



DAAR-UL-REHMAT TRUST'S
A.E.KALSEKAR DEGREE COLLEGE
Permanently Affiliated to University of Mumbai
Accredited by NAAC with "B++" Grade
ISO Certified 9001 : 2015
Kausa Mumbra, Thane-400612

PROGRAMME SPECIFIC OUTCOME:

DEPARTMENT OF ZOOLOGY

SR.NO	PROGRAMME SPECIFIC OUTCOME
1)	Learners would be amazed to know and understand beautiful world of animals and their interactions with surroundings.
2)	They will be able to correlate their existence with the other forms of the life on the earth.
3)	They can learn about the physiology, Anatomy, structures of cells, regulation, evolution, hierarchy and fundamental of all life forms.
4)	They will also explore the process of formation of different life forms on cellular basis. They can also distinguished between the different animals and appreciate the biodiversity.
5)	They will acquire the knowledge about environmental concerns and will contribute to conservation, management and sustainability.
6)	Learners will gain and implement the lessons of coexistence with nature.
7)	They will understand the technological advancement being made in biotechnology, medicinal sciences and contribute their own part.
8)	Learners can also embark on an excursion of research through research ethics and methodology.



COURSE OUTCOME:

B.Sc. IN ZOOLOGY

SEM-I

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Wonders of animal world	1) To get learners fascinated by the world of animals.	1) Learners will be fascinated by the amazing world of animals.
	2) To take them through a captivating journey hoarded with marvelous facts about animals.	2) Learners will have their interest enhanced through the captivating journey.
	3) To develop their interest in the subject.	3) They will develop love for the zoology subject.
UNIT II: Biodiversity and its conservation	1) To orient learners about rich heritage of biodiversity.	1) Learners would appreciate treasure of biodiversity.
	2) To guide them in detail through the various aspects of flora and fauna.	2) Learners will gain the knowledge of different levels and forms of biodiversity.
	3) To make them understand the significance of its conservation.	3) They will learn to contribute their best for the conservation and management for the same.
UNIT III: Footsteps to be followed	1) To impulse learners to think out of the box.	1) Learners mind would be triggered to think differently (from the entrepreneur point of view).
	2) To teach learners innovative and novel work of scientists/philosophers/entrepreneurs.	2) Learners will learn astonishing stories of great personalities who had contributed to the field of science and technology.
	3) To invoke in them the ideas to make advancement in biological sciences.	3) They would come up with their own crude ideas for the advancement of biological sciences.

SEM-I

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Laboratory safety, Units and Measurements.	1) To educate learners about the safety measures in the laboratory.	1) Learners would gain knowledge about how to work safely in the laboratory.
	2) To make them aware about the importance of being alert and cautious during an experiment.	2) They will boost up their scholastic performance by being cautious.
	3) To instill in them the skill of preparing chemicals precisely and avoiding wastage during an experiment.	3) They will learn meticulous preparations of chemical to maintain the economy of the materials.
UNIT II: Animal Biotechnologies	1) To expose the emerging field of biotechnology to the learners.	1) Learners would understand the recent advancement in biotechnologies.
	2) To give them practical knowledge regarding various aspects of animal biotechnology.	2) They will also learn its application for the betterment of mankind or society in general.



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	3) To inspire them to take the field of biotechnology as their future research topics.	3) Their minds would be ignited to think out of the box in terms of biotechnology.
UNIT III: Instrumentation	1) To teach them to operate various instruments for experiments.	1) Learners will develop skills to operate suitable instruments for their practical protocols.
	2) To give them an insight about practical zoology.	2) They will learn about different components of practical zoology.
	3) To prepare them for meticulous experimentations in the future.	3) They will gain a better insight of future research experimentation.

SEM-II

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Population ecology	1) To facilitate the learning of population ecology.	1) Learners would be exposed to the nature of population ecology.
	2) To teach them dynamics and regulatory factors important for the sustenance of population.	2) They will understand various factors affecting the growth of population.
	3) To highlight the need of studying concepts related to population	3) They will gain a deep insight into population related phenomenon.
UNIT II: Ecosystem	1) To impart knowledge of different components of ecosystem.	1) Learners will grasp the concept of physical, chemical and biological factors of environment.
	2) To educate learners about the relationship of biotic and abiotic factors.	2) They will learn about interdependence of biotic and abiotic components.
	3) To teach learners about conservation of all flora and fauna.	3) They will learn about the effect of loss of flora and fauna on human being.
UNIT III: National Parks and Sanctuaries of India	1) To enlighten learners about national parks, sanctuaries and its inhabiting wildlife.	1) Learners would study about various national parks and sanctuaries of the country.
	2) To guide them through the current status of wildlife in the light of guidelines from different governing agencies.	2) They would get to know about the current status of biodiversity and its conservation.
	3) To help them choose a career in wildlife related fields.	3) They would be inspired to choose a career in specific conservation, photography and ecotourism.

SEM-II

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Nutrition and health	1) To make learners understand the importance of balanced diet and essential nutrients.	1) Learners would be given knowledge about sound health and its importance.
	2) To encourage them to make and lead a healthy life and environment.	2) They would be inspired to take up healthy life style.
	3) To guide them to eliminate unhealthy eating habits from daily routine at different stages of life.	3) They will learn to prevent the risk of developing health hazards due to faulty dietary habits.



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UNIT II: Public health and hygiene	1) To impart knowledge about source, quantum and need for conservation of various resources.	1) Learners would be encouraged to conserve water and electricity.
	2) To teach them essentials of maintaining proper sanitation and hygiene.	2) They would be inspired to maintain adequate personal hygiene and avoid addiction of all sorts.
	3) To make learners grow into healthy, aware and independent individuals.	3) They would learn to achieve goal of healthy young India in true sense.
UNIT III: Common human diseases and disorders	1) To educate learners about various disorders related to stress.	1) Learners would study about stress related problems and their relevant solutions.
	2) To make them able to promptly recognize stress related symptoms at initial stages.	2) They would be encouraged to develop a sound psychological state of mind.
	3) To teach them about various infectious diseases and help them develop positive attitude important for academics.	3) They will acquire knowledge of causes, symptoms, precautions of infectious diseases.

SEM-III

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Fundamentals of Genetics	1) To make learners able to learn the concept of heredity and inheritance.	1) Learners would comprehend and apply the principles of inheritance to study heredity.
	2) To make them aware about the principles of alleles, linkage, recombination and crossing overs.	2) Learners would understand the concept of multiple allele, linkage, crossing over.
	3) To give them knowledge about the work of Mendel and his contribution to genetics as Mendelian inheritance.	3) Learners would develop conceptual clarity of Mendelian Inheritance.
UNIT II: Chromosome and Heredity	1) To teach them the basic structure and types of chromosome.	1) Learners will comprehend the structure of chromosome and its different types.
	2) To make them understand the concept of sex determination by the combination of sex chromosomes in different animals.	2) Learners will understand the mechanism of sex determination in different life forms.
	3) To make them learn about various chromosomal aberrations and its effect.	3) Learners would be able to understand and correlate disorders with chromosomal abnormalities.
UNIT III: Nucleic acids	1) To teach them the basic structure of nucleic acids.	1) Learners will understand the concept of nucleic acids as genetic material
	2) To get them fascinated about the whole concept of gene expression in the form of proteins.	2) Learners will study the concept of gene expression and regulation.
	3) To make them understand the theory of central dogma of molecular biology and hierarchy of biomolecules.	3) Learners will grasp the idea and significance of central dogma.



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SEM-III

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Nutrition and Excretion	1) To introduce the concepts of physiology of nutrition, excretion and osmoregulation.	1) Learners would understand the concept of physiology of nutrition, excretory system along with functions and osmoregulation.
	2) To expose the learners to various nutritional apparatus, excretory and osmoregulatory structures.	2) Learners would be able to correlate the importance of various nutritional apparatus, osmoregulatory structures.
	3) To teach them evolution related to physiology of nutrition and excretion.	3) Learners would be exposed to the concept of evolutionary hierarchy in physiology of nutrition, excretion.
UNIT II: Respiration and circulation	1) To introduce the concepts of physiology of respiration and circulation.	1) Learners would understand the complexity of respiratory and circulatory physiology.
	2) To expose the learners to various respiratory and circulatory organs in different classes of organisms.	2) Learners would be able to correlate the habit and habitat of animals with respiratory and circulatory organs.
	3) To teach learners about the evolutionary pattern seen in physiology of respiration and circulation.	3) Learners would be exposed to the concept of evolutionary hierarchy seen in physiology of respiration and circulation.
UNIT III: Control, Coordination locomotion and Reproduction.	1) To make learners understand about the concept of control and coordination involving nervous and endocrine system.	1) Learners would understand the process of control and coordination by nervous and endocrine regulation.
	2) To teach them about various locomotary structures.	2) Learners would be astonished by various locomotary structures of animal kingdom.
	3) To give them knowledge about reproductive processes in animals	3) Learners would be acquainted with various reproductive strategies in animals.

SEM-III

ZOOLOGY-III

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Ethology	1) To teach learners about basic ethology through different behavioral pattern.	1) Learners would gain an insight into different types of animal behavior.
	2) To give them knowledge regarding various adaptations in animals.	2) Learners will understand the biological adaptations of various animals.
	3) To acquaint them to the process and significance of instrumental learning.	3) Learners would be sensitized to the concept of instrumental learning.
UNIT II: Parasitology	1) To acquaint the learners with the concept of parasitism.	1) Learner will understand the epidemiology of various types of parasites.
	2) To introduce the learners to modes of transmission of parasites.	2) Learners would be gaining knowledge about the life cycles and sources of dreadful parasites.



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	3) To teach the learners about how simple preventive measures can be taken to tackle the infections.	3) Learners will learn to take simple prevention measures of these parasitic infections.
UNIT III: Economic Zoology	1) To disseminate information on economic aspects of animals like apiculture, vermiculture and dairy science.	1) Learners would gain knowledge about various animals useful to mankind.
	2) To acquaint them with all the aspects of animal husbandry.	2) Learners would learn the modern concepts and techniques of animal husbandry.
	3) To encourage young learners for self-employment.	3) Learners would know the concepts or ideas of pursuing entrepreneurship as a career.

SEM-IV

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Origin and Evolution of life	1) To impart scientific knowledge to the learners about how life originated on planet earth.	1) Learners will gain insights into the concept of origin of life.
	2) To teach them about various theories of evolution.	2) Learners will also analyze different theories of evolution.
	3) To make them understand about the significance of evolutionary history on earth.	3) Learners will critically view the topic of origin of life.
UNIT II: Population Genetics and Evolution	1) To develop an understanding in the learners about genetic variability within a population.	1) Learners will understand the forces that caused evolutionary change.
	2) To teach them about how the change in gene pool leads to evolution of species and speciation.	2) Learners would enjoy studying the mechanism of speciation.
	3) To acquaint them about various types of evolution.	3) Learners will be able to distinguish between micro-evolution, macro-evolution and mega-evolution.
UNIT III: Scientific Research, attitude and Methodology	1) To inculcate scientific temperament in the learners.	1) Learners will develop qualities such as critical thinking and analysis.
	2) To make them understand about various tools of research methodology.	2) Learners will imbibe the skills of scientific communications.
	3) To teach them about the correct procedure of how to conduct an ethical research.	3) Learners will understand the ethical aspect of Research.

SEM-IV

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Cell biology	1) To study the structural and functional organization of cell.	1) Learners will acquire knowledge about cellular organization.
	2) To teach them about various cellular organelles with an emphasis on nucleus, plasma membrane and cytoskeleton.	2) Learners will be able to know about various organelles.



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	3) To give them knowledge about cytoplasmic components and various transport mechanisms.	3) Learners will gain insight into the composition of cytoplasm and transport mechanisms.
UNIT II: Endo-membrane system	1) To acquaint the learners with the ultra-structure of cell organelles and their functions.	1) Learners would appreciate the intricacy of endo-membrane system.
	2) To teach them about the regulatory factors required for smooth functioning of cell	2) Learners would understand the interlinking of endo-membrane system for functioning of cell.
	3) To imbibe in them the concept of energy production and expenditure at cellular level.	3) Learners would gain knowledge about energy production in cell.
UNIT III: Bio-molecules	1) To give learner insight into the structure of biomolecules.	1) Learner will realize the importance of various bio-molecules.
	2) To make them understand the role of biomolecules in the sustenance of life	2) Learners will understand the critical significance of bio-molecules.
	3) To teach them about micro molecules and macro molecules.	3) Learners will acquire knowledge about the monomers and their polymers.

SEM-IV

ZOOLOGY-III

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Comparative Embryology	1) To acquaint the learners with key concept of embryology.	1) Learners will be able to understand the concept of egg and sperm.
	2) To teach them to compare the different pre-embryonic stages.	2) Learners will gain insights into the stages of pre-embryonic development.
	3) To give them knowledge about entire process of formation of neo-natal stages.	3) Learners will be amazed by the knowledge of formation of life, from the single cell form.
UNIT II: Aspects of Human Reproduction	1) To acquaint the learners with different aspects of human reproduction.	1) Learners will understand human reproductive physiology.
	2) To teach them about various causes of infertility and techniques to overcome it.	2) Learners will become familiar with the revolutionary advances in 'IVF' and other 'ART' procedures.
	3) To make them aware of the ethical aspects of birth control, ART.	3) Learners will be acquainted with the ethical issues related to natural process of reproduction and ART.
UNIT III: Pollution and its effect on organism	1) To provide a panoramic view of human activities leading to pollution.	1) Learners would be sensitized about the alarming issue of pollution and its various types.
	2) To give them insight into various implications of pollutions.	2) Learners will understand the adverse effects of pollution on all walks of life.
	3) To sensitize learners about adverse effects of pollution and measures to control it.	3) Learners would be triggered to think and learn about the controlling measures for the same.



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SEM-V

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I : Principles of Taxonomy	1) To introduce the learners the principle of taxonomy.	1) Learners will understand the principles of taxonomy and modern system of classification.
	2) To teach them modern system of classification to give them an evolution point of view.	2) Learners will catch up the basis of classification and modern classification of the lower invertebrate animals.
UNIT II: Kingdom: Animalia I	1) To teach them general characters and classification of kingdom Animalia from Porifera to Nematode.	1) Learners will understand the classification of animals from Phylum Porifera to phylum Nematoda along with representative examples.
	2) To familiarize the learners with the interesting examples of specific phylum.	2) Learners will get chance to apprehend the general characters and specific characters of each example of phylum.
UNIT III: Kingdom : Animalia II	1) To teach learners basic concept of classification from Phylum Annelida to hemichordate.	1) Learners will get an idea of higher groups of invertebrate animal life, along with their habitat and their peculiar aspects
	2) To familiarize them with the general and specific characters of the specific phylum.	2) Learners will be introduced to the basic concepts of classifications of Phylum annelid to phylum hemichordate.
UNIT IV: Type study: Sepia	1) To acquaint learners with the details of Sepia as a representative of invertebrate animals.	1) Learners will get an idea of general habitat, various systems of this animal in detailed manner.
	2) To teach them general characters of Sepia.	Learners will get an idea of general characteristics of this animal.

SEM-V

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Basic Hematology	1) To teach learners the composition of blood, hematopoiesis and hemorrhage.	1) The learners would be introduced to basics of hematology.
	2) To acquaint the learners with the basic concept of physiology of blood clotting, clinical aspects of hematology.	2) The learners will be able to identify various components of haemostatic systems
UNIT II: Applied Hematology	1) To introduce the learners the basic concept of applied hematology.	1) The learners shall be acquainted with diagnostic approach in hematological disorders.
	2) To impart them knowledge about diagnostic techniques in pathology.	2) The learners will be better equipped for further pathological course or



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		working in a diagnostic laboratory
UNIT III: Basic Immunology	1) To introduce the learners to the topic of immunology by emphasizing on the basics to build a strong foundation.	1) The learners shall comprehend the types of immunity and the components of immune system.
	2) To impart them knowledge about significance of immune system in disease resistance.	2) The learners will realize the significant role of immune system in giving resistance against diseases.
UNIT IV: Applied immunology	1) To introduce immunopathology and immunological perspectives of organ transplantation.	1) The learners will develop basic understanding of immunology of organ transplantation
	2) To introduce the concept of vaccines and vaccinations.	2) The learners shall understand immune-pathology and the principles and applications of vaccines.

SEM-V

ZOOLOGY-III

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Mammalian histology	1) To introduce learners to the concept of planned organization of tissues and cells.	1) Learners would be familiarized with the cellular architecture of the various organs in the body
	2) To make them understand the need and importance of various types of tissues in vital organs.	2) Learners would appreciate the well planned organization of tissues and cells in the organ systems
UNIT II: Toxicology	1) To introduce the learner to the principles of toxicology with emphasis on toxic response to chemical exposures.	1) The learners will be able to develop broad understanding of the different areas of toxicology.
	2) To develop amongst learners an introductory understanding of regulatory affairs in toxicology.	2) The Learners will also develop critical thinking that will assist students in preparation for employment in pharmaceutical industry.
UNIT III: General pathology	1) To teach them about the basics of general pathology.	1) The learners will be allowed to have a deep understanding of general pathology.
	2) To impart knowledge of retrogressive, necrotic, pathological conditions and repair mechanisms of the body.	2) Learners will be exposed to various medical terminologies pertaining to pathological condition of the body caused due to various diseases.
UNIT IV: Biostatistics	1) To familiarize learner with biostatistics as an important tool of analysis.	1) The learners will be able to collect, organize and analyze data using parametric and nonparametric tests.
	2) To teach them about the wide application of biostatistics.	2) The learners will be able to set up a hypothesis and verify the same using limits of significance.



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SEM-V

ZOOLOGY-IV

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Integumentary system and derivatives	1) To introduce the learners the concept of different integumentary structures.	1) Learners will be able to understand the importance of various types of epidermal and dermal derivatives along with their functions.
	2) To teach them about various derivatives of integument in vertebrates.	2) The learners would be acquainted with special derivatives of integument and their structures along with specific origin.
UNIT II: Human Osteology	1) To introduce the learner to different types of bones of human skeleton.	1) Learners will be studying the structure, types and functions of human skeleton
	2) To give them knowledge about functional importance of human skeleton and associated structures.	2) Learners would identify and learn different bones of human skeleton and their functional importance.
UNIT III: Muscles of long bones of Human limbs	1) To study long limbs muscles involved in body movements.	1) Learners will be able to understand the types of long limb muscles and their role in body movements.
	2) To identify various arrangements of long limb muscles and to relate it with the contraction and motion.	2) Learners will be in a position to identify various arrangements of the long limb muscles along with contraction and motion.
UNIT IV: Developmental biology of Chick	1) To introduce the basic concept of developmental biology with reference to chick as a model.	1) Learners will be able to understand the processes involved in embryonic development.
	2) To make them understand about the processes involved in embryonic development and practical application of studying chick embryology.	2) Learners will also study practical applications of chick embryology and its development stages.

SEM-V

ZOOLOGY (APPLIED COMPONENT- FISHERY BIOLOGY).

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Oceanography	1) To enable learners learn about oceanographic, navigational and sea safety instrument.	1) Learners shall understand and learn about the use of sea safety, navigational equipments and oceanographic instruments.
	2) To teach them about basic physical, chemical and biological parameters of oceans.	2) Learners shall understand basic physical, chemical and biological oceanography.
UNIT II: Crafts and gear	1) To acquaint learners about techniques of boat building and engine designing.	1) Learners shall comprehend boat building techniques and design of engines used in mechanized boats.
	2) To make them understand about various types of nets and fishing method.	2) Learners shall understand the operations of various types of nets and fishing method.



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UNIT III: Farming of major carps	1) To develop skills of breeding techniques, hatchery management and management of major carps.	1) Learners will comprehend hatchery and nursery management of major carps.
	2) To study and explore various techniques used in fishery poly culture.	2) Learners will understand breeding techniques and skills for culture of major carps.
UNIT IV: Introduction to other commercial aquaculture practices in fresh water	1) To develop skills and understanding of breeding and rearing of sewage-fed fishery, Basa cat fish and tilapia by novel ways.	1) Learners will gain knowledge about how to breed and rear ornamental fishes and commercially viable fish species.
	2) To teach learners about various entrepreneurial operations to make them able to work in fishery units.	2) Learners will be equipped to carry out entrepreneurial operations or gain confidence to work in freshwater prawn unit.
UNIT V: Culture of shell fishes and fin-fish	1) To study rearing practices of fin-fish and shell fishes.	1) Learners shall understand breeding techniques, hatchery and management of finfish and shell fishes.
	2) To study culture of brackish water shrimp.	2) Learners shall understand the rearing techniques.
UNIT VI: Quality control and packaging	1) To comprehend various aspects of quality control.	1) Learners will be oriented towards understanding the various stages of quality control.
	2) To acquaint learners about various packaging processes involved in fish processing and marketing.	2) Learners shall comprehend the value of maintaining and taking sanitary precautions during the processing and packaging operations.
UNIT VII: Quality control and packaging	1) To acquaint learners with the fundamentals of marketing and finance.	1) Learners shall acquire knowledge about traditional marketing practices and role of co-operatives in selling fish.
	2) To instill in them the knowledge of various aspects of entrepreneurship in fishery related enterprises.	2) Learners shall be exposed to the avenues and procedure for raising funds for fishery related entrepreneurial practices.
UNIT VIII: Case Study and Simulation	1) To inculcate entrepreneurial abilities and skills so as to make learners confident and prepare them to raise new projects in the realm of fishery biology.	1) Learners will gain technical and financial knowledge in fishery biology business ventures.
	2) To assess varying dimensions while taking decisions in fishery biology.	2) Learners will develop better acumen so as to take wise and necessary decisions while participating in fishery biology related projects.

SEM-VI

ZOOLOGY-I

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Phylum Chordata: Group Protochordata	1) To introduce basic concept of modern chordate classification with evolution point of view.	1) Learners will get glimpse of origin of Chordates, its taxonomy with reference to phylogeny and their special features.



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and Group Euchordata I	2) To make them understand the concept of taxonomy in higher animal kingdom.	2) Learners would be in a position to understand the concept of taxonomy in higher animal kingdom.
Unit II: Group Euchordata II	1) To teach learners about the characters of Euchordata division.	1) Learners will be studying the position of mouth and development of habitats.
	2) To give them knowledge about habit, habitat, external and internal characters of lung fish.	2) Learners would also know as to how historical lung-fishes survived on land with respiratory organs.
UNIT III: Group Euchordata III	1) To introduce the learners to the distinguishing characters of class reptilian, aves and mammalia	1) Learners will understand the characteristic features and examples of each class of Reptilia, Aves as well as Mammalia.
	2) To teach them about their adaptive features with reference to their habitat.	2) This will help learners to study distinguishing characters of classes Reptilia, Aves and Mammalia and their adaptive features with reference to their habitats.
UNIT IV: Type Study: Shark	1) To study in depth one vertebrate animal type	1) Learners will get an idea of vertebrate animal life (one representative animal which is shark).
	2) To study the general characteristics and salient features of shark.	2) Learners would be getting chance to study salient features and general characters of shark.

SEM-VI

ZOOLOGY-II

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I : Enzymology	1) To introduce learners to the fundamental concept of enzyme biochemistry.	1) The learners shall understand fundamentals of enzyme structure, action and kinetics.
	2) To enable learners realize the applications of enzymes in basic and applied sciences.	2) The learners shall appreciate the enzyme assay procedures and the therapeutic applications of enzymes.
UNIT II: Homeostasis	1) To introduce to the learners the concept of homeostasis and stable internal environment.	1) The learners shall be studying concept of homeostasis-thermoregulation and osmoregulation.
	2) To teach them the significance of thermoregulation and osmoregulation.	2) The learners shall comprehend the adaptive responses of animals to environmental changes for their survival strategies.
UNIT III: Endocrinology	1) To introduce to the learners the details of endocrine glands.	1) The learners shall understand the types and secretions of endocrine glands and their respective functions.
	2) To teach them about the various disorders associated with faulty functioning of endocrine glands.	2) The learners will realize the significant role of endocrine glands and its disorders in human body.



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UNIT IV: Animal tissue culture	1) To introduce to the learners the fundamental concept of tissue culture.	1) The learners would be studying the importance of tissue culture in specialized areas of research.
	2) To guide them progressively through certain areas of animal tissue culture.	2) The learners would be in position to appreciate applications of tissue culture in various industries.

SEM-VI

ZOOLOGY-III

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Molecular Biology	1) To introduce learners to chemical and molecular processes that affect genetic material.	1) Learners shall get an insight into detailed manner of chemical and molecular processes which affects genetic material.
	2) To make learners understand the concept of DNA damage and repair and how gene control is necessary for cell survival.	2) The learners would study in-depth about significance of molecular biology as a basis for the study of other areas of biology and biochemistry.
UNIT II: Genetic Engineering	1) To introduce learners set of techniques related to genetic engineering.	1) The learners will get acquainted with the vast options of techniques used to manipulate genes.
	2) To acquaint them to procedures required to modify an organism's genome for producing novel genes.	2) The Learners will study techniques to modify an organism's genome to manufacture improved or novel genes and organisms.
UNIT III: Human genetics	1) To introduce learners to genetic manipulations significant in the study of human genetics.	1) The learners should understand genetic alterations in human genome and their diagnosis.
	2) To make them aware about the impact of changes taking place at gene level on human health.	2) The learners would become aware of the effects of changes occurring at genetic level on human health and its diagnosis.
UNIT IV: Bioinformatics	1) To introduce learners to the magnificent tool of bioinformatics.	1) The learner will be introduced to Bioinformatics which is a latest and ongoing research topic in today's world.
	2) To teach them about the computational approach to learn more about structure, organization and phylogeny of organism.	2) The learner will become aware of the computational tools, different websites, sequencing methods and predictive applications.



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SEM-VI

ZOOLOGY-IV

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Environmental Management	1) To introduce the learners to the concept of environmental management through detailed analysis of various causative agents of environmental degradation.	1) Learners will be able to understand different factors affecting our environment. In addition, they will learn various methods to improve environmental stewardship.
	2) To learn the impact of factors and overviewing the environment management laws.	2) The learners will understand the different factors affecting environment, its impact and environment management laws.
UNIT II: Wildlife Management	1) To sensitize learners regarding various threats to wildlife.	1) Learners will be studying various methods of wildlife conservation.
	2) To introduce learners various ways that can help in the protection, conservation, management and enhancement of wildlife populations.	2) Learners would be able to apply knowledge to overcome the issues related to wildlife conservation and their management.
UNIT III: Bio-prospecting and Zoo-pharmacognosy	1) To introduce learners to the concept of bioprospecting and zoopharmacognosy leading to the discovery and commercialization of new products.	1) Learners will be able to understand the paradigms of discovery and commercial utilization of biological resources and knowledge gained from self-medication observed in animals.
	2) To learn about various ways of self-medication in animals, throwing light on the significance of naturally available biological resources.	2) Learners will be studying various ethological aspects by which non-human animals apparently self-medicate themselves.
UNIT IV: Zoogeography	1) To introduce the learner about the geographic distribution of animal species.	1) Learners will be acquainted with many aspects of different animal species which are scattered around the globe.
	2) To teach learners various theories about animal distribution, barriers, dispersal patterns and zoogeographical realms	2) Learner will study geographic distribution with respect to present and past of animal species around the globe.

SEM-VI ZOOLOGY(APPLIED COMPONENT- FISHERY BIOLOGY)

SYLLABUS (UNIT WISE)	OBJECTIVES	OUTCOME
UNIT I: Marine Fin-fish of India	1) To study coastal and deep sea fishes.	1) Learner shall understand deep sea and coastal fishes.
	2) To study commercial potential and major landing centers.	2) Learner shall understand commercial potential and know about the major landing centres of the fishes.
UNIT II: Marine Shell of India	1) To develop an in-depth understanding of crustaceans and molluscan fisheries.	1) Learner shall understand crustacean and molluscan fisheries.



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	2) To study about performances of landing centers of various fisheries.	2) Learner shall understand the performance of landing centres of above fisheries.
UNIT III: Nutrition	1) To study and discover the growing market for fish nutrition.	1) Learner will get acquainted with basics of nutritional requirements at various developmental stages of crustaceans.
	2) To acquaint learners with different nutritional requirements of fishes at different stages.	2) Learner will study basics of nutritional requirements at different developmental stages of fishes.
UNIT IV: Diseases	1) To acquire knowledge of the various aspects of diseases affecting fishes.	1) Learners will get a chance to acquire knowledge of the various aspects of fish diseases.
	2) To give them an insight into the preventive measures and prophylaxis of fish related disorders.	2) Learners would be getting sound understanding of causes, pathogenicity, prophylaxis and preventive measures of various fish diseases and their physiological disorders.
UBIT V: Preservation and Processing	1) To derive knowledge about various fish preservation and processing methods.	1) Learners will acquire the knowledge and would put in to practice the preservation and processing techniques for commercial ventures
	2) To teach learners about various preservation and processing techniques for commercial centers.	2) Learners will derive knowledge about various fish preservation and various processing methods.
UNIT VI: By-products and Value Added Products	1) To acquire knowledge about fish by-products, value added products.	1) Learner will gain sound knowledge about the fish by-products and value-added products.
	2) To teach them about various good manufacturing practices.	2) Learner will explore good manufacturing practices while manufacturing these products
UNIT VII: Farm engineering	1) To acquire knowledge about farm engineering and novel fish culture practices.	1) Learner will understand the selection process of hatchery sites and various types of designs and construction of aquaculture farm practices.
	2) To teach learners about selection process of hatchery sites and various types of design of aquaculture farm.	2) Learners will comprehend the uses of equipment and accessories involved in aquaculture farms
UNIT VIII: Open unit	1) To teach any one of the units prescribed in the syllabus with more details and in depth knowledge leading to specialization in the capsule of units selected.	1) Learner to give scope to creativity and wisdom of a teacher who wants to deal with the latest developments in the subject without waiting for the university to revise the syllabus.
	2) To incorporate the topics of special need of the area which are otherwise not covered in the syllabus.	2) Learners to incorporate the topics of special need of the area which are otherwise not covered in the syllabus.