

SCHOOL OF SCIENCE

SYLLABUS FOR

PROGRAM: B.Sc. Botany

ACADEMIC YEAR: 2014-15

SEMESTER: II

DIRECTOR
SCHOOL OF SCIENCE
RK UNIVERSITY
RAJKOT

Course Title	Botany - II
Course Code	BSB211
Course Credit	Lecture :04
	Practical :03
	Tutorial :00
	Total :07

Course Learning Outcomes

At the end of the course the students will be able to:

- Know the concepts of cell biology, genetics, molecular biology and plant physiology.
- Apply knowledge in various strategies and techniques involved in botany.
- Understand the concept of biochemistry.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section-I		
1	Cell biology Historical background and cell theory, Viroids and prions, Cell division (Mitosis and Meiosis), Ultra structure of Nucleus, Mitochondria and Chloroplast	15
2	Biochemistry pH and buffers, Characters and classification of amino acids, Basic introduction of carbohydrate, Basic introduction of lipid and protein, Classification of enzymes	15
3	Genetics and Economic Botany Principles of Mendelian genetics, DNA and Histons, A general account of Fibers (Cotton and Jute), Oil (Mustard and Ground Nut), Pulses (Gram and Mung), Cereals (Rice, Wheat, Maize), Beverages : Tea, Coffee, Timber Yielding plant: Teak and Sal	15

Section – II

4	<p>Techniques in cell biology and genetics</p> <p>Principles and mechanism of light and electron microscope, Principle and applications of paper chromatography techniques, Plant Tissue culture, Principle and function of pH meter, Principle and function of colorimeter</p>	15
5	<p>Plant Physiology and anatomy</p> <p>Photosynthesis, C₃ cycle, C₄ cycle, Structure of photosynthetic pigments, Anatomical studies of monoclonal and Dicot plants (Root, stem and leaf)</p>	15

BOTANY (PRACTICAL) 6 HOURS PER WEEK

1. Study of bacteria through permanent slides and gram's staining
2. Study of cell structure from onion leaf peels; demonstration of staining and mounting methods
3. Study of various stages of mitosis through permanent slides as well as by preparing squash of onion root tip
4. Study of various stages of meiosis through permanent slides as well as by smear preparation of flower bud
5. Principle, function and mechanism of light microscope and electron microscope (TEM, SEM)
6. To extract and separate chloroplast pigments by paper chromatographic technique
7. Comparative anatomical studies of root of Monocotyledon and Dicotyledons
8. Comparative anatomical studies of Stem of Monocotyledon and Dicotyledons
9. Comparative anatomical studies of leaf of Monocotyledon and Dicotyledons
10. To study the phenomenon of plasmolysis
11. Visit of the research laboratories/ Universities/ Forest etc according to conveniences of colleges

Instructional Method and Pedagogy

- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Tutorials will be conducted.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Minimum ten experiments shall be there in the laboratory related to course contents.

Text book

1. Biochemistry Satyanarayan
2. Introductory Botany..... Bendre-Pande

Reference Books

1. Text book of Botany N. S. Panchal & M. M. Jani
2. Cytology, Genetics, and Evolution P. K. Gupta
3. Molecular Biology C. B. Pawar
4. Plant Physiology Pandey and Sinha
5. Plant Physiology V. Verma
6. Fundamental of Biochemistry V. K. Jain
7. Biochemistry Stryer
8. Genetics Gardner
9. Cytogenetics Sudan rajan
10. College Botany Das, Dutta and Ganguli
11. Text book of Botany B. P. Pandey; Mishra