FYBSc-Semester I Paper I				
1	USBO 101 (Plant Diversity I)	Unit I Algae	CO 1	Identify the different location of the algae.
			CO 2	Explain their habitat, cell structure, pigments, reserve food found in them.
			CO 3	Distinguish between the different forms of algae with example.
			CO 4	Explain their reproduction types, differentiate between the three different types of syngamy.
			CO 5	Explain the different types of alternation of generation with example.
			CO 6	Write about economic importance of algae.
			CO 7	Explain the classification, occurrence, structure, reproduction and life cycle of Nostoc and Spirogyra.
		Unit II Fungi	CO 1	Explain the general characteristic of Phycomycetes ie. They will explain their location, anatomy, reproduction and alternation of generation.
			CO 2	Write about the classification, occurrence, structure, reproduction life cycle of Rhizopus and Aspergillus.
			CO 3	Know the benefits and Harmful effects of Fungi
			CO 4	Explain the different mode of nutrition in fungi.
		Unit III Bryophyta	CO 1	Differentiate between a moss and a liverwort.

			CO 2	Explain the basic structure of Hepaticeae ie. Know the geographical distribution, anatomy, reproduction and alternation of generation.
			CO 3	Describe the habitat, anatomy, reproduction and life cycle of Ricca
FYBSc - Semester I : Paper II				
2	**USBO 102 (Form and Function I)**	**Unit I Cell Biology**	**CO 1**	Understand Basic structure and differentiate between a prokaryotic and eukaryotic cell.
			CO 2	Explain the structure and chemical composition of cell wall.
			CO 3	Understand the functions of the cell wall.
			CO 4	Analyze the chemical composition of cell membranes and different process involved in cell membrane .
			CO 5	Describe the structural components of the cell membrane and their function
			CO 6	Explain the different models of cell membrane.
			CO 7	Understand the structure and functions of Endoplasmic reticulum.
			CO 8	Explain the ultra structure and function of Chloroplast.
		Unit II Ecology	**CO 1**	Define ecology and ecosystems.
			CO 2	Understand the components of ecosystems and their interaction.

			CO 3	Explain concept of energy flow in the ecosystem and its different models.
			CO 4	Identify and draw the food chain and food web.
			CO 5	Define Aquatic ecosystem and explain its different types.
			CO 6	Define terrestrial ecosystem explain its different types
		Unit III Genetics	**CO 1**	Define genetic, heredity and variations
			CO 2	Explain the concept of genotype and phenotype
			CO 3	Understand the Mendelian genetics and Explain different laws.
			CO 4	Understand the gene interaction with suitable example.
			CO 5	Define epistatic and Non epistatic interaction.

FYBSc-Semester I Course Code: USBOP1

	Topic	After studying this topic student will be able to	
PracticalI	**Paper I (Plant Diversity1)**	**CO 1**	Understand the parts of a Microscope and its working.
		CO 2	Identify and describe the different stages in the life cycle of *Nostoc*.
		CO 3	Identify and describe the different stages in the life cycle of *Spirogyra*.
		CO 4	Explain the economic importance algae and give the industrial uses of the same.

			CO 5	Identify and describe the different stages in the life cycle of *Rhizopus*.
			CO 6	Identify and describe the different stages in the life cycle of *Aspergillus*.
			CO 7	Explain the economic importance Fungi and give the industrial uses of the same.
			CO 8	Identify and describe the different stages in the life cycle of *Riccia*
		PAPER II (Forms and functions 1)	**CO 1**	Identify and describe the different stages of mitosis in the roots tips of *Allium*.
			CO 2	Identify, describe and differentiate between the difference in the cell inclusion.
			CO 3	Understand the morphological diversity occurring among the different Ecosystems.
			CO 4	Calculate the problem of mean, median and mode.
			CO 5	Calculate and demonstrate the standard error in the statistical problems.
			CO 6	Identify the difference in the chromosomes of Human Beings and plants.
FYBSc-Semester II Paper I				
1	**USBO 201 (Plant Diversity I)**	**Unit I Pteridophytes**	**CO 1**	Identify the different location of the plants belonging to Pteridophyta.
			CO 2	Ø Explain the classification, occurrence, structure, reproduction and life cycle of Nephrolepis.

			CO 3	Describe the stellar evolution.
		Unit II Gymnosperms	**CO 1**	Explain the general characteristic of Gymnosperms.
			CO 2	Write about the classification, occurrence, structure, reproduction life cycle Cycas.
			CO 3	Explain the economic importance of gymnosperms.
		Unit III Angiosperms	**CO 1**	Understand the basic structure of leaf, its types and their modification.
			CO 2	Describe the margin, shapes, apex and base of each leaf.
			CO 3	Explain the basic structure of infloresences and its types along with the modification.
			CO 4	Describe in detail the plants belonging to family Malvaceae and Amaryllidaceae.
FYBSc - Semester II : Paper II				
2	**USBO 202 (Form and Function I)**	**Unit I Anatomy**	**CO 1**	Understand Basic structure and types of each cell in the plant body
			CO 2	To gain knowledge of plant cells, tissues and their functions.
			CO 3	To make connections between plant anatomy and the other major disciplines of botany.
			CO 4	To identify and compare structural differences among different taxa of vascular plants.

			CO 5	Explain the structure and development of monocot and dicot root, stem and leaf.
		Unit II Physiology	**CO 1**	Define Photosynthesis with its molecular reaction.
			CO 2	Explain the Pigment System and its evolutionary significance. Mention different photosynthetic pigments and their organization in Pigment System.
			CO 3	Describe the Role of main and accessory plant pigments in light trapping.
			CO 4	Describe the photosynthetic light reaction i.e cyclic and non cyclic photophosphorylation. Explain of C3, C4 and CAM-cycle. Distinguish C3 -, C4 - and CAM pathways of CO2 fixation. Mechanism of C3 -, C4 - and CAM pathways and advantages of C4 and CAM over C3.
			CO 5	Understand the significance of photosynthesis.
		Unit III Medicinal Botany	**CO 1**	Define Medicinal Botany.
			CO 2	Explain the concept of primary and secondary metabolites.
			CO 3	Gives the different names of primary and secondary metabolites.
			CO 4	Identify the different medicinal plants.
			CO 5	Explain their active constituents and their therapeutic uses.

FYBSc-Semester II Practical II			
Practical II	**Topic**	**After studying this topic student will be able to**	
	Paper I (Plant Diversity1)	**CO 1**	Identify and describe the different stages in the life cycle of *Nephrolepis*.
		CO 2	Identify and describe the different cells in the T.S. of pinna of *Nephrolepis*.
		CO 3	Explain the stelar evolution present in Pteridophytes.
		CO 4	Identify and describe the different cells in the T.S. of pinna of *Cycas*.
		CO 5	Describe and identify the reproductive parts in the *Cycas* plant.
		CO 6	Explain the economic importance Gymnosperms and give the industrial uses of the same.
		CO 7	Understand the leaf, its types and their modifications.
		CO 8	Understand the infloresence, types and their modifications.
		CO 9	Understand the comparative account among the families of angiosperms.
	PAPER II (Forms and functions 1)	**CO 1**	Explain the basic anatomical structure of root, stem and leaves of monocotyledonous and dicotyledonous plants
		CO 2	Describe the different structures present on the epidermis of the plants.
		CO 3	Identify the different pigments present in the plants and where they can

			be used in the industries.
		CO 4	Explain how current medicinal practices are often based on indigenous plant knowledge.
		CO 5	Explore the uses of plants as medicine by traditional indigenous approaches.