



Syllabus Structure of Botany (MDC) based on 4YUGP 2023

Year	Semester	MDC	Topics
1 st	1 st	MDC 1	Cultivation of Medicinal Plants
2 nd	3 rd	MDC 2	Economic Botany
3 rd	5 th	MDC 3	Advance Botany

Programme Objective:

The objective of the course is to introduce the subject to those students who have very little ideas about the subject. The course has a humble start from very basic knowledge of cultivation of medicinal plants and economic botany and ends its journey in bio-informatics. During this three year journey the students will be enlightened with the blessing of elementary knowledge of plant taxonomy, microbiology, plant biotechnology and molecular biology. This is a modest approach to introduce the subject in an easy way to the students in a nutshell.

Programme Outcome:

The student will have a working idea about the subject botany as well as its importance in modern days in the field of sustainable development of nation and human civilization.

Course: Theory Syllabus of MDC1

Paper Name: Cultivation of Medicinal Plants

Paper Code: BOT-MDC1

Cultivation of Medicinal Plants

Scope and Importance of Medicinal Plants.

Conservation of endangered and endemic medicinal plants.

Propagation of Medicinal Plants: Through seeds and vegetative methods.

Preparation and management of the nursery, transplantation, harvesting, post-harvest care.

Cultivation techniques, cultural practices of the following medicinal plants: Chatim, Kalomegh, Sarpagandha, Haritaki, Tulshi, Basak, Ginger, Turmeric.

INTERNSHIP (INTRN): (To be carried out at 2nd semester)

In this course students are required to participate in a professional activity to gain work experience or cooperative education activity with an entity external to the education institution, normally under the supervision of an expert of the given external entity. A key aspect of internship is induction into actual work situations. All students will also undergo internships in a firm, industry, or organization or training in labs with faculty and researchers in their own or other HEIs/research institutions during the summer term. NSS/NCC activities (apart from Regular/ Special NSS activities) may also be considered in the Internship during summer term.



Course: Theory Syllabus of MDC 2

Paper Name: Economic Botany I

Paper Code BOT-MDC 2

Scientific name, family, Parts used and uses of the crops belonging to the following groups:

Cereals : Wheat and Rice, Maize, Jowar, Bajra and Kodo millets.

Legumes: Chick pea, Pigeon pea, Lentil, Arhar dal.

Sugarcane and sugar beets.

Spices: Fennel, large cardamom, clove, Cumin, Coriander, Asafoetida and black pepper.

Beverages: Tea, Coffee

Oil yielding crops: Groundnut, coconut, soybean, mustard .

Natural Rubber

Drug and narcotics yielding plants: *Cinchona*, *Digitalis*, *Papaver*, Aswagandha, Bringaraj, *Cannabis sativa*; Tobacco.

Timber plants: Teak, Bamboo, Sisoo, Jarul, Mehgani, Simul, Akashmoni and Sal.

Fiber yielding plants: Jute, Cotton, Hemp.

Vegetables: Okra, Cabbage, Potato, Bringal, Cauliflower, Squash, Pumpkin, Bottle gourd.

Fruits: Mango, Orange, Pineapple, Jackfruit, Guava, Watermelon

Flowers: Marigold, *Crysanthemum*, Rose and Tube rose.

Course: Theory Syllabus of MDC 3

Paper Name: Advance Botany

Paper Code BOT-MDC 3

Plant Taxonomy: Preliminary ideas and history of plant taxonomy and classification.

General Microbiology: Morphology of bacteria and virus, economic importance of bacteria. Organic farming and bio-fertilizer.

Mushroom Cultivation: Nutritional values of mushroom and cultivation of *Pleurotus* sp.

Plant Pathology: Important pathogens of tobacco, rice, wheat and tea.

Biochemistry: Importance of Bio-molecules (nucleic acid, carbohydrates and proteins).

Plant Physiology and Metabolism: Ideas of Photosynthetic path ways (C_3 , C_4 and CAM path way), Respiration, Photorespiration, transpiration and Photoperiodism (elementary ideas only), Phytohormones and their applications.

Plant Biotechnology: Introduction and application of plant tissue culture. Importance of plant breeding and basic concepts of hybridization.


Molecular biology: Preliminary ideas of Gene and gene cloning, elementary ideas of genetic engineering.

Bio-informatics: Introduction and applications.



Suggested Reading (MDC in Botany):

1. Medicinal Plants: Ethno botanical Approach. Trivedi P C, Agrobios, India.
2. Medicinal Plant Cultivation: A Scientific Approach, 2nd edn. Purohit and Vyas. Agrobios, India
3. স্নাতক উদ্ভিদবিদ্যা. জয়ন্ত কুমার শিকদার, কুণাল সেন, প্রণব গিরি; (সম্পাদনা দুলাল চন্দ্র সাঁতরা) সাঁতরা publication.
4. [ত্রি-বার্ষিক স্নাতক ব্যবহারিক উদ্ভিদবিদ্যা](#). ভূপেন্দ্র নাথ সান্যাল. নির্মালা লাইব্রেরী, কলকাতা.


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(Chairman)
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