

MEDICINAL PLANTS (PBT-803)

Credit Hours 3(3-0)

Educational Objectives:

1. The subject of Medicinal Plants was the first of its kind when approved to begin in 2006. Since then another institution has begun to offer the same course and others are in the process of developing degree programs in Medicinal Plants. NUST is uniquely situated to offer this degree because of local Medicinal Plants diversity and interest in traditional medicine knowledge, and conservation of medicinally important herbs. The objectives of the course of Medicinal Plants are to provide a unique learning environment in which biological and social science theories are integrated to train students in the multi-disciplinary field of Medicinal Plants.

Course Outcomes:

2. Individuals credited with the completion of this course are able to describe selected medicinal herbs. This description encompasses both traditional and contemporary understanding of the key therapeutic actions, indications, constituents, cautions, contraindications, dosages and toxicity of each medicinal herb; alongside nomenclature, habitat, morphology and preparation of indicated forms of delivery of the medicinal herb. Individuals credited with the completion of this course are able to describe and identify medicinal plants according to established systems of nomenclature and morphology and recognize the life cycle of herbal plants. Individuals credited with the completion of this course are able to describe the principles and practice of herbal medicine cultivation and demonstrate competency in the planting, growing, harvesting, drying and storage of medicinal herbs.

3. Course Contents:

- a. Tabloid Herbals - Supermarket Medicines,
- b. Bioprospecting: Searching for Plants that Cure Disease and Improve Human Health;
- c. Botany of Medicinal Plants,

- d. Plants as Ancient and Modern Medicines - quinine, Digitalis steroids and the Drug Plants- Cannabis, Tobacco, Cocoa, Opium Poppy,
- e. From Ancient to Modern Methods of Distillation,
- f. Aromatic plants and essential oil crops,
- g. Chemistry of Plant Secondary metabolites:
 - (1) Chemistry of Polyphenols, Their Health Properties including Antioxidant Activity,
 - (2) Chemistry of Alkaloids and Pharmaceutical Applications
 - (3) Chemistry of Essential Oils, Genetic Diversity,
- h. Biodiversity and Endangered Medicinal and Aromatic Plants,
- i. Medicinal Fungi.
- j. Medicines of China, India, Korea, North America, South America, and Africa,
- k. The Legislative Environment for Medicinals and Botanicals in the Pakistan,
- l. Extraction and Processing Technologies for Natural Products,
- m. Nutraceuticals,
- n. Dietary Supplements and Botanical Standardization,
- o. Growing Medicinal plants and Herbs,
- p. Medicinal Plants Research and Market Status in the World,
- q. Traditional and Herbal Teas.

Recommended Books:

1. Medicinal plants: an expanding role in development by Jitendra Srivastava, John Lambert, Noel Vietmeyer
2. WHO monographs on selected medicinal plants by World Health Organization
3. Medicinal Plants by Anil Kumar
4. Handbook of medicinal plants by Zohara Yaniv, Uriel Bachrach
5. Medicinal Plants: Vol.02. Horticulture Science Series by Kurian, A. & A.Sankar, Alice Kurian and M.Asha Sankar

