

## **ANNEXURE – II.**

### **CORE COURSE 1 –NON-CHORDATES**

### **CORE COURSE 2 – CELL BIOLOGY**

## **SYLLABUS FOR SEMESTER I**

### **CC-I: NON-CHORDATES**

**(Credit: 3)**

#### **Course Code:**

**Objective:** To understand the taxonomic position, general characteristics, body organization and origin and evolutionary relationship of animals belonging to different Non- Chordates (Phylum Protozoa to Hemichordata)

#### **Course outcomes:**

Non-Chordates are integral part of ecosystem. The knowledge gained by studying the course will impart in-depth knowledge key components of the taxon non-Chordata.

#### **UNIT - I**

General characters and classification up to order level, Diversity and economic importance, Parasitic protozoans: Mode of infection and pathogenicity of Entamoeba, Canal system in sponges, Spicules in sponges. Water vascular system in Porifera.

#### **UNIT - II**

General characters and classification up to order level, Diversity and economic importance, Polymorphism, Corals and coral reefs, Parasitic adaptations of Helminthes.

#### **UNIT – III**

General characters and classification up to order level, Diversity and economic importance, Metamerism in Annelida, Metamorphosis in insects. Evolutionary relationships between Annelida and Arthropoda.

#### **UNIT - IV**

General characters and classification up to order level, Diversity and economic importance, Torsion, Detorsion and foot in Mollusca. Shell in Mollusca. Larval forms in Mollusca.

#### **UNIT – V**

General characters and classification up to order level, Diversity and economic importance, Echinoderm larvae. Shell in Mollusca. Larval forms in Echinodermata.

Phylum Hemichordata: Zoological position of Hemichordata, General Characters; Type Study of Balanoglossus.

## REFERENCES:

1. Jordan, E.L and P.S. Verma. 1995, Invertebrate Zoology and elements of animal physiology, S. Chand and Co. Ltd. New Delhi.
2. Ayyar, E.K and T. Ananthakrishnan, 1992. Manual of Zoology Vol.1 Invertebrates Part I and II, S. Viswanathan Printers and Publishers Pvt. Ltd. Madras.
3. Kotpal, R.L. 1992. (All Series). Rastogi Publications, Meerut.
4. Nair, N.C., N. Arumugam, N. Soundarapandian, T. Murugan and S. Leelavathy. 2010. A textbook of Invertebrates. Saras Publication, Nagercoil.
5. Ruppert and Barnes, R.D. (2006). Invertebrate Zoology, VIII Edition. Holt Saunders International Edition.
6. 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
7. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition, E.L.B.S. and Nelson.

## PRACTICAL CC-I: NON-CHORDATES LAB

(Credit: 1)

1. Museum specimens: Sycon, Leucosolenia, Euplectella, Spongilla, Obelia (Polyp and Medusa forms), Millepora, Physalia, Porpita, Aurelia, Tubipora, Gorgonia, Metridium, Favea, Astraea, Pennatula, Planaria, Fasciola, Taenia, Ascaris (male and female). Pheritima, Neries, Heteroneries, Chaetopterus, Arenicola, Glossiphonia, Pontobdella, Hirudinaria, Polygordius
2. Microscopic slides (Whole Mount): Euglena, Trypanosoma, Amoeba, Entamoeba, Leishmania, Giardia, Monosystis, Plasmodium, Paramecium, Opalina, Nyctotherus, Vorticella, Balantidium,
3. Microscopic slides of Paramecium binary fission and conjugation
4. Life cycle of Plasmodium
5. Microscopic slides: L.S. and T.S. of Sycon, sponging spicules, sponging fibres and gemmules. Hydra, Fasciola T.S., Larval forms of Fasciola – Miracidium, Sporocyst, Redia, Cercaria, metacercaria. Taenia T.S. through mature proglottid, Cysticercus Larvae. Ascaris T.S., T.S. of Nereis, Parapodium of Heteroneries