VIVEKANAND COLLEGE KOLHAPUR, (AUTONOMOUS)

DEPARTMENT OF BOTANY

B. Sc. III (Botany)

Course 1:

1. **To study carbohydrates, lipid and protein metabolism in plants:**
   -The properties of Monosaccharides, Oligosaccharides &Polysaccharides.
   -Understand the properties of saturated fatty acids and unsaturated fatty acids.
   - Lipids metabolism in plants.
   -The Beta oxidation, Gluconeogenesis and its role immobilization of fatty acids during germination.
2. **For proper understanding of plant characteristics use some scientific instruments:**
   -Systematic study of all related information of plant sciences through practical implementation.
   -Study of plant characteristics with live plant demonstration and with the help of scientific instruments such as compound and dissecting microscope.
   -Also to correlate theory and practical knowledge.
3. **To know the concept of systematic and Study classification systems in Angiosperms:**
   -Study the phylogeny of Angiosperms, a general account of origin of Angiosperms.
   - Trace the history of development of systems of classification emphasizing Angiospermic taxa.
   -The wide varieties in Angiosperm and trends in classification.
4. **To understand terminologies and family characteristics involved in plant sciences:**
   -Study of different terminologies related to angiosperms.
   -The characters of economically important families of Angiosperms.

Course 2:

1. The properties of Monosaccharides, Oligosaccharides &Polysaccharides. About the significance of carbohydrates.
2. Understand the properties of saturated fatty acids and unsaturated fatty acids, lipid metabolism in plants.

The Beta oxidation, Gluconeogenesis and its role immobilization of fatty acids during germination.

3. To know the concept of systematics. The phylogeny of Angiosperms, a general account of origin of Angiosperms.
4. Trace the history of development of systems of classification emphasising Angiospermic taxa. The wide varieties in Angiosperm and trends in classification.
5. The characteristics of economically important families of Angiosperms.

Course 3:

1. To acquire knowledge of genetics:

-To study Mendelian genetics and basic laws of inheritance.

-Study of phenomenon of dominance, laws of segregation, independent assortments of Genes And phenomenon of multiple allelism.

-To know concept of linkage and crossing over and its significance.

- Details of genomic Organisation.

2. Study of statistical analysis and methodology:

-Knowledge of biostatistics and statistical terms.

- To study methods of sampling and representation of data.
- To know the concept of mean mode & median.

3. Study of plants with scientific look:

-Importance of plants and role of plants in human welfare.

-Gain Knowledge about various plants of economic use.

-Importance of plants and plant products.

4. Ethnobotanical study of plants:

- To study different plants with their traditional use.
- To know about biochemical compounds present in plants.

-To gather data of plants which were used in traditional medicine.

Course 4:

1. **To study scope and importance of molecular biology.**
   - The biochemical nature of nucleic acids, their role in living systems, experimental evidences
   - To prove DNA as a genetic material.

- Gain knowledge about the mechanism and essential component required for the DNA replication.

2. **The fundamentals of Recombinant DNA technology.**
   - Know about the genetic engineering.
   - Tools and techniques involved in genetic engineering.
   - Principles and basic protocols of plant tissue culture.

3. **Horticulture and techniques involved in horticulture:**
   - The science of horticulture.
   - The methods of propagation of horticultural plants.
   - Management of nursery.

4. **To know about gardening and principles of gardening**:
   - About principles of gardening.
   - Concept of landscape designing.
   - Know the garden plants.

5. **Forests in India:**
   Different types of forests found in India.

PSO's:

1. **Critically evaluation of ideas and arguments by collection relevant information about the plants:**
   - Broad classification of plants with phylogenetic level.
   -Identify problems and independently propose solutions using creative approaches.
   - Knowledge acquired through interdisciplinary experiences and a depth of expertise in the field.

2. **Collection and analysis of data:**
   -Students will be able to apply the scientific method to questions in botany by formulating testable Hypotheses.
   -Collection of data that address these hypotheses and analyze the data to assess the degree to which their scientific work supports their hypotheses.
   -To access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.

3. **Interpretation of taxonomical data:**
   -Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.

4. **Techniques involved in interpretation of collected data:**
   -To apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological solutions.

-To compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.

5. **Plant ecosystem and environment:**

-To explain the ecological interconnection of life on earth by tracing energy and nutrient flow through the environment.

-To relate the physical features of the environment to the structure of populations, communities And different ecosystems.