



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: BS02MJZOO1 Non – Chordates II

Teaching and Evaluation Scheme:

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

Programme Name	B.Sc. Zoology
Semester	II
Course Code	BS02MJZOO1
Course Title	Non – Chordates II
Course Content Type (Th./Pr.)	Theory + Practical
Course Credit	3 + 1
Sessions+ Lab. Per Week	3 + 2
Total Teaching/Lab. Hours	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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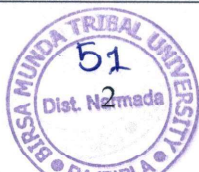
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Detailed Contents		
UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	<p>Scheme of classification of phylum Annelida to Mollusca up to class with examples:</p> <ol style="list-style-type: none">1. Classification outline of phylum Annelida (up to class).<ul style="list-style-type: none">• General characters Annelids.• Brief introduction of Nereis, Aphrodite, Leech and Amphitrite.• Types of Metamerism and its significance.2. Classification outline of phylum Arthropoda (up to class).<ul style="list-style-type: none">• General characters Arthropods.• Brief introduction of Apus, Prawn, Crab, Butterfly, Centipede and Scorpion.• Metamorphosis and types in Insects.• Mouthparts of Insects.3. Classification outline of phylum Mollusca (up to class).<ul style="list-style-type: none">• General characters Mollusca.• Brief introduction of Chiton, Dentalium, Pila, Unio and Octopus.• Economic Importance of Mollusca.	15
II	<p>Scheme of classification of phylum Echinodermata and Hemichordata up to class with examples:</p> <ol style="list-style-type: none">1. Classification outline of phylum Echinodermata (up to class).<ul style="list-style-type: none">• General characters Echinoderms.• Brief introduction of Brittle star, Sea urchin, Sea cucumber, Feather star and Starfish.• Autonomy and Regeneration in Echinoderm.• Water vascular system in Asteroidea.2. Classification outline of phylum Hemichordata (up to class).<ul style="list-style-type: none">• General characters Hemichordates.• Brief introduction of Balanoglossus.• Study of Balanoglossus as connecting link between non-chordates and chordates.	15





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III	<p>General Morphology and Functional Anatomy: Earthworm (<i>Pheretima posthuma</i>)</p> <ul style="list-style-type: none">• Habit & Habitat• External characters and Body wall• Digestive system• Respiratory system• Cardio vascular system (Heart, Arterial system and Venous system)• Excretory system• Nervous system• Reproductive system and Reproduction.	15
Unit – IV Practical(s)		30 Hours
<ol style="list-style-type: none">1. To study the classification of phylum Annelida and Arthropoda up to class with examples. - <i>Nereis, Aphrodite, Amphitrite, Leech, Apus, Balanus, Prawn, Crab, Centipede, Butterfly and Scorpion.</i>2. To study the classification of phylum Mollusca, Echinodermata and Hemichordata up to class with examples. - <i>Chiton, Dentalium, Pila, Unio, Octopus, Brittle star, Sea urchin, Sea cucumber, Feather star, Starfish and Balanoglossus. Physalia, Aurelia, Corals, Sea anemone, Pleurobranchia.</i>3. To study external characters and Body wall of Earthworm.4. To study Digestive system of Earthworm.5. To study Cardio vascular system (Heart, Arterial system and Venous system) of Earthworm.6. To study Nervous system of Earthworm.7. To study Reproductive system and Reproduction of Earthworm.8. To study mountings of Earthworm: Nephredia, Ovary and Blood gland.		
Text Book(s)		
<ol style="list-style-type: none">1. Invertebrate Zoology by E. L. Jordan & P. S. Verma2. A modern textbook of Zoology– Invertebrate Zoology by R. L. Kotpal3. A textbook of Practical Zoology – Invertebrates by S. S. Lal4. A Manual of Practical Zoology –Invertebrates by P. S. Verma		
Reference Books		





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1. Nirav College Zoology – 204 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 Dhami and Dhami
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.

