

DEPARTMENT OF ZOOLOGY
SYLLABUS (REGULAR)
Teacher-wise Topic Allocation

SEMESTER I

Name of Teacher	Paper	Unit/ Topic	Teaching Methodology
DR. SANDIP CHOUDHURY	CODE: ZOO-RC-1016 ANIMAL DIVERSITY	<p>Unit 1: Kingdom Protista</p> <ul style="list-style-type: none"> • General characters and classification up to classes • Locomotory Organelles and locomotion in Protozoa <p>Unit 2: Phylum Porifera</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Canal System in Sycon. <p>Unit 3: Phylum Cnidaria</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Polymorphism in Hydrozoa. <p>Unit 4: Phylum Platyhelminthes</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Life history of Taenia solium. <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration
JUNJUN BHUYAN	CODE: ZOO-RC-1016 ANIMAL DIVERSITY	<p>Unit 5: Phylum Nematelminthes</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Life history of Ascaris lumbricoides and its parasitic adaptations. <p>Unit 6: Phylum Annelida</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Metamerism in Annelida. <p>Unit 7: Phylum Arthropoda</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Vision in Arthropoda, Metamorphosis in Insects. <p>Unit 8: Phylum Mollusca</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Torsion in gastropods. 	Explanation, Discussion using Greenboard, Powerpoint Presentation.

NEERAJ BORAH	CODE: ZOO-RC-1016 ANIMAL DIVERSITY	<p>Unit 9: Phylum Echinodermata</p> <ul style="list-style-type: none"> • General characters and classification up to classes. • Water-vascular system in Asteroidea. <p>Unit 10: Protochordates</p> <ul style="list-style-type: none"> • General features and Phylogeny of Protochordata. <p>Unit 11: Agnatha</p> <ul style="list-style-type: none"> • General features of Agnatha and classification of cyclostomes up to classes. <p>Unit 12: Pisces</p> <ul style="list-style-type: none"> • General features and Classification up to orders. • Osmoregulation in Fishes. <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RC-1016 ANIMAL DIVERSITY	<p>Unit13: Amphibia</p> <ul style="list-style-type: none"> • General features and Classification to orders. • Parental care. <p>Unit14: Reptiles</p> <ul style="list-style-type: none"> • General features and Classification up to orders. • Poisonous and non-poisonous snakes, Biting mechanism in snakes. <p>Unit15: Aves</p> <ul style="list-style-type: none"> • General features and Classification up to orders. • Flight adaptations in birds. <p>Unit16: Mammals</p> <ul style="list-style-type: none"> • Classification up to orders. • Origin of mammals 	Explanation, Discussion using Greenboard, Powerpoint Presentation.

SEMESTER II

NAME OF TEACHERS	PAPER	UNIT/TOPIC	TEACHING METHODOLOGY
Dr. SANDIP CHOUDHURY	CODE: ZOO-RC-2016 COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES	Unit 1: Integumentary System <ul style="list-style-type: none"> Derivatives of integument w.r.t. glands and digital tips. Unit 2: Skeletal System <ul style="list-style-type: none"> Evolution of visceral arches. Unit 3: Digestive System <ul style="list-style-type: none"> Brief account of alimentary canal and digestive glands. Practical	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration
JUNJUN BHUYAN	CODE: ZOO-RC-2016 COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES	Unit 4: Respiratory System <ul style="list-style-type: none"> Brief account of Gills, lungs, air sacs and swim bladder. Unit 5: Circulatory System <ul style="list-style-type: none"> Evolution of heart and aortic arches. Unit 6: Urinogenital System <ul style="list-style-type: none"> Succession of kidney, Evolution of urinogenital ducts. 	Explanation, discussion, Greenboard, Powerpoint Presentation.
NEERAJ BORAH	CODE: ZOO-RC-2016 COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES	Unit 7: Nervous System <ul style="list-style-type: none"> Comparative account of brain. Unit 8: Sense Organs <ul style="list-style-type: none"> Types of receptors. Unit 11: Control of Development <ul style="list-style-type: none"> Fundamental processes in development (brief idea) – Gene activation, determination, induction, Differentiation, morphogenesis, intercellular communication, cell movements and cell death. Practical	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RC-2016 COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES	Unit 9: Early Embryonic Development <ul style="list-style-type: none"> Gametogenesis: Spermatogenesis and oogenesis w.r.t. mammals, vitellogenesis in birds. 	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.

		<ul style="list-style-type: none"> • Fertilization: external (amphibians), internal (mammals), blocks to polyspermy. • Early development of frog and humans (structure of mature egg and its membranes, patterns of cleavage, fate map, up to formation of gastrula). • Types of morphogenetic movements. • Fate of germ layers; Neurulation in frog embryo. <p>Unit 10: Late Embryonic Development</p> <ul style="list-style-type: none"> • Implantation of embryo in humans, Formation of human placenta and functions, other types of placenta on the basis of histology. • Metamorphic events in frog life cycle and its hormonal regulation. <p>Practical</p>	
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SEMESTER III

Name of Teacher	Paper	Unit/ Topic	Teaching Methodology
Dr. SANDIP CHOUDHURY	CODE: ZOO-RC-3016 PHYSIOLOGY AND BIOCHEMISTRY	<p>Unit 1: Nerve and muscle</p> <ul style="list-style-type: none"> • Structure of a neuron, Resting membrane potential, Graded potential, Origin of Action potential and its propagation in myelinated and non-myelinated nerve fibres, Ultra-structure of skeletal muscle, Molecular and chemical basis of muscle contraction. <p>Unit2: Digestion</p> <ul style="list-style-type: none"> • Physiology of digestion in the alimentary canal. • Absorption of carbohydrates, proteins, lipids. <p>Unit3: Respiration</p> <ul style="list-style-type: none"> • Pulmonary ventilation, Respiratory volumes and capacities, Transport of Oxygen and carbon dioxide in blood. <p>Unit7: Carbohydrate Metabolism</p> <ul style="list-style-type: none"> • Glycolysis, Krebs Cycle, Pentose phosphate pathway, Gluconeogenesis, metabolism, Review of electron transport chain. <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration
JUNJUN BHUYAN	CODE: ZOO-RC-3016 PHYSIOLOGY AND BIOCHEMISTRY	<p>Unit 4: Excretion</p> <ul style="list-style-type: none"> • Structure of nephron, Mechanism of Urine formation, Counter-current Mechanism. <p>Unit 5: Cardiovascular system</p> <ul style="list-style-type: none"> • Composition of blood, Hemostasis, Structure of Heart, Origin and conduction of the cardiac impulse, Cardiac cycle. <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.
NEERAJ BORA	CODE: ZOO-RC-3016 PHYSIOLOGY AND BIOCHEMISTRY	<p>Unit 6: Reproduction and Endocrine Glands</p> <ul style="list-style-type: none"> • Physiology of male reproduction: hormonal control of spermatogenesis. • Physiology of female reproduction: hormonal control of menstrual cycle. • Structure and function of pituitary, thyroid, Parathyroid, pancreas and 	Explanation, Discussion using Greenboard, Powerpoint Presentation.

		adrenal.	
	ZOO-SE-3014 Ornamental Fish & Fisheries CODE: ZOO-SE-3014	1. Ornamental Fish Diversity of North East India. 2. Aquarium plant diversity in the wetland of Assam. 3. Construction and management of Home Aquarium. 4. Natural feed of Ornamental Fish 5. Strategies for maintenance of natural colour of Ornamental Fish 6. Natural Breeding of Tricogaster species	
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RC-3016 PHYSIOLOGY AND BIOCHEMISTRY	Unit 8: Lipid Metabolism <ul style="list-style-type: none"> Biosynthesis and β oxidation of palmitic acid. Unit 9: Protein metabolism <ul style="list-style-type: none"> Transamination, Deamination and Urea Cycle. Unit 10: Enzymes <ul style="list-style-type: none"> Introduction, Mechanism of action, Enzyme Kinetics, Inhibition and Regulation. 	Explanation, Discussion using Greenboard, Powerpoint Presentation.
	ZOO-SE-3014 Ornamental Fish & Fisheries CODE: ZOO-SE-3014	7. Health management of Ornamental Fish 8. Feed formulation of Ornamental Fish 9. Development of Biological filtration in Aquarium 10. Pure culture of planktons	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration

SEMESTER IV

Name of Teacher	Paper	Unit/Topic	Teaching Methodology
Dr. SANDIP CHOUDHURY	CODE: ZOO-RC-4016 GENETICS AND EVOLUTIONARY BIOLOGY	<p>Unit 1: Introduction to Genetics</p> <ul style="list-style-type: none"> Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information. <p>Unit 2: Mendelian Genetics and its Extension</p> <ul style="list-style-type: none"> Principles of Inheritance, Chromosome theory of inheritance, Incomplete dominance and codominance, Multiple alleles, Lethal alleles, Epistasis, Pleiotropy, sex linked inheritance, extra-chromosomal inheritance. <p>Unit 3: Linkage, Crossing Over and Chromosomal Mapping</p> <ul style="list-style-type: none"> Linkage and crossing over, Recombination frequency as a measure of linkage intensity, two factor and three factor crosses, Interference and coincidence, Somatic cell genetics - an alternative approach to gene mapping. <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.
JUNJUN BHUYAN	CODE: ZOO-RC-4016 GENETICS AND EVOLUTIONARY BIOLOGY	<p>Unit4: Mutations</p> <ul style="list-style-type: none"> Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy; Gene mutations: Induced versus Spontaneous mutations, Back versus Suppressor mutations. <p>Unit 5: Sex Determination</p> <ul style="list-style-type: none"> Chromosomal mechanisms, dosage compensation. <p>Unit 6: History of Life</p> <ul style="list-style-type: none"> Major Events in History of Life. 	Explanation, discussion, Greenboard, Powerpoint Presentation.
NEERAJ BORAH	CODE: ZOO-RC-4016 GENETICS AND EVOLUTIONARY BIOLOGY	<p>Unit 7: Introduction to Evolutionary Theories</p> <ul style="list-style-type: none"> Lamarckism, Darwinism, Neo-Darwinism. <p>Unit 8: Direct Evidences of Evolution</p> <ul style="list-style-type: none"> Types of fossils, Incompleteness of fossil record, Dating of fossils, Phylogeny of horse. <p>Unit 9: Processes of Evolutionary Change</p> <ul style="list-style-type: none"> Organic variations. 	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration

		<ul style="list-style-type: none"> Isolating Mechanisms; Natural selection (Example: Industrial melanism) Types of natural selection (Directional, Stabilizing, Disruptive), Artificial selection. <p>Practical</p>	
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RC-4016 GENETICS AND EVOLUTIONARY BIOLOGY	<p>Unit 10: Species Concept</p> <ul style="list-style-type: none"> Biological species concept (Advantages and Limitations); Modes of speciation (Allopatric, Sympatric). <p>Unit11:Macro-evolution</p> <ul style="list-style-type: none"> Macro-evolutionary Principles (example: Darwin's Finches). <p>Unit 12: Extinction</p> <ul style="list-style-type: none"> Mass extinction (Causes, Names of five major extinctions, K-T extinction in detail), Role of extinction in evolution <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration

SEMESTER V

Name of Teacher	Paper	Unit/ Topic	Teaching Methodology
Dr. SANDIP CHOUDHURY	CODE: ZOO-RE-5016 ANIMAL BIOTECHNOLOGY	<p>Unit 1: Introduction</p> <ul style="list-style-type: none"> Concept and scope of biotechnology. <p>Unit 2: Molecular Techniques in Gene manipulation</p> <ul style="list-style-type: none"> Cloning vectors: Plasmids, Cosmids, Phagemids, Lambda Bacteriophage, M13, BAC, YAC, MAC and Expression vectors (characteristics) Restriction enzymes: Nomenclature, detailed study of Type II. Transformation techniques: Calcium chloride method and electroporation. Construction of genomic and cDNA libraries and screening by colony and plaque hybridization Southern, Northern and Western blotting. DNA sequencing: Sanger method Polymerase Chain Reaction. DNA Finger Printing and DNA micro array. <p>Unit 3: Genetically Modified Organisms</p> <ul style="list-style-type: none"> Production of cloned and transgenic 	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration

	<p>CODE: ZOO-RE-5026 APPLIED ZOOLOGY</p>	<p>animals: Nuclear Transplantation, Retroviral Method, DNA microinjection .</p> <ul style="list-style-type: none"> • Applications of transgenic animals: Production of pharmaceuticals, production of donor organs, knock out mice. • Production of transgenic plants: Agrobacterium mediated transformation. • Applications of transgenic plants: insect and herbicide resistant plants. <p>Practical</p> <p>Unit 1: Introduction to Host-parasite Relationship</p> <ul style="list-style-type: none"> • Host, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis. <p>Unit 2: Epidemiology of Diseases</p> <ul style="list-style-type: none"> • Transmission, Prevention and control of diseases: Tuberculosis, typhoid. 	
	<p>NON MULBERRY SERICULTURE CODE: ZOO-SE-5014</p>	<p>Unit 1: Introduction Sericulture:</p> <ul style="list-style-type: none"> • Definition, history and present status of Mulberry and Non-Mulberry Sericulture; Silk route Varieties of Silk; Types and distribution of non-mulberry or wild or vanyasericigenous insects in N-E India 	<p>Explanation, Discussion using Greenboard, Powerpoint Presentation.</p>
<p>JUNJUN BHUYAN</p>	<p>CODE: ZOO-RE-5026 APPLIED ZOOLOGY</p>	<p>Unit 3: Rickettsiae and Spirochaetes</p> <ul style="list-style-type: none"> • Brief account of <i>Rickettsia prowazekii</i>, <i>Borrelia currentis</i> and <i>Treponema pallidum</i>. <p>Unit 4: Parasitic Protozoa</p> <ul style="list-style-type: none"> • Life history and pathogenicity of <i>Entamoeba histolytica</i>, <i>Plasmodium vivax</i> and <i>Trypanosoma gambiense</i>. <p>Unit 5: Parasitic Helminthes</p> <ul style="list-style-type: none"> • Life history and pathogenicity of <i>Ancylostoma duodenale</i> and <i>Wuchereria bancrofti</i>. 	<p>Explanation, Discussion using Greenboard, Powerpoint Presentation.</p>
<p>NEERAJ BORAH</p>	<p>CODE: ZOO-RE-5026 APPLIED</p>	<p>Unit 6: Insects of Economic Importance</p> <ul style="list-style-type: none"> • Biology, Control and damage caused by <i>Helicoverpa armigera</i>, 	<p>Explanation, discussion, Greenboard,</p>

	ZOOLOGY	<p><i>Pyrrilla</i> <i>pusilla</i> and <i>Papilio demoleus</i>, <i>Callosobruchus chinensis</i>, <i>Sitophilus oryzae</i> and <i>Tribolium castaneum</i>.</p> <p>Unit 7: Insects of Medical Importance</p> <ul style="list-style-type: none"> • Medical importance and control of <i>Pediculus humanus corporis</i>, <i>Anopheles</i>, <i>Culex</i>, <i>Aedes</i>, <i>Xenopsyllacheopsis</i>. <p>Unit 8: Animal Husbandry</p> <ul style="list-style-type: none"> • Preservation and artificial insemination in cattle. • Induction of early puberty and synchronization of estrus in cattle. <p>Practical</p>	Powerpoint Presentation. Demonstration.
	NON MULBERRY SERICULTURE CODE: ZOO-SE-5014	<p>Unit 2: Biology of Non-mulberry Silkworm:</p> <ul style="list-style-type: none"> • Life cycle of silkworm- Eri and Muga Structure of silk gland and Nature of Silk <p>Unit 3: Rearing of Silkworms (Eri and Muga Silkworm):</p> <ul style="list-style-type: none"> • Food plants of Eri and Muga Silkworm Rearing Operation: Rearing house/Site and rearing appliances Disinfectants: Formalin, bleaching powder Rearing technology: Early age and Late age rearing Environmental conditions in rearing-Temperature, Humidity, Light and Air Types of mountages Harvesting and storage of cocoons Spinning and Reeling of silk 	Explanation, Discussion using Greenboard, Powerpoint Presentation.
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RE-5016 ANIMAL BIOTECHNOLOGY CODE: ZOO-RE-5026 APPLIED ZOOLOGY	<p>Unit 4: Culture Techniques and Applications</p> <ul style="list-style-type: none"> • Animal cell culture, Expressing cloned genes in mammalian cells. • Molecular diagnosis of genetic diseases (Cystic fibrosis, Sickle cell anemia). • Recombinant DNA in medicines: Recombinant insulin and human growth hormone, Gene therapy <p>Unit 9: Poultry Farming</p> <ul style="list-style-type: none"> • Principles of poultry breeding, Management of breeding stock and broilers, Processing and preservation of eggs. 	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.

		<p>Unit 10: Fish Technology</p> <ul style="list-style-type: none"> Genetic improvements in aquaculture industry. Induced breeding and transportation of fish seed. <p>Practical</p>	
	<p>NON MULBERRY SERICULTURE CODE: ZOO-SE-5014</p>	<p>Unit 4: Pests and Diseases:</p> <ul style="list-style-type: none"> Pests of Eri and Muga silkworm <p>Pathogenesis of Eri and Muga silkworm diseases: Protozoan, viral, fungal and bacterial Prevention and control measures of pests and diseases</p> <p>Unit 5: Entrepreneurship in Non-Mulberry Sericulture: Varieties of Non-Mulberry Silk products and economics in India Prospectus of Non-Mulberry Sericulture in India: Non-Mulberry Sericulture industry in different states, employment generation and potential Visit to various sericulture Govt. /Private Farm/ Centers</p>	<p>Explanation, Discussion using Greenboard, Powerpoint Presentation.</p>

SEMESTER VI

Name of Teacher	Paper	Unit/Topic	Teaching Methodology
Dr. SANDIP CHOUDHURY	<p>CODE: ZOO-RE-6016 AQUATIC BIOLOGY</p>	<p>UNIT 1: Aquatic Biomes</p> <ul style="list-style-type: none"> Brief introduction of the aquatic biomes: Freshwater ecosystem (lakes, wetlands, streams and rivers), estuaries, intertidal zones, oceanic pelagic zone, marine benthic zone and coral reefs. 	<p>Explanation, discussion, Greenboard, Powerpoint Presentation.</p> <p>Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration</p>
	<p>CODE: ZOO-RE-6026 INSECT, VECTORS AND DISEASES</p>	<p>Unit I: Introduction to Insects</p> <ul style="list-style-type: none"> General Features of Insects, Morphological features, Head – Eyes, Types of antennae, Mouth parts w.r.t. feeding habits <p>Unit II: Concept of Vectors</p> <ul style="list-style-type: none"> Brief introduction of Carrier and Vectors (mechanical and biological vector), Reservoirs, Host-vector relationship, Vectorial capacity, Adaptations as vectors, Host Specificity. <p>Unit III: Insects as Vectors</p> <ul style="list-style-type: none"> Classification of insects up to orders, detailed features of orders 	

		<p>with insects as vectors – Diptera, Siphonaptera, Siphunculata, Hemiptera</p> <p>Unit IV: Dipteran as Disease Vectors</p> <ul style="list-style-type: none"> • Dipterans as important insect vectors – Mosquitoes, Sand fly, Houseflies. • Study of mosquito-borne diseases – Malaria, Dengue, Chikungunya, Viral encephalitis, Filariasis. • Control of mosquitoes Study of sand fly-borne diseases – Visceral Leishmaniasis, Cutaneous Leishmaniasis, Phlebotomus fever. • Control of Sand fly Study of house fly as important mechanical vector, Myiasis, Control of house fly <p>Practical</p>	
JUNJUN BHUYAN	CODE: ZOO-RE-6026 INSECT, VECTORS AND DISEASES	<p>Unit IV: Siphonaptera as Disease Vectors</p> <ul style="list-style-type: none"> • Fleas as important insect vectors. • Host-specificity, Study of Flea-borne diseases– Plague, Typhus fever. • Control off leas. <p>Unit V: Siphunculata as Disease Vectors</p> <ul style="list-style-type: none"> • Human louse (Head, Body and Pubic louse) as important insect vectors. • Study of louse-borne diseases – Typhus fever, Relapsing fever, Trench fever, Vagabond’s disease, Phthiriasis. • Control of human louse <p>Unit VI: Hemiptera as Disease Vectors</p> <ul style="list-style-type: none"> • Bugs as insect vectors; Blood-sucking bugs. • Chagas disease, Bed bugs as mechanical vectors, Control and prevention measures <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration
NEERAJ BORA	CODE: ZOO-SE-6014 WILDLIFE PHOTOGRAPHY AND ECOTOURISM	<p>Unit I: Tools and Techniques of Photography</p> <ul style="list-style-type: none"> • Introduction to photography • Still and video photography • To develop expertise in photography • Field trips in photography in different periods 	Explanation, discussion, field visits.

		<ul style="list-style-type: none"> • Methods of documentation • Practical <p>Unit 2: Eco-tourism</p> <ul style="list-style-type: none"> • Introduction to Ecotourism • Scope of ecotourism with special reference to North East india • Management of Ecotourism and hospitality • Development of eco-tourism with innovative Eco-restoration ideas • Practical 	
SANGHAMITRA BURAGOHAIN	CODE: ZOO-RE- 6016 AQUATIC BIOLOGY	<p>UNIT 2: Freshwater Biology</p> <ul style="list-style-type: none"> • Lakes: Origin and classification, Lake as an Ecosystem, Lake morphometry. • Physico–chemical Characteristics: Light, Temperature, Thermal stratification, Dissolved Solids, Carbonate, Bicarbonates, Phosphates and Nitrates, Turbidity; dissolved gases (Oxygen, Carbon dioxide). • Nutrient Cycles in Lakes-Nitrogen, Sulphur and Phosphorous. • Streams: Different stages of stream development, Physico-chemical environment, Adaptation of hill-streamfishes. <p>UNIT 3: Marine Biology</p> <ul style="list-style-type: none"> • Salinity and density of Sea water, Continental shelf, Adaptations of deep sea organisms, Coral reefs, Sea weeds. <p>UNIT 4: Management of Aquatic Resources</p> <ul style="list-style-type: none"> • Causes of pollution: Agricultural, Industrial, Sewage, Thermal and Oil spills, Eutrophication, • Management and conservation (legislations). • Sewage treatment Water quality assessment- BOD and COD <p>Practical</p>	Explanation, discussion, Greenboard, Powerpoint Presentation. Demonstration.