

SCHOOL OF SCIENCE

SYLLABUS FOR

PROGRAM: B.Sc. Botany

ACADEMIC YEAR: 2014-15

SEMESTER: IV

DIRECTOR
SCHOOL OF SCIENCE
RK UNIVERSITY
RAJKOT

Course Title	Botany - IV
Course Code	BSB401
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 anatomy and embryology.
- Understand the functional role of plant hormones.
- Apply knowledge in various strategies and techniques involved in botany.
- Understand the concept of plant breeding and ecology.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section-I		
1	Anatomy and embryology Abscission and Wound healing, Periderm and lenticels, Glandular tissue system, Types of embryo sac, Fertilization	15
2	Physiology and biochemistry Mineral nutrients in plants, Transport of organic substances, Physiological role and mechanism of action of phytohormones: Auxins, Gibberellins, Cytokinin, Abscisic acid, Ethylene.	15
3	Genetics and plant breeding Types of variations, Graft hybrid, Need for plant breeding, Plant breeder's knowledge, Green revolution, Mode of propagation.	15

Section-II		
4	<p>Ecology</p> <p>Edaphic factor, Composition of soil, Origin and development of soil, Soil moisture, Soil profile, Soil erosion, Soil conservation, Remote sensing as a tool for study- management of ecosystem, Pollution: Air, Water, Acid rain, Global warming.</p>	15
5	<p>Advanced techniques in botany</p> <p>Horticulture: Introduction and scope, Bonsai, Floriculture, Bio-fertilizers, Antibiotics, Herbarium- techniques and uses, Biotechnological methods for plant improvement</p>	15

BOTANY-IV (PRACTICAL) 6 HOURS PER WEEK

1. Germination of pollen grain.
2. Study through permanent slides:
 - a) a) Abscission, b) Tylosis, c) Periderm, d) Types of embryo sac.
3. Study of glandular tissue system
4. Biostatistics : Mean, Median, Mode
5. To study selected soil properties by spot test.
 - a) pH, b) Carbonate, c) Nitrate
6. Following methods of plant propagation demonstrated through chart.
 - a) Grafting- inarching, notch, whip grafting b) Budding- 'T' budding , chip budding
7. Mounting of embryo (Dicot/Monocot)
8. To study L.S of Maize grain.
9. To study of xylem component by maceration technique.
10. Photosynthesis: evolution of O₂.
11. Demonstration Experiments: a) Imbibitions experiments b) Compare the rate of transpiration of upper and lower epidermis of a leaf by using cobalt chloride paper.

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