(Bachelor Of Science) (Biology)
(B.Sc.) (Biology) Semester (II)

Course Code	US02CBIO51	Title of the Course	Biodiversity
Total Credits of the Course	04	Hours per Week	04

Course Objectives:	1. Knowledge about structure, function, reproduction and economic importance of bacteria, viruses, algae, fungi, Bryophytes, Pteridophytes, and Gymnosperms 2.To study different life forms of plant and animal kingdom

Course Content		
Unit	Description	Weightage* (%)
1.	Biodiversity- Concepts of biodiversity -Types of biodiversity- India as mega diversity nation- hotspots of biodiversity-Western Ghats. Major threats to biodiversity, IUCN and red data book. Conservation of biodiversity - National parks, wildlife sanctuaries and biosphere reserves. Phytogeography- Definition, concepts --Descriptive and dynamic - Continental drift, age and area theory, Endemism, centre of origin, Plant migration and barrier .Topographic factors- Altitude and latitude. GPS. Remote sensing. Vegetation types of India.	25
2.	**Introduction to microbial world** **Viruses** Discovery, physiochemical and biological characteristics; classification (Baltimore), general structure with special reference to viroids and prions; replication (general account), DNA virus (T-phage), lytic and lysogenic cycle; RNA virus (TMV). Economic importance of viruses with reference to vaccine production, role in research, medicine and diagnostics, as causal organisms of plant diseases. **Bacteria** Discovery, general characteristics; Types-archaebacteria, eubacteria, wall-less forms (mycoplasma and spheroplasts); Cell structure; Nutritional types; Reproduction-vegetative,	25

	asexual and recombination (conjugation, transformation and transduction).Economic importance of bacteria with reference to their role in agriculture and industry(fermentation and medicine). General account of cyanobacteria.	
3.	**Algae –**General characteristics, Range of thallus structure and reproduction, economic importance of Algae, Life cycle of *Volvox* **Fungi** - General characteristics, Range of thallus structure and reproduction, Economic importance of Fungi, Life cycle of *Rhizopus* **Introduction to Archegoniate** : General characters and alternation of generation and outline lifecycles of following - **A. Bryophyta –** *Riccia* **B. Pteridophyta –** *Nephrolepis* **C. Gymnosperms** – *Cycas*	25
4.	General characteristics and outline classification of Major Invertebrate Phyla and Phylum Chordata Nutrition and reproduction in Protozoa Life cycle and pathogenicity of *Taenia solium* and *Wuchereria bancrofti* • Metamerism and Economic importance of Annelida • Economic Importance of Arthropods • Metamorphosis in Insects • Migration of Fishes with examples • Parental care in fishes • Parental care in amphibians • Migration of Birds – types, causes and significance • Flight adaptations in birds	25
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Teaching-Learning Methodology	Classroom interactions Multimedia presentation Chart/model presentation Live /preserved specimen observation Student seminar and unit test, quiz etc Question bank circulation Students assignments

	Student counselling for any problem of subject understanding Student-Teacher interaction on social media platform for any query (MS team, Google classroom, email, etc)

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	This course helps the students to gain knowledge theoretically and practically on microorganisms like viruses, bacteria, algae, fungi and archegoniates like bryophytes, pteridophytes and gymnosperms---their forms, structures, life cycles and their roles in maintaining biodiversity
2.	Know general characters and classification of all living forms of life.

Suggested References:	
Sr. No.	References
1.	1. Kumar, H.D. (1999). Introductory Phycology. Affiliated East-West. Press Pvt. Ltd. Delhi. 2ndedition.
2.	Sethi, I.K. and Walia, S.K. (2011). Text book of Fungi & Their Allies, MacMillan Publishers
3.	Alexopoulos, C.J., Mims, C.W., Blackwell, M. (1996). Introductory Mycology, John Wiley andSons (Asia), Singapore. 4th edition.
4.	Vashishta, P.C., Sinha, A.K., Kumar, A., (2010). Pteridophyta, S. Chand. Delhi, India.

5.	Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R., (2005). Biology. Tata McGraw Hill,Delhi, India.
6.	Bhatnagar, S.P. and Moitra, A. (1996). Gymnosperms. New Age International (P) Ltd Publishers, New Delhi, India.
7.	Parihar, N.S. (1991). An introduction to Embryophyta. Vol. I. Bryophyta. Central Book Depot,Allahabad.
8.	Modern Text Book Of Zoology Invertebrates- R. L .Kotpal
9.	Text book of Botany-Diversity of Microbes and Cryptogams-Singh,Pande and Jain
1O.	Modern textbook of zoology (Vertebrates) – R. L. Kotpal

On-line resources to be used if available as reference material
Shodhganga
https://onlinelibrary.wiley.com/doi/book/10.1002/9781444313383

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