and structural activity relationships.
- b. To study synthesis of various anti-infective agents
- c. To study synthesis of various anticancer drugs.
- d. To study synthesis of drugs resembling hormones and antagonising their actions.

Theory (3 Hours/ Week, Total: 90 Hours)

Teaching Scheme				Evaluation Scheme				Total Marks
Theory	Tutorial	Practical	Total	Theory		Practical		
				External	Internal	External	Internal	
3	1	3	7	70	30	70	30	200

Sr.	Topic	Hr	% Weigh tage
1.	Modern concept of rational drug design: A brief introduction to Quantitative Structure Activity Relationaship (QSAR), prodrug, combinatorial chemistry and computer aided drug design (CADD) and concept of antisense molecules. A study of the development of the following classes of drugs including SAR, mechanism of action, synthesis of important compounds, chemical nomenclature, brand names of important marketed products and their side effects.	10	11.1%
2.	Anti-infective agents a) Local anti-infective agents b) Preservatives c) Antifungal agents d) Urinary tract anti-infectives e) Antitubercular agents f) Antiviral agents and Anti AIDS agents g) Antiprotozoal agents h) Anthelmentics i) Antiscabies and Antipedicular agents	10	11.1%
3.	Sulphonamides and sulphones	3	3.33%
4.	Antimalarials	4	4.44%
5.	Antibiotics	12	13.33%
6.	Antineoplastic agents	5	5.55%
7.	Cardiovascular agents a) Antihypertensive agents b) Antianginal agents and vasodilators c) Antiarrhythmic agents d) Antihyperlipidemic agents e) Coagulants and Anticoagulants f) Endocrine	16	17.8%
8.	Hypoglycemic agents	7	7.8%
9.	Thyroid and Antithyroid agents	4	4.44%
10.	Diuretics	5	5.55%
11.	Diagnostic agents	4	4.44%

12.	Steroidal Hormones and Adrenocorticoids	10	11.1%
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Practical : 3 Hrs./Week 1. Assays of important drugs from the course content.

2. Preparation of medicinally important compounds or intermediates required for synthesis of drugs.
3. Monograph analysis of important drugs.
4. Determination of partition coefficients, dissociation constants and molar refractivity of compounds for QSAR analysis.

Reference Books:

- a. Wilson and Gisvold's Text book of Organic, Medicinal and Pharmaceutical Chemistry, Lippincott-Raven Publishers-New York, Philadelphia. Latest Edition
- b. William.O.Foye, Principles of Medicinal Chemistry, B.I. Waverly Pvt. Ltd., New Delhi. Latest Edition
- c. Burgers, Medicinal Chemistry, M.E., Welly Med.Chemistry M.E. Walfed Johnwilly and Sons, Wiley-interscience Publication, New York, Toranto. Latest Edition
- d. A Text Book of Medicinal Chemistry Vol. I and II by Surendra N. Pandeya, S.G. Publisher, 6, Dildayal Nagar, Varanasi -10. Latest Edition
- e. Indian Pharmacopoeia 1985 and 1996. The Controller of Publications, Civil Lines, Delhi - 54. Latest Edition
- f. Current Index of Medical Specialities (CIMS) and MIMS India, MIMS, A.E. Morgan Publications (I) Pvt. Ltd, New Delhi-19. Latest Edition
- g. Organic Drug Synthesis-Ledniser Mitzsher Vol. I and II. Latest Edition
- h. Pharmaceutical Chemistry drug Synthesis Vol. I and II by H. J. Roth and A. Kleemann. Latest Edition
- i. The Science and Practice of Pharmacy Vol. 1 and 2, Remington, MACK Publishing Company, Easton, Pennsylvania. Latest Edition

Scheme of Practical Examination:

	Sessional	Annuals
Synopsis	05	10
Major Experiment	08	30
Minor Experiment	05	15
Viva	02	15
Max Marks	20	70
Duration	3hrs	4hrs

Note : Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).