

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF ZOOLOGY
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Life Science (Diploma / Degree/ Honors)		Semester - III	Session: 2024-2025
1	Course Code	ZOSC-03T	
2	Course Title	Diversity of Invertebrates	
3	Course Type	Discipline Specific Course	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	After successfully completing this course, the students will be able to - ➤ Develop understanding on Invertebrate Animals on the basis of classification and Nomenclature. ➤ Develop understanding how simple/unicellular animals changed into multicellular and diploblastic forms through their anatomy and physiology. ➤ Gain Knowledge of key processes like formation of triploblastic animals (simple to complex form of body plan). ➤ Develop understanding on parasitic adaptations and life cycle of Helminthes. ➤ Develop understanding on the diversity in Artropoda, Mollusca and Echinodermata.	
6	Credit Value	3 Credits	Credit = 15 Hours - learning & Observation
7	Total Marks	Max. Marks: 100	Min Passing Marks: 40
PART -B: Content of the Course			
Total No. of Teaching-learning Periods (01 Hr. per period) - 45 Periods (45 Hours)			
Unit	Topics (Course contents)		No. of Period
I	General Characters, Classification up to order and Type Study of Phylum Protozoa and Porifera with some special features: Protozoa: General Characters and Classification of Phylum Protozoa up to order. Type study: Paramoecium, Protozoa and Disease. Porifera: General Characters and Classification of Phylum Porifera up to order. Type study: Sycon.		11
II	General Characters, Classification and Type Study of Phylum Coelenterata, Helminthes and Annelida: Coelenterata - General Characters and Classification of Phylum Coelenterata up to order. Type Study: Obelia. Helminthes - Classification of Phylum Helminthes up to order. Type study: Fasciola. Annelida- Classification of Phylum Annelida up to order. Type study: Pheretima (Earthworm).		11
III	General Characters, Classification and Type Study of Phylum Arthropoda and Mollusca: Arthropoda - General Characters and Classification of Phylum Arthropoda up to order. Type study: Prawn. Mollusc- General Characters and Classification of Phylum Mollusca up to order. Type study: Pila.		12
IV	General Characters, Classification and Type Study of Phylum Echinodermata and Hemichordata: General Characters and Classification of Phylum Echinodermata up to order. Type Study: Asterias (Starfish). General Characters and Classification of Phylum Hemichordata Type Study: Balanoglossus		11
Keywords	Taxonomy, Nomenclature, Canal System, Protozoa, Balanoglossus, Torsion		
Signature of Convener & Members (CBoS) :			

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

- R.L. Kotpal, Modern Textbook of Zoology Invertebrates. Rastogi Publication, Gangotri, Shivaji Road, Meerut
- V.K. Tiwari, Unified Zoology, Shival Agrawal and Company, Pustak Prakashak, Khajuri Bazar, Indore.
- Dr. S.M. Saxsen, Zoology, Ist Year, by a, Ram Prasad and Sons, Aagra and Bhopal.
- N. Arumugam, M.G. Ragunathan, T. Murugan, B. Ramnathan, A Textbook of Invertebrates by Saras Publication

Reference Books Recommended –

- Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition. E.L.B.S. and Nelson.
- Boradale, L.A. and Potts, E.A.(1961) Invertebrates: A Manual for the use of Students. Asia Publishing Home.
- Bushbaum, R. (1964). Animals without Backbones. University of Chicago Press.
- Hyman, L H. (1940-67). The Invertebrates, Vol. I-VI. McGraw-Hill, New York.

Online Resources–

- http://ndl.iitkgp.ac.in/he_document/inflibnet_epgp/inflibnet_epgp/IN_I_e_P_P_1_Z_512_96_P_0_B_o_p_51542_M_1_M_L_c_P_D_a_P_o_E_P_1_51562_51563?e=9*|||

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 100 Marks

Continuous Internal Assessment (CIA): 30 Marks

End Semester Exam (ESE): 70 Marks

Continuous Internal Assessment (CIA):
(By Course Teacher)

Internal Test / Quiz-(2): 20 +20
Assignment / Seminar - 10
Total Marks - 30

Better marks out of the two Test / Quiz
+ obtained marks in Assignment shall be considered against 30 Marks

End Semester Exam (ESE):

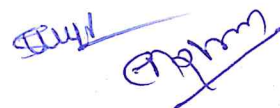
Two section – A & B
Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 =20 Marks
Section B: Descriptive answer type qts., 1out of 2 from each unit-4x10=40 Marks

Name and Signature of Convener & Members of CBoS:









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Program: Bachelor in life Science (Diploma / Degree/ Honors)		Semester - III	Session: 2024-2025
1	Course Code	ZOSC-03P	
2	Course Title	Diversity of Invertebrates	
3	Course Type	Discipline Specific Lab Course	
4	Pre-requisite (if, any)	As per Program	
5	Course Learning Outcomes (CLO)	After successfully completing lab course the students will be able to- ➤ Develop understanding on the diversity of life with regard nonchordates. ➤ Gain Knowledge of grouping of animals on the basis of their morphological characteristics. ➤ Develop critical understanding how animals have changed from simple form to complex body plan. ➤ Acquired the detailed knowledge to think and interpret different animal species individually.	
6	Credit Value	1 Credits	Credit =30 Hours Laboratory or Field learning/Training
7	Total Marks	Max. Marks: 50	Min Passing Marks: 20
PART -B: Content of the Course			
Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)			
Module	Topics (Course contents)		No. of Period
Lab./Field Training/ Experiment Contents of Course	List of labs to be conducted - Study of different non-chordate taxa animals through models, slides and museum specimens in the laboratory. Emphasising classification, biogeography and diagnostic features of: Protozoa, Porifera, Coelenterata (also with special reference to Corals of Cnidarians), Helminthes, Annelida, Arthropoda, Mollusca and Echinodermata. - Histological slides of different Non chordate Taxa, slides of various larval forms of Helminthes, Crustacea and Echinodermata Dissection of <i>Pheretima</i> to expose Alimentary canal and circum pharyngeal ganglia through Alternative methods of dissection. - Dissection of <i>Periplaneta</i> to expose the digestive system, salivary glands and Mouth Parts through Alternative methods of dissection. - Dissection of Prawn to expose appendages and statocyst through Alternative methods of dissection - Dissection of <i>Pila</i> to expose Nervous System through Alternative methods of dissection. - Study of Invertebrate animals in nature during a survey of a National Park/ Forest area/College campus. Group discussion/Viva or Seminar presentation on two related topics: Polymorphism, Parasitic adaptations, Freshwater sponges, Biodiversity and climate change, Tree of Life, Marine zooplanktons and their ecological importance including oxygen evolution. - An “animal album or Practical Record” containing sketches, photographs, cut outs, with appropriate write up about the above mentioned taxa. - Study of some videos to develop understanding on the animals of different taxa.		30
Keywords	Museum specimens, Histological slides, Alternative of Dissection, Animal album		
Signature of Convener & Members (CBoS) :			

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended –

- S.S. Lal, Practical Zoology, Invertebrate. 12th Edition Rastogi Publications, Meerut, New Delhi.
- A manual of practical Zoology. Dr. P.S Verma, S. Chand Publication, New Delhi

Reference Books Recommended-

- Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition. E.L.B.S. and Nelson.
- Hyman, L H. (1940-67). The Invertebrates, Vol. I-VI. McGraw-Hill, New York.

Online Resources–

- <https://www.youtube.com/watch?v=GC5Ua6m873I>
- <https://www.youtube.com/watch?v=-qvM2Hskj84>

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): 10 & 10	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against 15 Marks
	Assignment/Seminar +Attendance - 05	
	Total Marks - 15	
End Semester Exam (ESE):	Laboratory / Field Skill Performance: On spot Assessment	
	A. Performed the Task based on lab. work	- 20 Marks
	B. Spotting based on tools & technology (written)	- 10 Marks
	C. Viva-voce (based on principle/technology)	- 05 Marks
	Managed by Course teacher as per lab. status	

Name and Signature of Convener & Members of CBoS:

