

Mohanlal Sukhadia University

Udaipur

Department of Biotechnology



Syllabus and Scheme of Examination

For

B.Sc. CBCS Programme with Biotechnology

Discipline Specific Electives Theory

S.NO.	Type of course	Semester	Course code	Title of the Course
1.	DSE 1	V	B5ET01BOT01	Botany-I
2.	DSE 2	V	B5ET02BT01	Biotechnology- I
3.	DSE 3	V	B5ET03CHE01	Chemistry- I
4.	DSE 4	VI	B6ET04BOT02	Botany-II
5.	DSE 5	VI	B6ET05BT02	Biotechnology- II
6.	DSE 6	VI	B6ET06CHE02	Chemistry- II

Discipline Specific Electives Practical

S.NO.	Type of course	Semester	Course code	Title of the Course
1.	DSE 1	V	B5EP01BOT01	Botany-I
2.	DSE 2	V	B5EP02BT01	Biotechnology- I
3.	DSE 3	V	B5EP03CHE01	Chemistry- I
4.	DSE 4	VI	B6EP04BOT02	Botany-II
5.	DSE 5	VI	B6EP05BT02	Biotechnology- II
6.	DSE 6	VI	B6EP06CHE02	Chemistry- II

Skill Enhancement Courses (Any four)

Botany	Biotechnology	Chemistry
1. Biofertilizers	1. Probiotic Technology	1. IT Skills for Chemists
2. Herbal Technology	2. Animal Cell Sciences	2. Basic Analytical Chemistry
3. Nursery and Gardening	3. Microbiological Analysis of Air and Water	3. Chemical Technology & Society
4. Floriculture	4. Techniques in Biotechnology	4. Chemoinformatics
5. Medicinal Botany	5. Techniques in Plant Tissue Culture	5. Business Skills for Chemists
6. Plant Diversity and Human Welfare		6. Intellectual Property Rights
7. Ethnobotany		7. Analytical Clinical Biochemistry
8. Mushroom Culture Technology		8. Green Methods in Chemistry
		9. Pharmaceutical Chemistry
		10. Chemistry of Cosmetics & Perfumes
		11. Pesticide Chemistry
		12. Fuel Chemistry

Unit-V (Chromatography)**Credit hours: 3**

Principals and applications of Paper and thin layer chromatography.

Skill Enhancement Course***5: Techniques In Plant Tissue Culture*****TOTAL HOURS: 30****CREDITS: 2****Unit –I (Introduction to Plant Tissue culture)****Credit hours: 6**

Introduction to Plant Tissue culture, Laboratory organization, Tools and techniques, methods of sterilization. Laboratory contaminants- it's control and measures.

Unit-II (Media and Culture Preparation)**Credit hours: 7**

Role of Micro and macro nutrients, Vitamins and carbon source in tissue culture, Media preparation- pH, Temperature, Solidifying agents, Various media preparations, Slant Preparations etc. Maintenance of cultures, Environmental Conditions,.

Unit-III (Culture techniques)**Credit hours: 5**

Explants selection, explants characteristics, sterilization and inoculation for culture establishment

Unit-IV (Initiation of Cultures)**Credit hours: 6**

Induction and growth parameters; Culture initiation, Callus culture., Micropropagation through various explants (Leaf, Stem, Axillary bud).

Unit-V**Credit hours: 6**

Meristem tip culture and its application. Techniques and significance of Androgenesis and Gynogenesis (anther and pollen, ovary and ovule culture). Production of Synthetic seeds.

Skill Enhancement Course**Chemistry*****1. It Skills for Chemists*****(Credits: 02)****30 Credit hours****Mathematics**

Fundamentals, mathematical functions, polynomial expressions, logarithms, the exponential function, units of a measurement, interconversion of units, constants and variables, equation of a straight line, plotting graphs.

Uncertainty in experimental techniques: Displaying uncertainties, measurements in chemistry, decimal places, significant figures, combining quantities.

Uncertainty in measurement: types of uncertainties, combining uncertainties. Statistical treatment. Mean, standard deviation, relative error. Data reduction and the propagation of errors. Graphical and numerical data reduction. Numerical curve fitting: the method of least squares (regression).

Algebraic operations on real scalar variables (e.g. manipulation of van der Waals equation in different forms). Roots of quadratic equations analytically and iteratively (e.g. pH of a weak acid). Numerical methods of finding roots (Newton-Raphson, binary –bisection, e.g. pH of a weak acid not ignoring the ionization of water, volume of a van der Waals gas,