

Academic:

1. Lecture Schedule – UG, PG , PhD - Theory / Practical Schedule – Approved by BoS – Subject wise

P.G

Semester – I : ANA – 601(1+2 =3)

Course Title: Comparative Osteology and Arthrology

Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Technical terms, structure, chemical and physical composition and classification of bones	1
2.	Study on scapula and humerus of oX, horse, dog, pig, sheep, goat and poultry (including clavicle and coracoid).	1
3.	Study on radius and ulna of oX, horse, dog, pig, sheep, goat and poultry.	1
4.	Study on carpals of oX, horse, dog, pig, sheep, goat and poultry.	1
5.	Study on metacarpals and digits including sesamoids of oX, horse, dog, pig, sheep, goat and poultry.	1
6.	Comparative study on os-coxae including pelvimetry and femur of oX, horse, dog, pig, sheep, goat and poultry.	1
7.	Comparative study on tibia and fibula of oX, horse, dog, pig, sheep, goat and poultry.	1
8.	Comparative study on tarsal and metatarsal of oX, horse, dog, pig, sheep, goat and poultry.	1
9.	Study on the ethmoid, occipital and sphenoid bone of oX, horse, dog, pig, sheep, goat and poultry.	1
10.	Study on the frontal, parietal, interparietal and temporal bones of oX, horse, dog, pig, sheep, goat and poultry.	1

11.	Study on the maxilla, premaxilla, palatine, pterygoid, nasal, lacrimal and malar bones of oX, horse, dog, pig, sheep, goat and poultry.	1
12.	Study on vomer, hyoid and mandible bones of oX, horse, dog, pig, sheep, goat and poultry	1
13.	Study on cervical, thoracic, lumbar, sacral and coccygeal vertebrae of oX, horse, dog, pig, sheep, goat and poultry	1
14.	Study on ribs and sternum of oX, horse, dog, pig, sheep, goat and poultry.	1
15.	Detailed study of different joints of the body	2
16.	Biomechanics of the locomotor system	1
17.	Radiographic anatomy	1
	Total	18

Teaching lecture schedule

Semester – I : ANA – 601(1+2 =3)

Course Title: Comparative Osteology and Arthrology

Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Topographic terms.	1
2.	Classification of bones	1
3-4.	Comparative study on scapula and humerus	2
5-6.	Comparative study on radius and ulna	2
7-8.	Comparative study on carpals	2
9-10.	Comparative study on metacarpals and digits	2
11.	Comparative study on os-coxae and femur	1
12-13.	Comparative study on tibia and fibula	2

14.	Comparative study on tarsal and metatarsal	2
15-16	Comparative study on the ethmoid, occipital and sphenoid bone	3
17-18.	Comparative study on the frontal, parietal, interparietal and temporal bones	2
19-20.	Comparative study on the maxilla, premaxilla, palatine pterygoid, nasal, lacrimal and malar bones	2
21-22.	Comparative study on vomer, hyoid and mandible bones	2
23-24.	Comparative study on cervical and thoracic vertebrae	2
25-27.	Comparative study on bones of lumbar, sacral and coccygeal vertebrae.	2
28-30.	Comparative study on ribs and sternum	2
31-32.	Classification and detailed study of different joints of the body.	2
33-34.	Biomechanics of the locomotor system	2
35-36.	Radiographic anatomy	2
	Total	36

Teaching lecture schedule

Semester – I : ANA – 602 (2+2 =4)

Course Title: Comparative Splanchnology

Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction	1
2.	Study of topographic anatomy and reflection of thoracic, abdominal and pelvic cavities in oX, horse, dog, pig, sheep, goat and poultry	2
3.	Comparative anatomy of oral cavity in oX, horse, dog, sheep, goat and pig.	2
4.	Comparative anatomy of dentition in oX, horse, dog, sheep, goat and pig,	1
5.	Comparative anatomy of tongue in oX, horse, dog, sheep, goat and pig.	1
6.	Comparative anatomy of esophagus in different species	1
7.	Study of the salivary glands of various species	1
8.	Study of ruminant stomach along with omentum	2
9.	Study of monogastric stomach and omentum of various species	2

10.	Comparative anatomy of small intestines of various species	1
11.	Comparative anatomy of large intestines of various species	1
12.	Study of liver and gall bladder of various species	1
13.	Study of spleen and pancreas of various species	1
14.	Study of digestive system of poultry	1
15-16.	Study of nasal cavity in ox, horse, dog, sheep, goat and pig	2
17.	Study of larynx of various species	1
18.	Study of trachea of various species	1
19.	Comparative anatomy of lungs of various species	2
20.	Study of digestive system of fowl	1
21.	Study of kidneys of various species	1
22.	Study of ureter and urinary bladder	1
23.	Study of urethra	1
24.	Study of male genital system and associated organs of various species	1
25.	Study of female genital system and associated organs of various species	2
26.	Study of male and female genital system of fowl	1
27.	Study of udder of different species of animals	1
28.	Study of body cavities	2
	Total	36

Teaching lecture schedule
Semester – I : ANA – 602 (2+2 =4)
Course Title: Comparative Splanchnology
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction	1
2.	Study of topographic anatomy of thoracic, abdominal and pelvic cavities in different animals.	2
3.	Comparative anatomy of oral cavity in ox, horse, dog, sheep, goat and pig.	2

4.	Comparative anatomy of dentition in ox, horse, dog, sheep, goat and pig,	1
5.	Comparative anatomy of tongue in ox, horse, dog, sheep, goat and pig.	2
6.	Comparative anatomy of esophagus in different species	1
7.	Study of the salivary glands of various species.	2
8.	Study of ruminant stomach along with omentum	2
9.	Study of monogastric stomach and omentum of various species	2
10.	Comparative anatomy of small and large intestines and anus of various species	2
11.	Study of liver and gall bladder, spleen, pancreas of various species	2
12.	Study of larynx of various species	1
13.	Comparative anatomy of lungs of various species	2
14.	Study of body cavities	2
15-16	Study of urinary system and associated organs of various species	2
17.	Study of male genital system and associated organs of various species	2
18.	Comparative study of accessory sex glands in different species	2
19.	Study of female genital system and associated organs of various species	2
20.	Study of endocrine organs of various species	2
21.	Study of udder of different species of animals	2
	Total	36

Teaching lecture schedule

Semester – II : ANA – 603 (2+2 =4)

Course Title: Myology, Angiology, Neurology and Aesthesiology of Ox

Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Myology and organization of various types of muscles	2
2.	Heart and pericardium	4
3.	Muscles and blood supply to the head and neck	3
4.	Muscles and blood supply to the forelimb	3

5.	Muscles of thorax and abdomen and thoracic aorta, abdominal aorta and its branches	2
6.	Muscles and blood supply to the hind limb	2
7.	Venous system	2
8.	Lymph glands and its afferent and efferent vessels	2
9.	Study of brain	2
10.	Study of cranial nerves	2
11.	Study of spinal cord and spinal nerves	2
12.	Brachial and lumbo-sacral plexus	2
14.	Structure of eye ball	2
15.	Structure of external, middle and internal ear of different species	2
16.	Study of hoof	2
17.	Study of horn	2
	Total	36

Teaching lecture schedule
Semester – II : ANA – 603 (2+2 =4)
Course Title: Myology, Angiology, Neurology and Aesthesiology of Ox
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction to general mycology	1
2.	Structure of heart	2
3.	Brachiocephalic trunk, course of aorta, coronary arteries and pulmonary trunk	1
4.	Bicarotid trunk	1
5.	Blood supply to the forelimb	1
6.	Thoracic aorta and its branches abdominal aorta	1
7.	Abdominal aorta and its branches	1
8.	Blood supply to the hind limb	1
9.	Meninges	1
10.	Dorsal and ventral aspect of brain and ventricles of brain, sagittal sections of brain of different species	1

11.	Cranial nerves,	1
12.	Spinal cord and spinal nerves	1
13.	Brachial plexus	1
14.	Lumbo-sacral plexus	1
15.	Venous drainage and lymphatic system	1
16.	Blood supply to the brain	2
17.	Study of eye	1
18.	Study of ear	1
19.	Autonomic nervous system	1
20	Muscle of face, larynx, mastication, soft palate, tongue, pharynx and ear	4
21.	Muscles of neck	2
22.	Muscles of fore limb	2
23	Muscles of fore limb	1
24.	Muscles of, abdomen	2
25	Muscles of hip and thigh	2
26.	Extensors and flexors of hind limb	2
27.	Muscles of tail and penis	1
	Total	36

Teaching lecture schedule
Semester – II : ANA – 604 (1+3 =4)
Course Title: Gross, Histological and Histochemical Techniques
Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Embalming fluid and its preparation	1
2.	Embalming techniques, formalin and modified gravity feed embalming technique.	1
3.	Maceration and preparation of skeletons; taxidermy, burial method, specimens different species; Tompsett 1955, Mulligam 1931 for gray matter, Waldman and Michaels (1954) for white matter, Hewitt method	1
4.	Demonstration of sites of ossifications alizarin red technique	1

5.	Preparation of transparent specimens of various organs, plastination	1
6.	Preparation of transparent specimens of various organs, plastination	1
7.	Chemical composition of a living cell	1
8.	Fixation of tissue samples with different fixatives and post fixation of tissue samples	1
9.	Embedding, block preparation and paraffin sectioning.	1
10.	Natural and synthetic dyes	1
11.	Metachromasia and supravital staining	1
12.	Routine hematoxylin and eosin staining	1
14.	Special staining for connective, muscular and nervous tissue.	1
15.	Special stain for demonstration of nucleic acids	1
16.	Special staining for cytoplasmic granules and pigments and minerals	1
17.	Differential staining for cell types	1
18.	Demonstration of silver staining techniques	1
	Total	18

Teaching lecture schedule
Semester – II : ANA – 604 (1+3 =4)
Course Title: Gross, Histological and Histochemical Techniques
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Embalming fluid and its preparation	2
2.	Embalming techniques, formalin and modified gravity feed embalming technique.	2
3.	Maceration and preparation of skeletons; taxidermy, burial method, chemical method(sodium hydroxide method) gross staining of brain specimens different species; Tompsett 1955, Mulligan 1931 for gray matter, Waldman and Michaels (1954) for white matter, Hewitt method	2
4.	Demonstration of sites of ossifications alizarin red technique	2
5.	Preparation of transparent specimens of various organs, plastination	2
6.	Preparation of casts of various organs, vinyl acetate cast	2

7.	Chemical composition of a living cell	2
8.	Fixation of tissue samples with different fixatives	4
9.	Post fixation of tissue samples	2
10.	Embedding, block preparation and paraffin sectioning.	4
11.	Natural and synthetic dyes	2
12.	Metachromasia and supravital staining	2
13.	Routine hematoxylin and eosin staining	2
14.	Special staining for connective: elastic, reticular and collagen fibres, muscular and nervous tissue.	4
15.	Staining for carbohydrates: pas, amp and proteins.	3
16.	Special stain for demonstration of nucleic acids, lipids and enzymes	3
17.	Special staining for cytoplasmic granules	3
18.	Special staining for pigments and minerals	3
19.	Differential staining for cell types	3
20.	Demonstration of silver staining techniques	3
	Total	54

Teaching lecture schedule
Semester – I : ANA – 605 (0+1 =1)
Course Title: Clinical Anatomy
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Clinical examination of animal by palpation, percussion and auscultation	1
2.	Site to record temperature, pulse, palpable lymph nodes, collection of blood and pregnancy diagnosis in domestic animals	1
3.	Area of auscultation for lungs and heart, passing of probang	1
4.	Preferable site for injections in domestic animals (intradermal, subcutaneous, intramuscular, intravenous, intracardiac, intratracheal, subconjunctival, intra-articular, epidural)	1
5.	Nerve blocks of head region (frontal, infraorbital, mandibulo-alveolar, mental, retrobulbar, Peterson, auriculopalpebral and cornual) for different surgical conditions (extraction of tooth,	2

	trephining of frontal and maxillary sinuses, extirpation of eye ball, amputation of horn, haematoma)	
6.	Surgical conditions of respiratory system (catheterization of guttural pouch, ventriculectomy in horse, tracheotomy, thoracocentesis)	1
7.	Paravertebral nerve block, paracentesis, rumenocentesis. Surgical conditions of digestive system (passing of stomach tube, ligation of parotid duct, oesophagotomy, abdominocentesis, rumenotomy, laparotomy/ celiotomy, gastrotomy, splenectomy, enterotomy, extirpation of anal sacs in dog)	2
8.	Surgical conditions of urinary system (urethrotomy, puncturing of urinary bladder, catheterization of urinary bladder, cystotomy)	1
9.	Surgical conditions of genital system (hysterotomy/ caesarean section, ovario-hysterectomy (spaying), castration, vasectomy, caponing in fowl)	1
10.	Nerve blocks of fore limb (radial, median, ulnar, volar digital nerves) for surgical affections	1
11.	Nerve blocks of hind limb (tibial, peroneal, saphenous, plantar digital nerves) for surgical affections including patellar desmotomy	1
12.	Nerve blocks (pubic, cranial epidural, caudal epidural) for surgical affections including docking	2
13.	Radiographical techniques, contrast radiography	1
14.	Radiographic visualization of organs of thoracic and abdominal cavity	1
15.	Radiographic visualization of organs of pelvic cavity	1
16.	Post-mortem examination and collection of material for teaching and research	2
	Total	18

Teaching lecture schedule
Semester – I : ANA – 606 (1+1 =2)
Course Title: General Histology and Ultrastructure
Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction to animal cell and Study of plasma membrane	1

2.	Study of nucleus and nuclear membrane and Study of mitochondria and endoplasmic reticulum	1
3.	Study of Golgi apparatus, centriole, lysosomes, microtubules, microfilaments, etc.	1
4.	Cell division and Cell wall modifications and junctional complexes	1
5.	Light and ultrastructural study of different types of epithelial tissue and glands	2
6.	Light and ultrastructural study of different types of muscular tissue	1
7.	Introduction to different types of connective tissue and Detailed study of connective tissue fibres; collagen, reticular and elastic	1
8.	Study of different cell types of connective tissue, constituents of ground substance	1
9.	Study of different types of connective tissues	1
10.	Light and ultrastructural details of different cartilages; hyaline, elastic and fibrous cartilage	3
11.	Light and ultrastructural details of bone	1
12.	Structural details of blood and its different constituents	2
13.	Light and ultrastructural study of neurons and neuroglial cells of CNS and PNS, nerves, ganglion, etc.	3
	Total	18

Teaching lecture schedule
Semester – I : ANA – 606 (1+1 =2)
Course Title: General Histology and Ultrastructure
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Study on electron micrographs of an animal cell to distinguish different organelles	1
2.	Study of electron micrographs of plasma membrane, nucleus and nuclear membrane	2
3.	Study of electron micrographs of mitochondria, Golgi apparatus and endoplasmic reticulum	1
4.	Study of different types of epithelial tissues by light microscope	1
5.	Study of different types of epithelial tissues and glands by electron micrographs	1

6.	Study of different types of Muscle tissues by light microscope	1
7.	Study of different types of Muscle tissues by electron micrographs	1
8.	Study of different types of connective tissue fibres and cells	2
9.	Study of different types of connective tissues	3
10.	Study of different types of cartilages	1
11.	Study of Bone; ground bone and decalcified bone	1
12.	Study of different constituents of blood	1
13.	Study of different constituents of blood	2
	Total	18

Teaching Lecture Schedule
Semester – II : ANA – 607 (3+1 =4)

Course Title : Systemic Histology and Ultrastructure
Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	General organization of the wall of tubular organs	2
2.	Light microscopic and ultra structural study of tongue, lip and cheek	2
3.	Light microscopic and ultra structural study of salivary gland	2
4.	Light microscopic and ultra structural study of pharynx and Oesophagus	2
5.	Light microscopic and ultra structural study of rumen, reticulum and Omasum	2
6.	Light microscopic and ultra structural study of abomasum	2
7.	Light microscopic and ultra structural study of small intestine	2
8.	Light microscopic and ultra structural study of large intestine	2
9.	Light microscopic and ultra structural study of liver	2
10.	Light microscopic and ultra structural study of pancreas and gall bladder	2
11.	Light microscopic and ultra structural study of nasal cavity	2
12.	Light microscopic and ultra structural study of larynx and trachea	2

14.	Light microscopic and ultra structural study of lungs	2
15.	Light microscopic and ultra structural study of cardiovascular system including heart	2
16.	Light microscopic and ultra structural study of lymphoid organs	2
17.	Light microscopic and ultra structural study of ovary	2
18.	Light microscopic and ultra structural study of oviduct and uterus	2
19.	Light microscopic and ultra structural study of cervix, vagina and mammary glands	2
20.	Light microscopic and ultra structural study of testes	2
21.	Light microscopic and ultra structural study of epididymis and vas deferens	2
21.	Light microscopic and ultra structural study of urethra and accessory sex glands and penis	3
	Total	54

Teaching Lecture Schedule
Semester – II : ANA – 607 (3+1 =4)

Course Title : Systemic Histology and Ultrastructure
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Light microscopic and ultra structural study of lip and cheek, tongue and salivary glands	1
2.	Light microscopic and ultra structural study of pharynx and oesophagus	1
3.	Light microscopic and ultra structural study of rumen, reticulum, Omasum and abomasum	1
4.	Light microscopic and ultra structural study of small intestine	1
5.	Light microscopic and ultra structural study of large intestine	1
6.	Light microscopic and ultra structural study of liver, pancreas and gall bladder	1
7.	Light microscopic and ultra structural study of larynx and trachea	1
8.	Light microscopic and ultra structural study of lungs	1
9.	Light microscopic and ultra structural study of cardiovascular system including heart	1
10.	Light microscopic and ultra structural study of lymphoid organs	1

11.	Light microscopic and ultra structural study of ovary and oviduct	1
12.	Light microscopic and ultra structural study of uterus, cervix, vagina and mammary glands	1
13.	Light microscopic and ultra structural study of male reproductive system	1
14.	Light microscopic and ultra structural study of kidney, ureter, urinary bladder and Urethra	1
15.	Light microscopic and ultra structural study of endocrine glands; thyroid, pituitary, adrenal gland, parathyroid, pineal gland	1
16.	Light and ultrastructural study of Spinal cord, cerebrum and cerebellum	1
17.	Light microscopic and ultra structural study of sense organs	2
	Total	18

Teaching Lecture Schedule
Semester – III : ANA – 608 (2+1 =3)

Course Title : Developmental Anatomy
Theory

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction to Embryology, history of embryology, term used in embryology Gametogenesis; Spermatogenesis	3
2.	Oogenesis; classification of eggs, structure of mammalian and avian eggs	3
3.	Fertilization, Cleavage Implantation Placentation	3
4.	Blastulation Gastrulation, formation of extra embryonic membranes	3
5.	Formation of extra embryonic membranes	2
6.	Organogenesis and histogenesis of nervous system,	2
7.	Development of sense organs	2
8.	Development of endocrine organs	2
9.	Cardiovascular system including fetal circulation.	2
10.	Embryonic development of gastro-intestinal tract	2
11.	Development of liver, pancreas and gall bladder	2
12.	Development of Respiratory system	2

13.	Development of urinary system	2
14.	Male reproductive system	2
15.	Female reproductive system	2
16.	Musculoskeletal system	2
	Total	36

Teaching Lecture Schedule
Semester – III : ANA – 608 (2+1 =3)
Course Title : Developmental Anatomy
Practical

Sr. No.	Particulars	No of lectures / Practicals
1.	Study of sperm and ova	1
2.	Cleavage, Blastulation and Gastrulation	2
3.	Study of whole mount sections of chick embryo and serial sections of chick embryo	2
4.	Organogenesis, Development of nervous system	1
5.	Organogenesis, Development of digestive system	2
6.	Organogenesis, Development of digestive system	2
7.	Organogenesis, Development of cardiovascular system	2
8.	Organogenesis, Development of endocrine system	1
9.	Organogenesis, Development of urinary system	2
10.	Organogenesis, Development of male and female reproductive system	2
11.	Determination of age of different species of embryo	1
	Total	18

Teaching Lecture Schedule
Semester – III : ANA – 609 (1+0 =1)

**Course Title : Wild Life and Forensic Anatomy
Theory**

Sr. No.	Particulars	No of lectures / Practicals
1.	Introduction, scope and importance of anatomy of wild animals	1
2.	Origin, evolution and classification of wild mammals and birds	1
3.	Morphological adaptations of wild mammals and birds	1
4.	Radiography and ultrasonography as a tool to study wild life anatomy	1
5.	Anatomy of skeletal system of Elephants with special emphasis on dentition and ageing and seXual dimorphism	1
6.	Anatomy of digestive, respiratory, reproductive and urinary systems of elephants	1
7.	Anatomy of skeletal system of wild carnivores including lion, tiger, leopard, cheetah, wolf and fox.	1
8.	Anatomy of digestive, respiratory, reproductive and urinary systems of wild carnivores	1
9.	Anatomy of skeletal, digestive, respiratory, reproductive and urinary systems of wild ruminants	1
10.	Anatomy of skeletal, digestive, respiratory, reproductive and urinary systems of wild primates	1
11.	Anatomy of skeletal system of Cervidae family	1
12.	Anatomy of digestive, respiratory, reproductive and urinary systems of Cervidae family	1
13.	Anatomy of cardio-vascular system of wild animals	1
14.	Anatomy of nervous system of wild animals	1
15.	Anatomy of sense organs of wild animals	1
16.	Anatomy of wild birds	1
17.	Application of wild life anatomy in forensic veterinary medicine	1
18.	Clinical anatomy of captive wild animals	1