I Semester /Botany Core Course – 1/ Course Out comes Paper-1

Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

Programe Specific Outcommes (PSOs)

PSO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants, animal and microbes; to develop the curiosity on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8: Internalisation of the concept of conservation and evolution through the channel of spirit of inquiry.

BOTANY

Semester -1/ Course -1/Paper-1

Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

COs-PSOs : Mapping

PSOs ⇨ / COs ⇩		1	2	3	4	5	6	7	8
1	Explain origin of life on the earth		*	*		*	*	*	*
2	Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.					*	*		*
3	Classify fungi, lichens, algaeand bryophytes based on their structure, reproduction and life cycles.	*		*			*		
4	Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.			*		*			*
5	Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.		*						*
6	Evaluate the ecological and economic value of microbes, thallophytes and bryophyte.		*				*		

Semester 2 / Course -2/Paper-2

Basics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

Programe Specific Outcommes (PSOs)

PSO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants, animal and microbes; to develop the curiosity on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8: Internalisation of the concept of conservation and evolution through the channel of spirit of inquiry.

Semester 2 / Course -2/Paper-2

Basics of Vascular plants and Phytogeography

COs-PSOs : Mapping

PSOs ⇨ / COs ⇩		1	2	3	4	5	6	7	8
1	Classify and compare Pteridophytes and Gymnosperms based on their morphology, reproduction and life cycles	*		*		*		*	
2	Justify evolutionary trends in tracheophytes to adapt for land habitat			*		*			*
3	Explain the process of fossilization and compare the characteristics of the extinct and extant plants.	*							*
4	Critically understand various taxonomical aids for identification of Angiosperms.	*	*			*			
5	Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.	*					*		
6	Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.						*	*	
7	Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.								

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Semester 4 / Course -4/Paper-4

IV Semester/ Botany Core Course – 4 (Paper-4)

Plant Physiology and Metabolism

PSO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants, animal and microbes; to develop the curiosity on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8: Internalisation of the concept of conservation and evolution through the channel of spirit of inquiry.

IV Semester/ Botany Core Course – 4 (Paper-4)

Plant Physiology and Metabolism

COs-PSOs: Mapping

PSOs ⇨ / COs ⇩		1	2	3	4	5	6	7	8
1	Comprehend the importance of water in plant life and mechanisms for transport¬ of water and solutes in plants.				*			*	
2	Evaluate the role of minerals in plant nutrition and their deficiency symptoms.		*		*	*			
3	Interpret the role of enzymes in plant metabolism.		*					*	*
4	Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.	*	*			*			*
5	Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.	*		*		*	*	*	
6	Evaluate the physiological factors that regulate growth and development in plants.	*	*						*
7	Examine the role of light on flowering and explain physiology of plants under stress conditions.	*		*			*		*

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Semester 5 / Course -6/Paper-6

Course 6C: Plant Tissue Culture

(Skill Enhancement Course (Elective), Credits: 05)

PSO1: Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants, animal and microbes; to develop the curiosity on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6: Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7: Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8: Internalisation of the concept of conservation and evolution through the channel of spirit of inquiry.

PSOs ⇒ / COs ⇩		1	2	3	4	5	6	7	8
1	**Comprehend the basic knowledge and applications of plant tissue culture.**								
2	**Identify various facilities required to set up a plant tissue culture laboratory.**								
3	**Acquire a critical knowledge on sterilization techniques related to plant tissue culture**								
4	**Demonstrate skills of callus culture through hands on experience.**								
5	**Understand the biotransformation technique for production of secondary metabolites**								