



Part A: Introduction			
Program: Certificate Course		Class: B.Sc. I st Year	Year: 2022 Session: 2022-2023
1	Course Code	ZOOL-1T	
2	Course Title	Animal Diversity: Non-Chordata and Chordata, Comparative Anatomy and Physiology of Non-chordates	
3	Course Type	Theory	
4	Pre-requisite (if any)	No	
5	Course Learning Outcomes (CLO)	<p>Upon completion of the course students should be able to :</p> <ul style="list-style-type: none"> • Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla. • Understand the various morphological, anatomical structures and functions of animals of different phyla. • Get the knowledge about economic, ecological and medical significance of various animals in human welfare. • Understand the important parasites and their control measures. • Comparison of the anatomy and physiology of the different taxa of non-chordates. 	
6	Credit Value	4	
7	Total Marks	Max. Marks: 50	Min Passing Marks : 17

Part B: Content of the Course		
Total Lectures: 60		
Unit	Topics	No. of Lectures
I	Taxonomy, Protozoa, Porifera Taxonomy- Elementary knowledge of Zoological Nomenclature and International Code. Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7 th edition. Protozoa- Phylum Protozoa: General characters of the phylum and classification up to order with characters and suitable examples. Structure, life history and pathogenicity of malaria parasite (<i>Plasmodium vivax</i>). Protozoa and disease. Porifera- Phylum Porifera: General characters of the phylum and classification up to order with characters and suitable examples. Type study of Sycon.	12
II	Coelenterata, Platyhelminthes, Nemathelminthes : Coelenterata- Phylum Coelenterata: General characters of the phylum and classification up to order with characters and suitable examples. Type Study of Obelia. Platyhelminthes - Phylum Platyhelminthes: General characters of the phylum and classification up to order with characters and suitable examples. Type Study of Liverfluke. Nemathelminthes- Phylum Nemathelminthes: General characters of the phylum and classification up to order with characters and suitable examples. Pathogenic nematodes and diseases.	12
III	Annelida, Arthropoda, Mollusca : Annelida- Phylum Annelida: General Characters of the phylum and classification up to order with characters and suitable examples. Types study of Earthworm (<i>Pheretima</i>). Arthropoda - Phylum Arthropoda: General Characters of the phylum and classification up to order with characters and suitable examples. Type study of Prawn. Insects as a vector of human disease. Mollusca - Phylum Mollusca: General characters of the phylum and classification up to order with characters and suitable examples. Type study of <i>Pila</i> .	12


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IV	Echinodermata, Hemichordata, Classification of Chordata : Echinodermata - Phylum Echinodermata: General characters of the phylum and classification up to order with characters and suitable examples. Type study of Starfish (<i>Asterias</i>). Hemichordata - Phylum Hemichordata: General characters of the phylum hemichordate and relationship with non-chordates and chordates. Type study of <i>Balanoglossus</i> . Classification of Chordata - Classification of Chordata up to order with characters and suitable examples. Brief account of Urochordata, Cephalochordata and Vertebrata.	11
V	Comparative Anatomy and Physiology of Non-chordates: Coelom and coelom ducts in Non-chordate. Locomotory organs and locomotion in Non-chordate. Pattern of feeding and digestion in lower Metazoans. Comparative anatomy and physiology of respiration and excretion in Non-chordate. Primitive, diffused and advance nervous system in Non-chordate. Reproduction in Non-chordates.	13
Keywords : Locomotory organ, feeding and digestion, respiration, International Commission on Zoological Nomenclature (ICZN), Classification, Protozoa, Classification, Liver Fluke, Trochophore, Arthropoda, Crustacea larva, Echinodermata larva		

Part C - Learning Resource	
1. Text Books, Reference Books, Other Resources – 2. Parker, J, Haswell, WA, "A Text Book of Zoology", VII edition, Vol. I & II, Low Price Publications, Delhi, 1990. 3. Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006. 4. Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Education, VII Edition, 2015. 5. Sedgwick, A, "A Students Text Book of Zoology", Vol. I, II & Vol. III., Low Price Publications, Delhi, 1990. 6. Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009. 7. Jordan and Verma, "Invertebrate Zoology," S. Chand & Company, New Delhi, 2013. 8. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company, 2017. 9. Kotpal, R, "Modern Text Book of Invertebrates", Rastogi Publications, Meerut, 2017. 10. Kotpal, R, "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017. 11. Kardong, K.V. (2006) Vertebrates: Comparative Anatomy, Function, Evolution (4th edition), McGraw-Hill 12. Jordan, E. L. and Verma, P. S. (2013) Chordate Zoology (14th edition). 13. Saxena, R. K. and Saxena, S. (2015) Comparative Anatomy of Vertebrates (2nd edition).	
E- Resources – 1. SWAYAM- https://swayam.gov.in/explorer?searchText= 2. https://academic.oup.com 3. https://medineplus.gov 4. https://ncin.nlon.nih.gov 5. https://zoologylearningpoint.woodpress.com 6. https://zoologyresources.com 7. National digital library – https://ndl.iitkgp.ac.in 8. e-PG Pathshala (MHRD) Portal, https://egpg.inflibnet.ac.in 9. Science Direct Open Access Content – https://www.sciencedirect.com/book/9781843342038/open-Access 10. https://egyankosh.ac.in	


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Part D: Assessment and Evaluation

Maximum Marks, University exam. - :50

DECLARATION

This is to certify that the syllabus is framed by the central board of the guidelines of the department of higher education, Chhattisgarh.

1. Dr. K. R. Sahu - Chairman -
Assistant Professor, Govt. Pandit Madhav Rao Sapre Collfge, Pendra Road
2. Dr. Ajit Hundet - Member --
Professor, Govt. D. B. Girls College, Raipur
3. Dr. Prem Praksah Singh - Member -
Professor, Govt. College, Kusmi
4. Dr. Shubhada Rahalkar - Member -
Professor, Govt. Bilasa Girls P. G. College, Bilaspur
5. Dr. Anil Kumar Shrivastava - Member -
Professor, Govt. V. Y. T. P. G. Autonomous College, Durg
6. Dr. R. K. Tamboli - Member -
Assistant Professor, Kirodimal Govt. Arts & Science College, Raigarh
7. Dr. Parmita Dubey - Member -
Assistant Professor, Govt. J. Y. Chhattisgarh College, Raipur
8. Dr. Shashi Gupta - Member -
Assistant Professor, Govt. Nagarjuna P. G. College of Science, Raipur
9. Dr. L. P. Miri - Member -
Assistant Professor, Govt. J.P. Verma P. G. Arts & Commerce College, Bilaspur
10. Dr. Rajesh Kumar Rai - Member -
Assistant Professor, Govt. Mahamaya College, Ratanpur, Bilaspur
11. Dr. Kavita Krishnamoorti - Member -
Assistant Professor, Govt. Lahiri P. G. College, Chirimiri, Koriya

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31.5.2022

Ajit Hundet
31.05.2022

Prem Prakash Singh
31/05/2022

SRahalkar
31.5.22

Anil Kumar Shrivastava
31.5.22

R. K. Tamboli
31.5.22

Parmita Dubey
31.5.22

Shashi Gupta
31.5.22

L. P. Miri
31.5.22

Rajesh Kumar Rai
31.05.2022

Kavita Krishnamoorti
31.05.22

Date : 31.05.2022