

Department of Botany

Program Name : B.Sc. (Medical)

Subject: Botany

Course Outcome: Theoretical and Practical knowledge as following:-

Semester I

BOT 1.1 (Diversity of Microbes)

- Develops general understanding of classification, structure, nutrition, reproduction and economic importance of Bacteria, Cyanobacteria, Algae, Fungi and Lichens.
- A detailed knowledge about Life-history of type specimen – *Volvox*, *Oedogonium*, *Vaucheria*, *Ectocarpus* and *Polysiphonia*.
- A detailed knowledge of type specimen(Fungi) – *Phytophthora*, *Mucor*, *Penicillium*, *Puccinia*, *Agaricus*, *Colletotrichum*.

BOT 1.2 (Cell Biology)

- Provides detailed knowledge of Cell envelopes, organelles, structures and function.
- Ultra-structure of nucleus and chromosome
- Chromosomal aberrations
- Detailed understanding of Cell cycle and cell division process.

Semester II

BOT 2.1 (Diversity of Archegoniates)

- General understanding of classification, structure, reproduction and economic importance of Bryophytes and Pteridophytes
- Structure and Reproduction in *Marchantia*, *Anthoceros* and *Funaria*
- Structure and Reproduction in *Rhynia*, *Selaginella*, *Equisetum* and *Pteris*

BOT 2.2 (Genetics)

- Develops understanding about Plant Genetic Material, its structure and Principle of inheritance
- General knowledge of genetic variations
- Detailed knowledge of how gene is expressed in eukaryotes in comparison to prokaryotes.

Semester III

BOT 3.1 (Biology and Diversity of Seed Plants – I)

- Provides general knowledge of Evolution from lower to higher plants through study of fossils.
- Deals with general characters, classification and economic importance of Gymnosperm and a detailed account of *Cycas*, *Pinus* and *Ephedra*.

BOT 3.2 (Plant Anatomy)

- Provides detailed understanding of plant tissues, their structure and function
- A detailed study of structure of Root, Stem and Leaf develop better understanding about plant structure.
- A part of it is also dedicated to modifications and anomalous growth in plants

Semester IV

BOT 4.1 (Biology and Diversity of Seed Plants – II)

- This paper give insight into the taxonomy of plant kingdom and introduces the student to various technical terms and aspects related to it.
- A detailed study of different families of flowering plants help student establish better understanding of plant diversity and how identification and classification system works.

BOT 4.2 (Plant Embryology)

- First half of the paper provides detailed knowledge of flower structure and development of reproductive organs.
- The other half of paper develop better understanding about mechanism of fertilization and development of embryo, seed and fruit.

Semester V

BOT 5.1 (Plant Physiology)

- This paper gives detailed knowledge of plant water relations, nutrition and photosynthetic processes taking place in plants.
- Also, the students develop better understanding about growth and development of a plant and the various factors responsible/ affecting it like growth hormones and abiotic factors.

BOT 5.2 (Ecology)

- The detailed knowledge about ecosystem, its structure and functioning is imparted through this paper
- The paper also develops better understanding about the plant and its relation with the biotic and abiotic factors in the ecosystem.
- A portion of this paper is also dedicated to study of pollution and various polluting factors to help understand the factors ecosystem stability.

Semester VI

BOT 6.1 (Biochemistry & Plant Biotechnology)

- This paper deals with the respiration, energy production and assimilation and utilisation of food by plants.
- The paper also develops understanding about the tools and techniques of genetic engineering, biotechnological processes and plant tissue culture, with special emphasis on transformation in *Agrobacterium*.
- The paper also covers the application part of the techniques for study and commercial use.

BOT 6.2 (Economic Botany)

- Through this paper student get to understand the concept of centre of origin of crop and the process of plant domestication.
- The paper also provide detailed knowledge of origin, morphology, cultivation, harvesting and uses of major cereals, pulses, vegetables, beverages, medicinal, oil-yielding plants, fibre crops, spices and timber, sugar and rubber processing.