

Semester -I
Minor Course 1 (MIC-1)

Course Title	Credit	Credit Distribution	
		Theory	Practical
Diversity of Non-Chordata	3	2	1

Course outcomes: After completion of the course, students should be able to:

CO-1: Learn about the importance of systematics, taxonomy, and structural organization of non-chordates.

CO-2: Critically analyse the organization, complexity and characteristic features of non chordates.

CO-3: Recognize the life functions and the ecological roles of the animals belonging to different phyla.

MIC-1: Diversity of Non-Chordata (Theory: 2credits) 20 hrs		
Unit	Topics to be covered	No. of Lectures
1	I. Introduction to Non-chordates General characteristics and classification (up to order) of the following Phyla: Protozoa, Porifera, Cnidaria, Ctenophora, Platyhelminthes and Nematelminths, Annelida, Arthropoda, Mollusca, Echinodermata.	5
2	2. Structure and life history of:- (i) Protozoa - Paramecium (ii) Porifera - Sycon	4
3	3. Structure and life history of:- (iii) Cnidaria - Obelia (iv) Platyhelminthes - Fasciola (v) Aschelminthes - Ascaris	5
4	4. Study of coelomates:- (vi) Annelida - Pharetima (vii) Arthropoda - Palaemon (viii) Mollusca - Pila (ix) Echinodermata - Asteries (x) Hemichordata - Balanoglossus	6
TOTAL		20

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MIC-1: Diversity of Non-Chordata (Practical) 10 hrs

(1 credit)

Practicals:

1. Study of whole mount of *Euglena*, *Paramecium*, *Leishmania*
2. Study of Sycon, Spongilla, T.S. of Sycon, L.S. of Sycon.
3. Study of *Obelia*, *Aurelia*, *Gorgonia*
4. Study of adult *Fasciola hepatica*, *Taenia solium* and their life stages
5. Study of *Pheretima*, *Hirudinaria*
6. Study of T.S. through pharynx, gizzard, and typhlosolar intestine of earthworm.
7. Study of *Limulus*, *Palaemon*, *Apis*.
8. Mouth parts of Mosquito and Cockroach.
9. Study of *Pila*, *Unio*.
10. Study of *Asterias*.

Suggested Books :

1. Ruppert and Barnes, R.D. (2006). *Invertebrate Zoology*, VIII Edition. Holt Saunders International Edition.
2. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). *The Invertebrates: A New Synthesis*, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). *Invertebrate Structure and Functions*. II Edition, E.L.B.S. and Nelson
4. Verma P S, Jordan E L. (2009). *Invertebrate Zoology*. S. Chand publishers
5. Brusca R C (2016). *Invertebrates*. Published by Sinauer Associates, an imprint of Oxford University Press.
6. S.S.Lal, *Practical Zoology Invertebrate*.

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