



# बिरसा मुंडा ट्रायबल युनिवर्सिटी

## Birsa Munda Tribal University

राजपिपला, जि. नर्मदा Rajpipla, Dist. Narmada

Established by Tribal Development Department, Govt. of Gujarat

### School of Science

### B.Sc. (Zoology) Programme

**Subject Code & Name: BS01MJZOO1: Non-Chordates-I**

#### Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
L	T	P	Total	CCE		SEE	
3	-	1	4	TH	PWE	TH	PWE
				37.5 %	12.5 %	37.5 %	12.5 %

<b>Programme Name</b>	B.Sc. Zoology
<b>Semester</b>	I
<b>Course Code</b>	BS01MJZOO1
<b>Course Title</b>	Non – Chordates I
<b>Course Content Type (Th./Pr.)</b>	Theory + Practical
<b>Course Credit</b>	3 + 1
<b>Sessions + Lab. Per Week</b>	3 + 2
<b>Total Teaching/Lab. Hours</b>	45 Theory Hours + 30 Practical Hours
* 2 Laboratory = 1 Session	

#### Learning Objectives

- The student receives training and skills in the basics of zoology, understands the complex interactions of different living organisms.

#### Prerequisites (if any)

- Student must know about different strata and hierarchy of taxonomy.
- Student must aware about specific terms used for animal organ and organ systems.

#### Learning Outcomes

On the Completion of this course, students will able to:

- Students were able to learn about the taxonomy and diversity of different classes of animals.
- Students will learn about morphology and organ systems of primitive animal.







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Detailed Contents		
UNIT	TEACHING TOPIC/SUB-TOPIC	TEACHING HOURS
I	<p><b>Scheme of classification of phylum Protozoa to Nemathelminthes up to class with examples:</b></p> <ol style="list-style-type: none"><li>1. Classification outline of phylum Protozoa (up to class).<ul style="list-style-type: none"><li>• General characters Protozoa.</li><li>• Brief introduction of Amoeba, Euglena, Paramecium and Vorticella.</li></ul></li><li>2. Classification outline of phylum Porifera (up to class).<ul style="list-style-type: none"><li>• General characters Porifera.</li><li>• Brief introduction of Leucosolenia, Grantia and Euspongia.</li></ul></li><li>3. Classification outline of phylum Coelenterata (up to class).<ul style="list-style-type: none"><li>• General characters Coelenterata.</li><li>• Brief introduction of Hydra, Physalia, Aurelia and Corals.</li></ul></li><li>4. Classification outline of phylum Platyhelminthes (up to class).<ul style="list-style-type: none"><li>• General characters Platyhelminthes.</li><li>• Brief introduction of Planaria, Liver fluke and Tape worm.</li></ul></li><li>5. Classification outline of phylum Nemathelminthes (up to class).<ul style="list-style-type: none"><li>• General characters Nemathelminthes.</li><li>• Brief introduction of Ascaris, Enterobius and Rhabditis.</li></ul></li></ol>	15
II	<p><b>General Topics</b></p> <ol style="list-style-type: none"><li>1. <i>Plasmodium vivax</i> :<ul style="list-style-type: none"><li>• Early history,</li><li>• Life cycle (Asexual and Sexual cycle).</li><li>• Types of Malaria, Symptoms and Pathogenesis.</li></ul></li><li>2. Locomotion in Protozoa.</li><li>3. Cell types in Porifera.</li><li>4. Canal system in sponges.</li><li>5. Asexual and Sexual reproduction in Sponges.</li><li>6. Skelêton of sponges.</li><li>7. Excretion in Platyhelminthes.</li></ol>	15





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III	<p><b>General Morphology and Functional Anatomy: Hydra</b></p> <ul style="list-style-type: none"><li>• Habit &amp; Habitat.</li><li>• External Morphology and Body wall.</li><li>• Nematocysts.</li><li>• Locomotion methods.</li><li>• Respiration.</li><li>• Excretion and Osmoregulation.</li><li>• Nervous system.</li><li>• Reproduction and Regeneration.</li></ul>	15
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#### Unit – IV Practical (s)

30 Hours

1. To study the classification of phylum Protozoa and Porifera up to class with examples.  
- *Amoeba, Polystomella, Euglena, Paramecium, Vorticella, Leucosolenia, Grantia and Euspongia.*
2. To study the classification of phylum Coelenterata and Ctenophore up to class with examples.  
- *Hydra, Physalia, Aurelia, Corals, Sea anemone, Pleurobranchia.*
3. To study the classification of phylum Platyhelminthes and Nematelminthes up to class with examples.  
- *Planaria, Liver fluke, Tape worm, Ascaris, Enterobius, and Rhabditis.*
4. To study the life cycle of *Plasmodium vivax*.
5. To study the canal system of sponges.
6. To study the reproduction in sponges.
7. To study the skeleton of sponges.
8. To study the external morphology and body wall of Hydra.
9. To study the nematocysts of Hydra.
10. To study the locomotory mechanisms of Hydra.
11. To study the reproduction in Hydra.

#### Text Book(s)

1. Invertebrate Zoology by E. L. Jordan & P. S. Verma
2. A modern textbook of Zoology – Invertebrate Zoology by R. L. Kotpal
3. A textbook of Practical Zoology – Invertebrates by S. S. Lal
4. A Manual of Practical Zoology – Invertebrates by P. S. Verma







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### Reference Books

1. Nirav College Zoology – 201 for B.Sc. Students by Mihir Suthar and Haresh Patel.
2. A Manual of Zoology- Vol. I &II by Ayyar and Ananthakrishnan.
3. Structure and Functions of Invertebrates by Barrington
4. Textbook of Invertebrates, 5th Ed. by Dhama and Dhama
5. Principles of Animal Taxonomy by Wallace, Dyson George and Gaylord Simpson.

### Web Resources

1. [You Tube Invertebrate Animation Link](#)

**L::** Lecture, **T::** Tutorial , **P::**Practical

**CCE::**Continuous and Comprehensive Evaluation

(CCE Theory includes Mid Semester Examination, Assignment, MCQ quizzes, Seminar, Reflective notes, class participation, case analysis and presentation, slip tests (announced/ surprised), attendance etc. or any combination of these)

**PWE::**Practical Work Examination

(PWE includes Laboratory practical work, project work, viva simulation exercise work etc.)

**SEE::**Semester End Evaluation

