BP603T. HERBAL DRUG TECHNOLOGY (Theory)

45 hours

Course content:

Unit-I **10 Hours**

Herbs as raw materials: Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation, Source of Herbs, Selection, identification and authentication of herbal materials, Processing of herbal raw material.

Biodynamic Agriculture: Good agricultural practices in cultivation of medicinal plants including Organic farming. Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

Indian Systems of Medicine: Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy. Preparation and standardization of Ayurvedic formulations *viz*. Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma.

Unit-II **8 Hours**

Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.

Study of following herbs as health food: Alfa-alfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina.

Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.

Unit-III **10 Hours**

Herbal Cosmetics: Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums colours, perfumes, protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.

Herbal excipients: Herbal Excipients – Significance of substances of natural origin as excipients- colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.

Herbal formulations: Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes.

Unit-IV **10 Hours**

Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs. Stability testing of herbal drugs.

Patenting and Regulatory requirements of natural products: Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy.

Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.

Regulatory Issues - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs.

Unit-V **07 Hours**

General Introduction to Herbal Industry: Herbal drugs industry: Present scope and future prospects. A brief account of plant-based industries and institutions involved in work on medicinal and aromatic plants in India.

Schedule T – Good Manufacturing Practice of Indian systems of medicine:

Components of GMP (Schedule –T) and its objectives.

Infrastructural requirements working page, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records.

P609P. HERBAL DRUG TECHNOLOGY (Practical)

4 Hours/ week

1. To perform preliminary phytochemical screening of crude drugs.
2. Determination of the alcohol content of Asava and Arista.
3. Evaluation of excipients of natural origin.
4. Incorporation of prepared and standardized extract in cosmetic formulations like creams, lotions and shampoos and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Monograph analysis of herbal drugs from recent Pharmacopoeias.
7. Determination of Aldehyde content.
8. Determination of Phenol content.
9. Determination of total alkaloids.

Recommended Books: (Latest Editions)

- Trease and Evans Pharmacognosy by W. C. Evans, 16th edition, W.B. Sounders & Co., London.
- Textbook of Industrial Pharmacognosy by A.N. Kalia, CBS Publishers & Distributers Pvt. Ltd., New Delhi.
- Textbook of Pharmacognosy by Tyler, Brady & Robber, CBS Publishers & Distributers Pvt. Ltd., New Delhi.
- Handbook of Cosmetic Science & Technology by M. Paye, A.D. Barel, H. Maibach, Informa Healthcare, NY.
- Cosmetics Formulation, Manufacture and QA by P.P. Sharma, 4th edition, Vandana Publication Pvt. Ltd.
- Poucher's Perfumes, Cosmetics and Soaps edited by Hilda Bulter, Springer (India) Pvt. Ltd., New Delhi.
- Textbook of Pharmacognosy by C.K. Kokate, Purohit, Gokhale, Nirali Prakashan, New Delhi.
- Essential of Pharmacognosy by Dr. S.H. Ansari, Birla Publications Pvt. Ltd., Delhi.
- Pharmacopeial Standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy).
- Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals by Mukherjee, P.W. Business Horizons Publishers, New Delhi.