GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : V

CHEMICAL TECHNOLOGY

Subject Name: Microbiology & Formulation Technology of Liquids & Topicals
Subject Code: 153605

Teaching Scheme				Evaluation Scheme			
Theory	**Tutorial**	**Practical**	**Total**	**University Exam(E)**	**University Exam(P)**	**Mid Sem Exam(Theory) (M)**	**Practical (Internal)**
3	0	2	5	70	0	30	50

Sr. No.	Course contents
01.	Microbiology: Microscopy concept of magnification resolution, basic of light microscopes. Dyes & stains, Observation of microorganism under light microscopy-wet mount, hanging drop, gram staining & acid fast stains.
02.	Cultivation & growth requirements, nutritional aspects & other conditions. Basis of growth media classification-principles & application.
03.	Concept of pure culture, clone, isolation, preservation & maintenance of pure cultures.
04.	Basis of identification & characteristics of microorganisms-its relevance. Basis morphology of a typical prokaryotic cell. Appendages external to cell wall, cell membrane, cytoplasm & cell inclusions.
05.	Study of bacteria, yeast, mold, algae & viruses- morphology, structure. Reproduction isolation, cultivation & metabolism, Immunology-basic classification of antigen/antibody immunoglobulins, concept of allergy-antigen & antibody reaction.
06.	Concept of vaccines-Manufacture of bacterial & viral vaccines. Sterilization-methods & validation, aseptic techniques, sterility testing. Disinfections & disinfectants, phenol coefficient tests.
07.	Formulation Technology of Liquids & Topicals: Introduction & classification of pharmaceutical dosage forms, Prefomulation, formulation, evaluation, large scale manufacture & packaging with focus on equipment with reference to liquid dosage forms, Monophasic solutions syrups, elixirs, Nasal & ear drops etc. Biphasic suspensions & emulsions.
08.	Topicals: ointments, creams, gels & suppositories, Layout design & Unit operations related to above dosage forms.

Reference Books:

1. Pharmaceutical Dosage Forms & Drug Delivery Systems, Ansel, Philadelphia,Fea & Febiger, 1985
2. Introduction to Pharmaceutical Dosage Forms, Ansel, Henry Kimpton Publishers, 1976

3. Pharmaceutics: The Science of Dosage Form Design, Aulton,New Delhi, B.I.Naverly Pvt.Ltd.1995
4. Dermatological Formulations, B.W.Barry, New York, Marcel Dekker 1983
5. Modern Pharmaceutics, G.S.Banker, New York, Marcel Dekker 1990
6. Textbook of Pharmaceutics, Rawlins,Bentely Cassell Ltd, 8th Ed., 1977
7. Fundamentals of Pharmacy, Blome H.E., Philadelphia, Fea & Febiger, 1985
8. Pharmaceutical Production Facilities: Design & Applications, G.C.Cole, New York Ellis Horwood 1990
9. Husa'a Pharmaceutical Despensing, Martin E.W., Easton Mack Pub.Co.1971
10. Tran dermal Delivery of Drugs, A.Kydonieus, Florida, CRC Press, 1987
11. Textbook of Pharmaceutics, A C Bentley, Oxford University Press, 1969
12. Microbiology Fundamentals & Applications ,S S Purohit, Agrobios, 2003
13. Medical Microbiology Infections, Mackie & McCartney , Churchhill Livingstone, 1996
14. Strategies for Organic Drug Synthesis & Design, & Daniel Led nicer, John Willey & Sons Inc. New York., 2nd Ed, 1998
15. Organic Chemistry of Drug Synthesis: Vol.1 to 6, Daniel Lednicer, John Wiley & Sons Inc.
16. Burger's Medicinal Chemistry & Drug Discovery: Vol. 1 to 6, A. Burger & M.E.Wolff, John Wiley & Sons – New Jersey,6th Ed, 2003
17. Foye's Principles of Medicinal Chemistry, W.O. Foye, Lippincott Williams & Wilkins- Philadelphia, Oxford, 6th Ed, 2008.
18. Handbook of Pharmaceutical Excipients, Edited by R C Rowe, P J Sheskey and P J Weller, 4th Ed., 2003, Pharmaceutical Press, London UK, & American Pharmaceutical Association, Washington D C, USA
19. Pharmaceutical Dosage Forms and dispersing agents, Liberman H A, Riger M M, and Banker G S, Marcel Dekker, 1998, 2nd Ed., ISBN 0 8247 – 9842 – 2
20. Text book of Medicinal & Pharmaceutical Chemistry, Charles Owens Wilson Lippincott Williams & Wilkins – Philadelphia. 1962
21. Pharmaceutical Substances: Synthesis, Patents, Applications (N-Z), A. Kleemann, Georg Thieme Verlag,Stuttgart.4th Ed, 2001