SYLLABUS OF SEMESTER II

CORE COURSE 3 – CHORDATES

CORE COURSE 4– BASICS OF ANIMAL PHYSIOLOGY

CC-3: 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 Chordates (Protochordates, Fishes, Amphibians, Reptiles, Birds and Mammals)

Course outcomes:

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

UNIT – I

Origin and salient features of Protochordates (Urochordates and Cephalochordates) - classification upto orders and their interrelationship. Agnatha - salient features-Type study-Affinities

UNIT – II

Pisces-classification upto orders. Extinct forms. Accessory respiratory organs, Fish migration and Parental care. Living fossils in fishes.

Amphibians – Salient features and classification upto orders, parental care. Brief account of Urodeles and limbless amphibians.

UNIT – III

Reptiles- Salient features and Classification upto orders. Extinct reptiles. Difference between venomous and non- venomous snakes. Adaptive radiation in reptiles.

UNIT – IV

Aves- Salient features and classification upto orders. Flightless birds, bird migration, principles of bird flight

UNIT – V

Mammals-Origin, classification upto orders and salient features-aquatic mammals, flying mammals- Monotremes, Marsupials. Dentition and Placentation in mammals, Primates.

References:

1. Young, J. Z. (2004). The Life of Vertebrates. III Edition. Oxford university press.

2. Pough H. Vertebrate life, VIII Edition, Pearson International.

3. Darlington P.J. The Geographical Distribution of Animals, R.E. Krieger Pub Co.

4. Hall B.K. and Hallgrimsson B. (2008). Strickberger's Evolution. IV Edition. Jones and Bartlett Publishers Inc.

Practical CC -3: CHORDATES LAB (Credit: 1)

1. Museum specimens: Peripatus, Limulus, Spider, Scorpion, Centipede, Millepede, Lepas, Balanus, Squilla, Eupagarus, Crab, Mantis, Apis, Locust, Silkworm, Beetle, Chiton, Dentalium, Aplysia, Cypraea, Mytilus, Loligo, Sepia, Nautilus, Pearl Oyster, Antedin, Holothuria, Cucumaria, Echinus, Pentaceros, Ophiothrix, Balanoglossus

2. Microscopic slides: Pediculus (WM), Termites, Tick, Cyclops, Daphnia, Crustacean Larvae, Anopheles, Culex and Ades Male and Female (WM), Mouth parts of Male and Female Anopheles, Culex and Ades, WM of Pila gill, radula, VS of shell, WM of Glochidium larvae, Tude beet of Echinodermates

3. Anatomy of Pheretima: External features, general visceral organs, alimentary canal, nervous system, reproductive system, nephridia

4. Anatomy of Periplanata: External features, appendages, mouthparts, alimentary canal, nervous system, reproductive system

5. Anatomy of Palaemon: External features, appendages, alimentary canal, nervous system

6. Anatomy of Pila: External features, pallial organs, nervous system

7. Anatomy of Asterias: External features, general visceral organs, tube feet, water vascular system

8. Construction of Cladogram and Phylogenetic Tree. Distance-based methods of phylogenetic reconstruction using manual and computer methods