Course Type	Course Code	Name of Course		Т	Р	Credit
DE	NCYD537	Pharmacognosy and Phytopharmaceuticals	3	0	0	3

Course Objective						
٠	• Medicinal Botany. Study of Physical, Chemical, Biochemical and Biological properties of drugs					
Learning Outcomes						
٠	Search of new drugs of natural origin.					
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• Enhance the use of Ayurvedic medicines, thus reducing the side effects caused by various drugs available in the market.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction to Pharmacognosy and Phytochemistry: General introduction to the importance of Pharmacognosy and Phytochemistry in herbal drug industry, Basic terms and terminologies in Pharmacognosy and Phytochemistry. Recent advances in the field of pharmacognosy and phytochemistry with special reference to anticancer, antidiabetic, anti- inflammatory, hepatoprotective, adaptogenic and immunomodulators, memory enhancers, antiviral agents, antihyperlipidemics General aspects involved in the cultivation of medicinal plants.	10L	The basic of Pharmacognosy and Phytochemistry and their importance in herbal drug industry will be presented.
2	Chemotaxonomy: Significance in classification of medicinal plants, distribution of chemotaxonomical groups of constituents in plant kingdom like alkaloids, glycosides and terpenoids. Systematic study of medicinal plants cultivated in India with reference to constituents and uses of Senna, Clove, Opium, Ispaghula, Solanum, Lkhasianum, Vinca, Garcinia, Ashwagandha, Lemongrass, Acorus calamus, Safed musli, Turmeric, Pepper, Coffee, Aloe and Henna.	9L	The significance of chemotaxonomy along with systematic study of medicinal plants cultivated in India will be discussed in details.
3	Advances in Pharmacognosy and Phytochemistry: Application of UV,	9L	This topic shall cover applications of spectroscopy and other analytical tools for

	IR, NMR, ¹ HNMR, ¹³ CNMR and Mass spectroscopy for structural elucidation of phytosterols, flavonoids and terpenoids. Biotechnological mutation, polyploidy and hybridization to improve the quality of vegetable drugs and their constituents, chemical races. Plant growth regulators and their use, scope and limitations in Pharmacognosy.		structural elucidation of natural products
4	Application of tissue culture in improvement of medicinal plants: Yield improvement, stress tolerant plants, disease resistant plants, pesticide tolerant plants, synthetic seed production, germplasm storage and cryopreservation for conservation of plants.	7L	This topic shall cover application of tissue culture in details.
5	Standardization and Evaluation of Natural Product Drugs and Formulations: Factors affecting quality of crude drugs, methods for documentation and preservation of crude drugs and their products Bioavailability and pharmacokinetic significance for herbal drugs with examples of clinically used herbal drugs. Preparation of DMF for herbal medicines. WHO.	7L	This topic will discuss in details about the standardization process and evaluation of drugs and their formulations.
TOTAL		42	

Text Books:

1) Pharmacognosy (Phytochemistry and Plant Cultivation), Vol. 2, Mohd. Ali, CBS Publishers, New Delhi, 2008.

Reference Books:

1)Pharmacognosy, Evans, W.C., Trease & Evans, WB. Saunders & Co., London, 2002.

- 2)Plant Taxonomy and Biosystematics, Stace C.A., Edward Arnold, London, 1985.
- 3)Introduction to Plant Tissue Culture, Rajdan, M., Oxford IBH Publishing Co. Pvt. Ltd., New Delhi.

4)Plant Cell and Tissue Culture, Street H.E., Blackwell Scientific, London, 1997.