# Department of Botany

## Programme specific Outcomes

Students acquiring a degree in Botany Honours are expected to have

- Core knowledge of the Morphology, Phycology, Mycology, Anatomy, Microbiology, Genetics,Plant Breeding, Systematic , Physiology etc of Marine and terrestrial plants
- Develop research skills of observations, data collection and analysis
- Plan and conduct independent research

## Course Outcomes

**B.SC.Part -1(Honours in Botany)**
**Semester-1**

### Core Course – I : Microbiology & Phycology

**Theory**

- Microbes are abundant in our world and occupy various habitats. Study of microbes is a branch of Biology known as Microbiology. This Subject comprises of viruses, bacteria, algae ,etc and their economic importance. Viruses are extremely harmful particles often designated as organisms due to their genetic material & ability to transmit genetic features to offspring. Anyway, the matter is disputable. Study of viruses includes their, general features, Classification, diversity, methods of multiplication, etc.
- Bacteria are prokaryotic organisms having importance on earth & human life, apart from disease causing agents. They perform various significant roles in earth biological and chemical cycle .This subject encompasses the general features of bacteria, their classification, ultra–structure of cells, mode of reproduction etc. Algae are mainly aquatic organisms, also found in diverse habitats .Their ability to produce oxygen is the key for existence of life on earth. This subject gives idea about diversity of algae, their classification, cellular details ,etc. It also includes life cell of *Vaucheria ,Volvox , Zignema , Oedogonium , & Chara*.
- Practical course is aimed to develop skills of students in the field of study of bacteria, & algae .They will learn how to culture bacteria in aseptic method. They will also learn staining of bacteria for visualizing under microscope. Microscopic examination of bacteria from their natural habitats, like wart & root nodules of leguminous plants is also included. Course ii : Archegoniate Theory: This subject covers ‘’archegoniates’’a general term aggregating plant groups like bryophytes ,pteridophytes & gymnosperms. Archegoniate are first land plants & they demonstrate various stages of evolution of land plants .
- Bryophytes are a primitive group of plants without vascular tissues & for this vision they are united to produce larger Plants .But They played significant role in nature . This chapter covers diversity, features, Classification of bryophytes & also their importance. Following genera are discussed *Riccia, Marchantia, Pellia , Anthoceros, Sphagnum & Funaria*.
- Pteridophytes are free sporing vascular plants ,apart from their logical significances, they are now grown as ornamental plants all over the world .increasing reports of their medicinal values also increased their importance .This chapter covers their features diversity, classification, features, etc.

- Life cycles of following genera are covered *Lycopodium , Selaginella, Equisetum , Pteris & Marsilea* along with their economic importance. Gymnospermic plants are next to evolutionary success story before angiosperms they are major component in tropical or alpine forest flora & source of timer .This chapter covers morphology ,classification, features of Gymnosperms with special emphasis on *Cycas ,Pinus & Gnetum*. Practical covers morphological & anatomical features of bryophytes pteridophytes & gymnosperms from Indian species.

**Part II**
**Theory**
**Paper-IV**

- It Includes pteridophytes ,Gymnosperms & palaeobotany . Pteridophytes are free sporing vascular plants .Their diversity ,general feature , classification are discussed some representative genera are discussed .
- Gymnosperms are seedless vascular plants .This chapter covers their general features, classification ,morpho-anatomical features of various fossil and living groups of plants .Types of fossils & their significances are described. History of plant evolution is a major theme of this study.

**Paper V**

- Taxonomy is the science of classification .plant taxonomic study explains development of this branch of Science .It explains basis of plants classification, schemes of Classification & typification methods.
- Major tools of plant taxonomy like Botanical garden & herbaria are also important role to understand plant diversity. Some representative families are described.
- Phytogeography described distribution of plants in different climatic zones of the globe & principles underlying such patterns.

**Practical**

- Practical gives idea about morpho-anatomical features of living genera included in syllabus for pteridophytes & gymnosperms types of fossils are also included.

**Part III (Botany Honours )**
**Theory**
**Paper –VII**

- Includes Study of microbes ,economic botany & pharmacognosy ,Palynology ,reproductive biology & ecology microbiology or study of microorganisms described diversity, classification, & economic importance of bacteria .A brief idea of viruses is also included.
- Economic botany & pharmacognosy deal with valuable plants of commercial importance & medicinial Plants respectively.
- Palynology described spore & pollen characteristic features & varius applications of these forms.
- Reproductive Biology describes events followed during formation of new plants from fertilization to embryo stages.

- Ecology deals with interaction of plants with nature & also threats for them. Pollution is the major threats for them. Pollution is the major threat to plants & human civilization. Ecology shows components of nature & their balance.

**Paper-VIII**

- Cell Biology Shows Ultra structural features of cell & processes operating there. Biotechnology dealt with application of living organisms for human welfare for production of economic important products & medicines .It also operates in the field of environment.
- Genetics in plains basic mechanism of transmission of genetic features through inheritance. Structure & mechanism of action of genetic materials are also included . Plant breeding is the use of genetically data for production of high quality plants.
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**Paper - IX**

- Plant Physiology explains basic physiological mechanisms of plants like photosynthesis, respiration, absorption of minerals etc.
- Biochemistry explains structure & function of bio molecules –carbohydrate, protein etc.

**Paper –X**

- Practical Course includes study of features of chromosomes of *Allium cepa & Rhoeo sp* through cytological techniques. Microbes are studied from their natural habitats like curd & root nodules of leguminosae Plants
- Study of pollen grains include impatiens & hibiscus.

**Paper XI**

- Includes observation of some plant physiological processes including theoretical syllabus .biochemistry includes quantitative test of biomolecules . Ecology studies include adaptive features of plants in different habitats & also their estiruation. Pharmagnosy shows identifying features of some drug plants.