

**M. G. Science Institute, Ahmedabad
(Autonomous)**

Affiliated to Gujarat University, Ahmedabad
(Managed by The Ahmedabad Education Society)

Department of Botany

Detailed Syllabus

Semester II

Year	Sem	Course Type	Course Code	Course Title	Credits T P	Total
1	Sem-II	DSC-Core	BOT-MJ-121	Basic Plant Science-II	4	4

Course Outcomes (COs) On completion of the course, the students will be able to:		Bloom's cognitive level
CO1	Classify the different plant forms to their respective groups based on their thallus structure and reproduction. Identify life cycle patterns of various groups. Describe the vegetative and reproductive structure of the forms studied.	2
CO2	Understand the external features of various plants. Learn to sketch various plant forms. Apply the knowledge of plant morphology to separate dicot and monocot plant families	2
CO3	Classify the different plant families with reasons. Understand systematic position and plant classification.	3
CO4	Understand and remember important plant physiological processes. Draw the different pathways and cycles and apply the knowledge to understand plant life.	4
CO5	Understand the principles of Horticulture and gardening. Remember the names of common plants in various garden areas. Learn and use various garden instruments. Apply the knowledge of horticulture in plant propagation, hydroponics etc.	5
CO6	Visit and evaluate various features of a garden. Write a report of visit to a organic farm or hydroponics farm or learn the skill of terrarium making	5, 6

Unit No.	Title of Unit and Contents	No. of hours
I	Diversity of Lower Plants -General account: Habit and habitat of Bryophytes, Pteridophytes, Gymnosperms. -Life history of the following Bryophyte genus including morphology and reproduction excluding development: (Classification as per G. M. Smith) <i>Riccia</i> -Life history of the following Pteridophytes genus including morphology and reproduction, excluding development (Classification according to G. M. Smith) <i>Nephrolepis</i> -Life history of the following Gymnosperm genus including morphology and reproduction, excluding development (Classification according to Sporne) <i>Cycas</i>	15
II	Morphology and Taxonomy -Plant Morphology -Phyllotaxy and Types of leaves -Types of stipules and their modifications -Bracts: Scaly, Involucral, Foliaceous, Petaloid and Spathe -Inflorescence: Racemose – Raceme, Spike, Catkin, Spadix, Umbel, Capitulum -Cymose – Solitary: terminal and axillary, Uniparous, Biparous, Multiparous cymes. -Types of Flowers based on position of ovary, symmetry -Aestivation -Placentation -Study plant family: Malvaceae, Amaryllidaceae- Classification with reasons as per Bentham and Hooker, General features, Floral formula and examples of at least two important plants with scientific names	15
III	Plant Physiology -Plant-Water Relations: Water Potential, Diffusion, Imbibition. -Photosynthesis: Significance, Historical aspect, Photosynthetic pigments, C3-C4 Pathways. -Physiology of Flowering: Role of temperature in flowering, Vernalization. -Photoperiodism: Role of light in flowering. -Transpiration: Bell-Jar Experiment, types, significance and factors affecting transpiration,	15

	<ul style="list-style-type: none"> -Guttation -Study of monocot and dicot seed structure -Study of seed based on moisture content and its relation with seed viability 	
IV	<p>Horticulture and Gardening</p> <ul style="list-style-type: none"> -Horticulture: Definition, Scope -Branches -Gardening: Introduction, Uses of Gardens, -Types of Gardens (Kitchen, Water and Vertical Gardens) -Garden Equipments: Sprinkler, Hoe, Scissors, Hose pipe, Watering can -Names and flowering times of 5 ornamental flowering trees, shrubs, foliage, climbers -Asexual plant reproduction-Cutting, Layering -Green house, its components and use -Preparation of terrarium -Introduction to hydroponics and its types -Composting and bio fertilizers 	15