Course Code: ZOC 201 **Course Title: Comparative Anatomy of Vertebrates**
Number of Credits: 3
Effective from AY: 2020 -21

Prerequisite for the Course:	Basic knowledge on vertebrate anatomy, taxonomy and systematics is prerequisite for this course.	
Objectives:	To develop knowledge about fundamental anatomical principles among vertebrates. To understand the adaptive changes anatomical structures have undergone in the course of evolution.	
Content:	**Module 1** Detailed comparative analysis of Vertebrate brain, Spinal cord and Sense organs. Basic plan of vertebra construction. Axial and Appendicular skeleton of vertebrates and their modification. Classification of vertebrate musculature. Axial and Appendicular musculature of Vertebrates. **Module 2** Digestive system of Vertebrates with special analysis of Herbivore, Carnivore and Omnivore stomach. Excretory system of Tetrapods, Mammalian kidney in detail, Specialized excretory structures such as Rectal Glands (elasmobranchs) and salt glands (reptiles and Birds). Testes and Vasa deferens in anaminiotes and amniotes. Ovary and Oviduct of anaminiotes and amniotes. **Module 3** Respiratory structure of fishes, Types of Tetrapod lungs (Alveolar, Faveolar, Parabronchial and Broncho-alveolar). Circulatory systems of Vertebrates, Vertebrate portal systems, Lymphatic system in Tetrapods.	**4 hours** **4 hours** **4 hours** **5 hours** **4 hours** **3 hours** **6 hours** **6 hours**

Pedagogy:	Lectures/ tutorials/ online teaching mode/self-study
Learning Outcome:	1. Understand the basic concepts associated with each system of the body. 2. Identify structures that are in place in the body systems to perform the functions according to the habits or habitats of the animals.
References /Reading:	1. Kardong K (2011), Vertebrates: Comparative Anatomy, Function and Evolution, Sixth edition, McGraw-Hill Companies, USA. 2. Kent CG and Carr R (2000), Comparative Anatomy of Vertebrates, Ninth Edition, McGraw-Hill Companies, USA. 3. Liem KF and Franklin W (2001), Functional Anatomy of the Vertebrates: an Evolutionary Perspective, Third Edition, Harcourt College Publishers, California. 4. Moyces C and Schulte P (2013), Principles of Animal Physiology, Second Edition, Pearson International Edition, USA. 5. Prosser CL (1991), Comparative Animal Physiology, Part A, Environmental and Metabolic Animal Physiology, Fourth Edition, John Wiley & Sons Publication, Oxford. 6. Schmidt-Rhaesa A (2007), The Evolution of Organ Systems, First Edition Oxford University Press. 7. Withers PC (1992), Comparative Animal Physiology, First Edition, Fort Worth: Saunders College Publication. 8. Wolff RG (1994), Functional Chordate Anatomy**,** First Edition, Amazon Publication, UK.