RAM LAKHAN SINGH YADAV COLLEGE, RANCHI

DEPARTMENT OF ZOOLOGY

ACADEMIC CALENCER

Semester-V

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2018-2021	JULY 2021	**DSE1:** Basics of insect classification, classification of insects upto orders, External features, Head (eye, types of antennae, mouth parts and feeding habits), Thorax (wings and wing articulation, types of legs adapted to diverse habitat), abdominal appendages and genitalia. **DSE2:** Structure of pituitary gland, hormones and their functions, hypothalamo-hypophysial portal system. Disorders of pituitary gland. Structure, hormones, function and regulation of thyroid gland **PRACTICAL:** Study of insect spiracle, Dissect and display of endocrine glands in laboratory bread rats	Completed
	AUGUST 2021	**CC11:** Transcription: RNA polymerase and transcription unit, mechanism of transcription in prokaryotes and eukaryotes, synthesis of Rrna AND Mrna, Transcription factors **CC12:** Principle of inheritance, incomplete dominance and codominance, Conjugation, transformation, transduction **PRACTICAL:** Study of polytene chromosome from chironomous larva, Preparation of solid culture media and growth of E. coli by spreading and streaking, Study of human karyotype (normal and abnormal)	Completed

Semester-VI

2018-2021	Sept. 2021	**DSE3:** Locomotion in fishes, hydrodynamics, types of scales, use of scales in classification, swim bladder, parental care in fishes, fishery byproducts, fish diseases, electric organ in fishes **DSE4**: Structure and function of different classes of immunoglobulins, Ag-Ab interaction, ELISA, RIA, MHC, AIDS **Practical:** ABO blood group determination, preparation of stained blood films to study various types of blood cells, study of museum specimen,	Completed

		demonstration of parental care in fishes, different types of scales	
	October, 2021	**CC13:** Fate of germ layer, EEM, Placenta, Regeneration, IVF, stem cell culture **CC14:** Lamackism, Darwinism, Neo Darwinism, evolution of horse, evolution of man, Background and mass extinction, detail example of k-T extinction. **Practical:** Study of whole mount of developmental stages of chick embryo and frog through permanent slides, study of homology and analogy, study of fossil evidences, Study of different types of placenta	Completed

Semester-III

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2019-22	**July**	**CC5:** General characteristics of Hemichordata, Urochordata and Cephalochordata; Study of larval forms in protochordates; Retrogressive metamorphosis in Urochordata. General characteristics of Chondrichthyes and Osteichthyes. **Practical:** Study of museum specimen of protochordata **GE:** Basic concept of food and nutrition	Completed
	Aug	**CC5:** Affinities of Prototheria; Adaptive radiation with reference to locomotory appendages. **Practical:** Study of museum specimen of amphibian **GE:** Preparation of temporary mounts of various stored grain pests	Completed
	Sep	**CC5:** Zoogeographical realms, Theories pertaining to distribution of animals, Plate tectonic and Continental drift theory, Distribution of vertebrates in different realms. **CC6:** Histology of different types of muscle; Ultra structure of skeletal muscle. **Practical:** Study of museum specimen of Agnatha **GE:** Functions of food Components of food-nutrients (Macro and micronutrients): their biochemical role and dietary sources.	Completed
	Oct	**CC6:** Functional Histology of endocrine glands - pineal, pituitary, thyroid, parathyroid, pancreas, adrenals; hormones secreted by them.	Completed

		GE: Food hygiene, Potable water- sources and methods of purification, Food and Water borne infections **Practical:** Study of museum specimen of Pisces	
	Nov	**CC7:** Amino acids: Structure, classification and general properties of α-amino acids; physiological importance of essential and non- essential α-amino acids; Urea cycle. Proteins. **GE:** Functions of food Components of food-nutrients (Macro and micronutrients): their biochemical role and dietary sources. **Practical:** Study of museum specimen of reptiles, mammals and Study of permanent slides	Completeds

Semester-IV

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2019-22	**Dec**	**SEC2:** Sericulture: Definition, history and present status; Silk route. Types of silk worms, Distribution and Races. Exotic and indigenous races. Mulberry and non-mulberry Sericulture. Life cycle of Bombyxmori Structure of silk gland and secretion of silk **Practical**: Study of placoid, cycloid and ctenoid scales through permanent slides/ photographs. **GE:** Sources of Environmental hazards, hazards identification and accounting, fate of toxic and persistent substances in the environment, dose Response Evaluation, exposure Assessment.	Completed
	Jan	**CC8:** Alimentary canal and associated glands, dentition. Skin, gills, lungs and air sacs; Accessory respiratory organs, Sense Organs Classification of receptors: Brief account of visual and auditory receptors. **Practical**: Determination of ABO Blood group. **GE:** Greenhouse gases and global warming, acid rain, Ozone layer destruction, Effect of climate change on public health.	Completed
	Feb	**CC8:** Skeletal System Overview of axial and appendicular skeleton, Jaw suspensorium, Visceral arches **Practical:** Estimation of haemoglobin using Sahli's haemoglobinometer.	Completed

		GE: Air, Water, Noise pollution sources and effects, Pollution control	
	Mar	**CC9:** Components of blood and their functions; Structure and functions of haemoglobin; Haemostasis: Blood clotting system, Kallikrein – Kinninogen system, Component system & Fibrinolytic system, haemopoiesis; Blood groups: Rh factor, ABO **Practical**: Recording of blood pressure using a sphygmomanometer **GE**: Sources of waste, types and characteristics,	Completed
	Apr	**CC10:** Overview of Metabolism Catabolism vs Anabolism, Stages of catabolism, Compartmentalization of metabolic pathways, shuttle systems and membrane transporters; ATP as "Energy Currency of Cell"; coupled reactions; Use of reducing equivalents and cofactors; Intermediary metabolism and regulatory mechanisms. **Practical:** Examination of sections of mammalian oesophagus, stomach, duodenum, ileum, rectum liver, trachea, lung, kidney. **GE:** To determine pH and CI in soil and water samples from different locations	Completed
	May	**CC9:** Renal physiology, structure of kidney and its functional unit, mechanism of urine . **Pratical:** Examination of sections of mammalian oesophagus, stomach, duodenum	Completed
	June	**CC9**: Physiology of heart, cardiac cycle. Blood pressure and its regulation, ECG **Practical:** Examination of sections of mammalian kidney and lun**gs**	Completed

Semester-1

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2020-23	**July**	**CC2:** Ecological succession with one example, Theories of climax community	Completed
	Aug	**CC2:** History of ecology, Autecology, level of organization, Laws of limiting factor	Completed
	Sep	**CC1:** Kingdom Protista, Parazoa and Metazoa General characteristics and classification up to classes; Study of Euglena, Amoeba and	Completed

		Paramecium; Life cycle, pathogenicity of Plasmodium vivax **Practical:** Study of whole mount of Euglena, Amoeba and Paramecium; Binary fission and Conjugation in Paramecium. **GE:** Kingdom Protista General characters and classification up to classes; Locomotory Organelles and locomotion in Protozoa	

Semester-2

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2020-23	**Oct**	**CC3:** Unit 1: Introduction to Coelomates Evolution of coelom and metamerism. **Practical:** Phylum Onychophora Study of the specimen: Peripatus..	Completed
	Nov	**CC3:** Phylum Echinodermata General characteristics and classification up to classes; Water-vascular system in Asteroidea; Larval forms in Echinodermata; Evolutionary significance (Affinities with Chordates) **Practical:** T.S. through pharynx, gizzard, and typhlosolar intestine of earthworm. **GE:** Structure of neuron, Propagation of nerve impulse (myelinated and non-myelinated nerve fibre)	Completed
	Dec	**CC4:** Overview of Cells Prokaryotic and Eukaryotic cells, Virus, Viroids, Mycoplasma, Prions. Plasma Membrane Various models of plasma membrane structure; Transport across membranes: active and passive transport, facilitated transport **Practical:** Study of the following specimen: Chiton, Dentalium, Pila, Unio, Sepia, Octopus. **GE:** Structure of skeletal muscle, **CC3:** Introduction to Coelomates Evolution of coelom and metamerism. Phylum Annelida General characteristics and classification up to classes; Excretion in Annelida. Phylum Arthropoda General characteristics and classification up to classes; Vision in Arthropoda; Metamorphosis in Insects; Social life in insects (bees and termites **Practical:** Study of the following specimens: Nereis, Pheretima.	Completed

		GE: Study Mechanism of muscle contraction (Sliding filament theory), Neuromuscular junction	
	Jan	**CC4:** Mitochondria and Peroxisomes Structure of mitochondria, Semi- autonomous nature of mitochondria, endosymbiotic hypothesis, Mitochondrial Respiratory Chain, Chemi-osmotic hypothesis, Peroxisome. **GE:** Renal Physiology Functional anatomy of kidney, Mechanism and regulation of urine formation. **Practical:** Preparation of temporary stained squash of onion root tip to study various stages of mitosis.	Completed
	Feb	**CC4:** Nucleus Ultra-structure of nucleus, Nuclear Envelope, Nuclear pore complex and Nucleolus; Chromatin: Euchromatin and Heterochromatin, packaging (nucleosome). Cell Division Meiosis, Mitosis, Cell cycle and its Regulation. **GE:** Cardiovascular Physiology Structure of heart, Coordination of heartbeat, Cardiac cycle, ECG **Practical:** Study various stages of meiosis from permanent slides.	Completed

Semester-3

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2020-23	**April**	**CC5:** Introduction to Chordates General characteristics and outline classification. Protochordata General characteristics of Hemichordata, Urochordata and Cephalochordata **Practical:** Study of museum specimen **GE:** Functions of food Components of food-nutrients (Macro and micronutrients): their biochemical role and dietary sources. Food groups and the concept of a balanced diet.	Completed
	May	**CC5:** Aves General characteristics and classification up to order; Principles and aerodynamics of flight, Flight adaptations; Archaeopteryx-- a connecting link; Migration in birds **Practical:** Study of permanent slides **GE:** Vitamins- Fat-soluble and Water-soluble vitamins; their Structure and properties Minerals-	Completed

		Iron, calcium, phosphorus, iodine, selenium and zinc: their properties	
	June	**CC6:** Reproductive System Histology of male and female reproductive systems, Physiology of male and female reproduction; Puberty; Methods of contraception in males and females. **CC7:** Structure and biological importance; monosaccharides, disaccharides, polysaccharides and **glycoconjugates.** **Practical:** Demonstration of proteins separation by SDS-PAGE. **GE:** To detect adulteration in a) Ghee b) Sugars c) Tea leaves and d) Turmeric	Completed

Semester-1

SESSION	MONTH	LESSON PLAN (Theory/Practical)	STATUS
2021-24	**Nov**	**CC1:** Kingdom Protista, Parazoa and Metazoa General characteristics and classification up to classes; Study of Euglena, Amoeba and Paramecium; **GE:** Kingdom Protista General characters and classification up to classes; Locomotory Organelles and locomotion in Protozoa	Completed
	Dec	**CC1:** Life cycle, pathogenicity of Plasmodium vivax and Entamoeba histolytica; Locomotion and Reproduction in Protista; Evolution of symmetry and segmentation of Metazoa. **Practical:** Study of whole mount of Euglena, Amoeba and Paramecium **GE:** Phylum Porifera General characters and classification up to classes; Canal System in Sycon	Completed
	Jan(2022)	**CC1:** Phylum Porifera General characteristics and classification up to classes; Canal system in sponges **Practical:** Study of whole mount of Binary fission and Conjugation in Paramecium. **GE:** Phylum Cnidaria General characters and classification up to classes; Polymorphism in Hydrozoa	Completed
	Feb	**CC1:** Phylum Cnidaria General characteristics and classification up to classes; Metagenesis in Obelia; Polymorphism in Cnidaria; Corals and coral reefs **Practical:** Study of Obelia, Physalia, Aurelia,	Completed

		GE: Phylum Platyhelminthes General characters and classification up to classes; Life history of Taeniasolium	
	Mar	**CC1:** Phylum Ctenophora General characteristics and evolutionary significance. Phylum Platyhelminthes General characteristics and classification up to classes; Life cycle, pathogenicity of *Taenia solium and Fasciola hepatica.* **Practical:** Study of adult *Fasciola hepatica, Taenia solium* and their life cycles (Slides/microphotographs **GE:** Phylum Nemathelminthes General characters and classification up to classes; Life history of Ascarislumbricoides and its parasitic adaptations	Completed
	Apr	**CC1:** Phylum Nemathelminthes General characteristics and classification up to classes; Life cycle, pathogenicity of Ascaris lumbricoides and Wuchereria bancrofti; Parasitic adaptations in helminth **Practical:** Study of adult Ascaris lumbricoides and their life stages (Slides/micro-photograph) **GE:** Phylum Annelida General characters and classification up to classes; Metamerism in Annelida	Completed
	May	**CC2:** : Introduction to Ecology History of ecology, Autecology and synecology, levels of organization, Laws of limiting factors, Study of physical factors. **Practical:** **GE:** : Phylum Arthropoda General characters and classification up to classes; Vision in Arthropoda, Metamorphosis in Insects	Completed
	June	**CC2:** Population Unitary and Modular populations, Unique and group attributes of population: Density, natality, mortality, life tables, fecundity tables **Practical:** Study of the following specimens: Amoeba, Euglena, Plasmodium, Paramecium, Sycon **GE:** Phylum Mollusca General characters and classification up to classes; Torsion in gastropods	Completed
	July	**CC2:** survivorship curves, age ratio, sex ratio, dispersal and dispersion; Exponential and logistic growth, equation and patterns, r and K strategies, Population regulation - density-dependent and independent factors; Population interactions **Practical:** Study of the following specimen: Obelia, Physalia, Aurelia,	Completed

		GE: : Phylum Echinodermata General characters and classification up to classes; Water-vascular system in Asteroidea	
	Aug	**CC2:** Community Community characteristics: species richness, dominance, diversity, abundance, vertical stratification; Ecotone and edge effect; Ecological succession with one example; Theories pertaining to climax community. **Practical:** Study of the following permanent slides: T.S. and L.S. of Sycon, Study of life history stages of Taenia, T.S. of Male and female Ascaris **GE:** Protochordates General features and Phylogeny of Protochordata	Completed
	Sep	**CC2:** Applied Ecology Ecology in wildlife conservation and management. **Practical:** Key for Identification of poisonous and non-poisonous snakes **GE:** Aves General features and Classification up to orders; Flight adaptations in birds	Completed