# Govt. Bilasa Girls PG College Bilaspur CG

## Syllabus for certificate course

## B Sc (Zoology) Semester I

| Part A: Introduction | | | | |
|---|---|---|---|---|
| Program: **Certificate Course** | | Class: **B.Sc. I Semester** | Year: **2022** | Session: **2022-2023** |
| 1 | Course Code | BZOOLCT101 | | |
| 2 | Course Title | **Animal Diversity: Non-Chordata,** | | |
| 3 | Course Type | Theory | | |
| 4 | Pre-requisite (if any) | To study this course, a student must have /had the subject Biology in Class 12th | | |
| 5 | Objectives | 1.To know the diversity of living forms from simple to complex one.<br>2.To understand how animals arose and how did they establish themselves in the environment with their special characteristics.<br>3.It also deals with the differences and similarities between organisms on the basis of their morphology and anatomy which led to their grouping into taxa and clades. | | |
| 6 | Course Learning . Outcomes (CLO) | Upon completion of the course students should be able to :<br>1. Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla.<br>2. Understand the various morphological, anatomical structures and functions of animals of different phyla.<br>3. Apply basic understanding for economic, ecological and medical significance of various animals in human welfare.<br>4. Understand the important parasites and their control measures.<br>5. Analyze complexity of life forms from lower to higher Texa<br>6. | | |
| 7 | Credit Value | Theory : 04 | | |
| 8 | Total Marks | Max. Marks: 60 +15 | Min Passing Marks : 21+ 06 | |

1 – (Dr Rashmi Sao)
2 – (Dr. S. Rahatkar)
3 – (Mr Murty Tiwari)
4 – (Dr S. Jogi)
5 – (Dr Rashmi Pal)
6 – (Tripti Tandon)

# Govt. Bilasa Girls PG College, Bilaspur (C G)

Part B

Total No. of Lecturer (in hours per week): 6 period per week
Total Lecturer: 45

| Unit | Topics | No. of Lectures |
|---|---|---|
| I | **Taxonomy, Protozoa, Porifera**<br>**Taxonomy-** Elementary knowledge of Species, cline, Deme. Outline idea of International code of Zoological Nomenclature. Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7th edition.<br>**Protozoa-** Phylum Protozoa: General characters of the phylum and classification upto order with characters and suitable examples. Structure, life history and pathogenicity of malaria parasite*(Plasmodium vivax)*. Protozoa and disease.<br>**Porifera-** Phylum Porifera: General characters of the phylum and classification up to order with characters and suitable examples. Type study of Sycon, Canal System | 12 |
| II | **Coelenterata, Platyhelminthes, Nemathelminthes :**<br>**Coelenterata-** PhylumCoelenterata: General characters of the phylum and classification up to order with characters and suitable examples.Type Study of Obelia, Polymorphism, Coral and Coral Reef<br>**Platyhelminthes** - Phylum Platyhelminthes: General characters of the phylum and classification up to order with characters and suitable examples. Type Study of Liver fluke (Faciola).<br>**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, :**<br>**Annelida-** Phylum Annelida: General Characters of the phylum and classification up to order with characters and suitable examples. Types study of Earthworm (*Pheretima*).<br>**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, living Fossils ( Limulus and Peripatus) | 11 |
| IV | **Mollusca, Echinodermata, Hemichordata**<br>**Mollusca** - Phylum Mollusca: General characters of the phylum and classification up to order with characters and suitable examples.Type study of *Pila., Torsion*<br>**Echinodermata** - Phylum Echinodermata: General characters of the phylum and classification up to order with characters and suitable examples.Type study of Starfish*(Asterias)*.<br>**Hemichordata** – Phylum Hemichordata: General characters of the phylum hemichordate and relationship with non- chordates and chordates.Type study of Balanoglossus | 10 |

**Keywords:** Locomotary organ, feeding and digestion, respiration,International Comission on Zoological Nomenclature (ICZN), Classification, Protozoa, Classification, Liver Fluke, Trochophore, Arthropoda, Crustacea larva, Echinodermata larva

# Govt. Bilasa Girls PG College, Bilaspur (C G)

| Part C - **Learning Resource** |
|---|
| Text Books, Reference Books, Other Resources |
| **Suggested Readings:**<br>**Text Books:**<br>• Parker, J, Haswell, WA, "A Text Book of Zoology", VII edition, Vol. I & II, Low Price Publications, Delhi, 1990.<br>• Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006.<br>• Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Educations, VII Edition, 2015.<br>• Sedgwick, A, "A Students Text Book of Zoology", Vol.I, II & Vol. III., Low Price Publications, Delhi, 1990.<br>• Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009.<br>• Jordan and Verma, "Invertebrate Zoology," S. Chand & Company, New Delhi, 2013. 7. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company, 2017.<br>• Kotpal, R, "Modem Text Book of Invertebrates", Rastogi Publications, Meerut, 2017<br>• Kotpal, R, "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017.<br><br>online resources (Try to include similar course available on SWAYAM/NPTEL/CEC etc. ) |

| **Part** D: **Assessment and Evaluation** | | |
|---|---|---|
| **Suggested Continuous Evaluation Methods:**<br>Maximum Marks:- 75<br>Continuous Comprehensive Evaluation (CCE): 15 Marks<br>Term end semester exam: 60 Marks | | |
| **Internal Assessment:**<br>Continuous Comprehensive Evaluation (CCE) | Class Test<br>Assignment/Presentation<br>15 (best of Two internal test) + 15 Assignment | 15 Total Marks (Average of Test & Assignment)<br>: |
| External Assessment:<br>Term end semester exam<br>Time: 3 Hours | Section (A): eight (08) Short Questions<br>Section (B): 04 Short Questions<br>Section (C): four Long Questions | 16<br>16<br>28 |
| | | Total **Marks: 75** |

1- Rashmi 4-
2- Rahalkar 5-
3- 6-

# Govt. Bilasa Girls PG College, Bilaspur (C G)

| Program: **Certificate Course** | | Class: **B.Sc. I** Semester | Year: **2022** | Session:**2022-2023** |
|---|---|---|---|---|
| 1 | Course Code | **BZOOLCP101** | | |
| 2 | Course Title | PRACTICAL- LAB 1 | | |
| 3 | Course Type | Core Course | | |
| 4 | Pre-requisite (if any) | To study this course, a student must have/had the subject Biology in class 12th. | | |
| 5 | Course Learning . Outcomes (CLO) | At the end of this course, the students will be able -<br>1. Identify major invertebrate groups and representatives<br>2. Know about animals inhabiting different habitat<br>3. Learn to use microscopes and its functioning by observing permanent slides<br>4. Understand complexity of life forms | | |
| 6 | Credit Value | Practical 1 | | |
| 7 | Total Marks | Max. Marks: 25 | Min Passing Marks : | |

Part B: **Lab course 1**

Total No. of Lecturer (one hour per week):

**Part B**

Total Lecturer: 30

| | Topics | No. of Lectures |
|---|---|---|
| Invertebrates | **Kingdom Protista**<br>1. Study of *Paramecium* W.M., Binary fission and Conjugation in *Paramecium*<br>2. Life stages of *Plasmodium vivax, Trypanosma gambiense* and *Entamoeba histolytica*<br>(Slides/Micro-photographs)<br>3. Examination of pond water for protists<br>**Phylum Porifera**<br>4. Study of *Sycon* (including T.S. and L.S.), *Hyalonema,* and *Euplectella*<br>5. Temporary mounts of spicules, gemmules and spongin fibres<br>**Phylum Cnidaria**<br>6. Study of *Obelia, Physalia, Millepora, Aurelia,* Ephyra larva, *Tubipora, Corallium,*<br>*Alcyonium, Gorgonia, Metridium* (including T.S. and L.S.)<br>**Phylum Ctenophora**<br>7. Any one specimen/slide<br>**Phylum Platyhelminthes**<br>8. Study of adult *Schistosoma haematobium*, *Taenia solium* and their life stages (Slides/microphotographs)<br>**Phylum Nemathelminthes**<br>9. Study of adult *Ascaris lumbricoides, Wuchereria bancrofti* and their life stages (Slides/micro-photographs) | |

| | | |
|---|---|---|
| | **Phylum Annelida**<br>10. Study of *Aphrodite, Nereis, Heteronereis, Sabella, Serpula, Chaetopterus, Pheretima,*<br>*Hirudinaria*<br>11. T.S. through pharynx, gizzard, and typhlosolar intestine of earthworm.<br>12. T.S. through crop of leech<br>13. Virtual/Demonstration of Earthworm.<br>**Phylum Arthropoda**<br>**14.**Study of *Limulus*, *Palamnaeus, Palaemon, Daphnia*, *Balanus*, *Sacculina, Cancer*, *Eupagurus*, *Scolopendra*, *Julus*, termite, louse, honeybee, silk moth, wasp<br>**Phylum Onychophora**<br>15. Any one specimen/slide<br>**Phylum Mollusca**<br>16. Study of *Chiton, Dentalium, Pila, Doris, Helix, Unio, Ostrea, Mytilus, Loligo, Sepia,*<br>*Octopus* and *Nautilus*<br>**Phylum Echinodermata**<br>17. Study of Echinoderm larvae<br>18. Study of *Pentaceros/Asterias, Ophiura, Clypeaster, Echinus, Echinocardium, Cucumaria*<br>and *Antedon*<br><br>**Dissection of Earthworm, cockroach, Palaemon, Pila. ( Alternative methods By Clay/ Thermocol/ drawing/ Model etc.)** | |

- **Keywords:** Invertebrate slides, specimen;

1- RJ
2- SRahalkar
3- Anu
4-
5- R
6-

| Part C - Learning Resource |
| --- |
| Text Books, Reference Books, Other Resources |
| **Suggested Readings:**<br>**Text Books:**<br>**Practical Zoology Invertebrates, SS.Lal, Rastogi Publication**<br>**Practical Zoology, Invertebrate, P S Verma & P C Shrivastava , S Chand Publishing**<br>Practical Zoology Anil Kulshresth, Shivlal Agrawal & Company<br>Practical Zoology, Dr H N Baijal Pioneer Publication<br>Practical Zoology Prashant kannoje Navbodh Prakashan<br><br>online resources (Try to include similar course available on SWAYAM/NPTEL/CEC etc. ) |

| Part D: Assessment and Evaluation | | |
| --- | --- | --- |
| **Practical Exam at The end of Semester I :**<br>Maximum Marks:- 25 | | |
| | | Total **Marks: 25** |

1 - Rashmi
2 - S Kahalkar
3 - Ajay
4 -
5 - R
6 -