

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Pharm
SEMESTER: III

Subject Name: Pharmacognosy-I
Subject Code: 2230006

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	0	3	6	80	20	80	20

Theory

Sr No	Course Contents	Total Hrs
1	Definition, history, scope and development of Pharmacognosy.	2
2	Sources of drugs: Plant, Animal, Marine, Mineral and Biotechnology	3
3	Introduction to plant parts and tissue. a) Definition and function of leaf, stem, root, flower, fruit and seed. Classification of modification leaf, stem, root b) Definition, classification and functions of plant tissues. c) Classification and identification non-living cell contents d) Microscopic difference between mono cot and dicot leaf, stem and root	5
4	Classification of drugs: Alphabetical, Morphological, Taxonomical, Chemical and Pharmacological. Role of chemotaxonomy in classification.	3
5	Cultivation, collection, processing and storage of crude drugs a. Factors influencing cultivation of medicinal plants. b. Types of soils and fertilizers of common use. c. Plant hormones and their applications. d. Polyploidy, Mutation and Hybridization with reference to medicinal plants. e. Poly Houses/Green Houses for cultivation.	7
6	An introduction to active constituents of drugs and their classification, properties and chemical tests.	4
7	Evaluation of crude drugs by organoleptic, microscopic (including quantitative microscopy), physical, chemical, biological and other methods. Adulteration of crude drugs. WHO guidelines for evaluation of Herbal drugs.	6
8	Carbohydrates and derived products: Definition, classification, physico-chemical properties, general methods of preparation, sources and systematic Pharmacognostic study of following drugs. <ul style="list-style-type: none"> • Monosaccharide: Honey • Polysaccharides: Starch, Dextrin • Gums and Mucilage: Agar, Isabgol, Guar gum, Acacia, Tragacanth, Sodium Alginate, Stercuila • Carbohydrate derivatives: Chitin and Pectin 	6
9	Lipids: Definition, classification, physico-chemical properties,	9

	<p>general methods of preparation, sources and systematic Pharmacognostic study of following drugs.</p> <ul style="list-style-type: none"> • Fixed oil: Castor oil, Olive oil, Hydnocarpus oil, Sesame oil, Linseed oil, Mustard oil, Rape seed oil, Rice bran oil, Cod liver oil, Shark liver oil, Karanj oil • Fat: Lard, Cocoa butter, Kokum butter • Wax: Beeswax, Wool fat. 	
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Practical

Sr No	Course Contents
1	Use, Care and types of Microscopes, Techniques in microscopy.
2	Microscopy of plant tissues and their components.
3	Microscopy of monocot and dicot leaf, stem, root.
4	Study of chromosomes in Onion Cells (Polyploidy).
5	Microscopy of cell contents: Starch grains, Calcium oxalate crystals and Phloem fibres.
6	Quantitative microscopy (Determination of leaf constants).
7	Phytochemical Screening: General chemical test for primary and secondary metabolites
8	Carbohydrates: Study of crude drugs for morphology and chemical test for saccharides, gum and mucilage. Isolation of Potato starch. Microscopy of Maize, wheat, potato and rice starch.
9	Lipid: Study of crude drugs for morphology, chemical test, study of acid value, Iodine value and saponification value.

References Books:

1. Botany: A. C. Dutta, Calcutta Oxford University Press, New Delhi, 6th Revised Edition, 2010.
2. College botany Vol-I-III, Ganguly H.C., Das K.S., and Dutta C., New Central Book Agency [P] Lt., 2006.
3. Cultivation and Utilization of Medicinal Plants, Atal C. K. and Kapur B. M., RRL Jammu, 1st Edition, 1989.
4. Supplement to Cultivation and Utilization of Medicinal Plants, Handa, S.S. and Kaul, M.K., 1996. RRL, CSIR Publication, Jammu Tawi,
5. A Text book of Pharmacognosy: C. S. Shah, J. S. Quadry, B. S. Shah Prakashan, Ahmadabad. 15th Edition, 2009.
6. Textbook of Pharmacognosy: T. E. Wallis, CBS Publishers and Distributors, New Delhi, 5th Edition, reprinted, 2009.
7. Pharmacognosy: C. K. Kokate, A. P. Purohit, S. B. Gokhale, NiraliPrakashan Pune, 42nd edition, 2008.
8. Pharmacognosy: V. E. Tyler, L. R. Brady, J. E. Habbars, Lea and Febiger Philadelphia, 9th Edition, 1988.
9. Trease and Evans Pharmacognosy. 16h Edition, William Charles Evans, W. Saunders, Edinburg London New York Philadelphia St. Louis Sydney Toronto 2009.
10. Essentials of Pharmacognosy by Ansari S. H., Birla Publications Pvt. Ltd., 4th Edition, 2011.
11. Pharmacognosy of Powdered crude drugs - M. A. Lyenger (Manipal Power Press)
12. Practical Pharmacognosy, Technique and Experiment by C. K. Kokate and S. B. Gokhale, NiraliPrakashan, Pune, 8th edition, 2005.

13. Quality Control, Herbal Drugs, An approach to evaluation of Botanicals. Dr. Pulok K. Mukherjee. Business Horizons Pharmaceutical Publishers; 2002
14. The Practical Evaluation of Phytopharmaceutics by Brain K. R. and Turner R. D., Wrigth-Sciencetchnics Bristol.
15. Malati G Chanhana & A. P. G Pillai, Microscopic profile of powdered drugs used in Indian system of medicine, Volume I, Bark drugs 2005, Institute of Ayurvedic medicinal plant science, Gujarat Ayurved unit Jamnagar; CPTA
16. Malati G Chauhan & A. P. G Pillai, "Microscopic profile of powdered drugs used in Indian systems of Medicine, Leaf Drugs, Vol. 2, 2007, Institute of P.G Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar.
17. Malati G Chauhan & A. P. G Pillai, " Microscopic profile of Drugs used in Indian system of Medicine, Seed drugs, Volume- 3, part- 1, 2011; Publisher: Prof Malati G Chauhan, P.G T- S.F C cell, I.P. G T. & R.A, Gujarat Ayurved University, Jamnagar,