

UNIT NO.	Course outcome USOCBIO02
1	<p>(A) Critical thinking: Understanding the microbial world which dominate the world and can be exploited for the benefit of man kind.</p> <p>(B) Effective: Understanding the importance of microbial life for the present and future as an asset of the nation in particular and world in general.</p> <p>(C) Social : As an aware citizen of the world making others aware of the importance of microbial flora , their importance to abiotic and biotic world to make the world a heaven to stay.</p> <p>(D)Ethics: Understanding the dharma of science so as the protect the world from harmful microbes</p> <p>(E) Environmental concerns: Knowledge of handling the microbes and basic knowledge of microbial mutation for a clean environment.</p>
2	<p>(A) Critical thinking: learning the fundamentals of cell structure and the technology.</p> <p>(B) Effective: The most basic idea to be inculcated in the young mind about the cell structure so that students may have a backbone to become a biologist/biotechnologist/molecular biologists of the future.</p>
3	<p>(A) Critical thinking: Understanding the range of variations among the flowering plants so as to distinguish them effectively.</p> <p>(B) Effective: A proper knowledge of flowering plants and their ethno biology will tend the students towards Biodiversity conservation program for a greener world as well as the sustainable exploitation of herbs to enhance the national economy and employment.</p> <p>(C) Social: Understanding the ethno biology and economic importance will have the bearing on rural economy of India. It empowers the students to choose the suitable and sustainable species for social forestry</p> <p>(D) Environmental concerns: Understanding antibiosis ,exotics and their impact on native species of plant and animals. Role of plants keeping the earth cool, dust filters as well as aesthetics.</p>
4	<p>(A) Critical thinking: on hand comparative review of ancient and present day plants and evolution within them if any</p> <p>(B) Effective: To be aware of the local common flora and their utilisation and on the other hand understanding ancient plants and their need to preservation,particularly the Cycads-now the living fossils on this earth.</p> <p>(C) as described under heading Unit 3C.</p> <p>(D) Environmental concerns: Cycads are very hard to grow in nature and their over harvesting has declined their population drastically in nature. It is required to make the citizens aware of the importance of Cycads and other Gymnosperms which dominates the middle and higher himalya.</p>

Course out come US02CBIO02

Understanding the various plant life forms under different abiotic conditions and their sustained utilization for national wealth generation ,clean environment and biodiversity conservation – an asset for the future generation.

Utilization of algal flora is now a days important for a cleaning the environment because of their , food for human as well as aquatic animals.

Fungal studies are again most appreciable as certain saprophytes are well known scavengers. Several fungi are the tools for various fungal biotechnology program. The parasitic forms have strong bearing on our crop plants and their study and manipulation is important for crop protection.

Bryophytes are the ancient dwellers of the earth. Their distribution is we documented by S R Kashyap in his land mark work” liverworts of eastern and western Himalayas and Punjabi planes.” However their utilization other than the pollution indicator is far from under -stood .No disease has so far been reported on bryophytes. Is it so that their short life span facilitates so or they have some acquired natural immunity is needed to be explored. The university has thus done justice by inclusion of bryology.

Pteridophyta is included too with an emphasis that students may have a on the hand idea of how vasculature developed in plants in course of natural selection and evolution. Again these plants are usually disease free. what controls that ?

Thus the current syllabus motivates the students towards critical thinking, so that they can be in a position to harness them when they are capable to do so.

Course outcome US03CBOT01

Understanding the phytodiversity in detail and the interactions among them. Mycology and Plant pathology are the backbone of Agriculture. Introduction of topics in mycology and pathology ,though in brief will definitely motivates the younger minds to pursue a carrier in Botany with focus on Plant pathology to contribute to our existing knowledge for the national development.

Course outcome US03CBOT02

The main emphasis of this paper is on understanding the structure function relationship in plants. One unit is devoted to plant utilization.

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For the first time pharmacognosy – an interdisciplinary science is introduced in the syllabus. The basic idea behind this is very simple that Pharmcognosy is introduced to them ,so that they can take up this science as a carrier for advanced studies as well as self employment.

Environmental studies are introduced here to sensitize the students regarding various issues of environment so that they too can contribute significantly for a clean environment.

Course outcome US04CBOT02

The paper deals with Plant anatomy, Plant embryology, Genetics and Plant biotechnology. Here the basics of these topics are dealt in detail so that students can grasp advanced topics in detail when they come in third year classes of Botany.

In the unit one and two students are fully exposed to plant structure, vegetative and reproductive so that they are fully loaded with the data pertaining to plant micromorphology and embryology. This will enable them in future to understand the structure-function relationship.

Topics in Genetics and Biothechnology are again of introductory nature so that they can understand the need and importance of genetics and biotechnology in future.

Course outcome US05CBOT01

Since students are fully aware of the various types of algae the systems of classification is introduced here so that they can readily grasp the systems of classification. Economic importance of algal flora is taught the them so that they can understand the importance of algae, protect them and march towards the sustainable utilization of these plants.

Fungus- plant association (Lichen) –the most endangered group of plants is also introduced in the paper.

Though the paper deals with the contribution of various Indian scientists in the field of Algology, Bryology and Petridology. It also undertakes the evolution and reproductive biology of these plants in detail.

Course outcome US05CBOT02

The paper deals with the various theories of plant growth and development, their adaptations towards the various environmental extremities so as to survive in a particular type of environmental complex.

Experimental embryology – an applied science is taught to them to make them fully aware of the miracles of plant science which can pay dividend to them if they choose experimental botany as a carrier by become an entrepreneur.

Pollination is an important physical and physiological phenomenon and here students learn about the pollination mechanism, barriers, incompatibility so that they can be able to manipulate this mechanism for higher productivity.

Course outcome US05CBOT03

Since the students of Botany major are not exposed to Bacteria which interacts with the plants very commonly, a complete unit on microbiology is included here so that students may have the exposure of basics of Bacteria.

Micro technique is the backbone of any science. Here that is dealt fairly .

Forests are our wealth and national economy depends on that. Keeping this in mind Utilisation of forest , forest products and forest based industries is taught to them.

Course outcome US05CBOT04

How plants react to the environment is taught here so that students may have a scientific approach towards the environment and plants relationship.

Course outcome US05CBOT05

Cell is the fundamental unit of life. This paper intends to deliberate upon the structure of cell at ultra level so that students may have an upper hand in choosing molecular biology , biotechnology as a subject of their choice. Candidates are exposed to fundamentals of genetics beginning from Mendelism so as to acquire better skills that how chromosomes play in bringing out new characters.

Course out come US05CBOT06

How the various life processes of plants are operated is taught here .Though we impart classical physiology two units are devoted to very specialized topics and they are senescence and ageing ,and stress physiology.