

E.M. GOPALAKRISHNA KONE YADAVA WOMEN'S COLLEGE
An Autonomous Institution -Affiliated to Madurai Kamaraj University
Re-accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC



LESSON PLAN
2021-2022

DEPARTMENT OF ZOOLOGY
(UG – Odd & Even Semester)

- 1) B.Sc. Zoology Major
- 2) Allied Chemistry
- 3) Allied Botany

DEPARTMENT OF ZOOLOGY
2021-2022
ODD & EVEN SEMESTERS




E.M.GOPALAKRISHNAKONEYADAV WOMEN'S COLLEGE
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LESSON PLAN

2021-2022

Class : III B.Sc Zoology
 Sem : V
 Sub. Code : 174EV5
 Title : Environmental Studies
 Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|---------------------|-----------------|---|--------------------------|
| July | I | Unit : I Natural Resources - Water Renewable Resources - Forest Resources - Soil Resources - Food Resources - Energy Resources - Non Renewable Resources. | III B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Aug | II | Unit : II Eco System - Structure of an Eco system Abiotic Components - Biotic Components - Functional Components - Food Chain - Energy Flow - Biogeochemical Cycles - Types of Eco System - Types of Aquatic Ecosystem - Pond Ecosystem - Grassland Ecosystem - Desert Ecosystem. | III B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Sep | III | Unit : III Biodiversity and Conservation : - What is Biodiversity - Levels of Biodiversity - Values of Biodiversity - Consumptive use value - Social benefits - Cultural Values - India as a Mega Diversity Nation - Conservation and its significance. | III B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Oct | IV | Unit : IV | III B.Sc | 6 | Online teaching | |

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|--|---|---|-------------------|---|-------------------------------------|---|
| | | only. General topic: Sepia is an advanced mollusc. | | | | |
| | V | ECHINODERMATA :General characters and classification of Echinodermata upto class level with one example. Type study: <i>Asterias rubens</i> - External morphology - Pedicellaria - Water Vascular System - Reproductive System. General topic: Larval forms of Echinoderms and their phylogenetic significance. | I B.Sc Zoology | 7 | Online teaching through Google Meet |  |


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LESSON PLAN

2021-2022

Class : III B.Sc Zoology

Sem : V

Sub. Code : 17SEZ51


Title : Biostatistics

Total Hours :30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|------------------|-----------------|-------------------------------------|--------------------------|
| July | I | Unit - I: Basic concepts in Biostatistics - Collection of Data-Editing, presentation, Analysis and interpretations of data collection - sampling. | III B.Sc Zoology | 6 | Online teaching through Google Meet | R.S.P. |
| Aug | II | Unit- II Classification and Tabulation of data. - Diagrammatic presentation of data - Graphic presentation of data. | III B.Sc Zoology | 6 | Online teaching through Google Meet | R.S.P. |
| Sep | III | Unit -III Measures of Central tendency - Mean, Median, and Mode (individual series and continuous series) - Related Problems. | III B.Sc Zoology | 6 | Online teaching through Google Meet | R.S.P. |
| Oct | IV | Unit-IV Measures of Dispersion - Range, Standard Deviation, Variance, Standard Error-Related Problems. | III B.Sc Zoology | 6 | Online teaching through Google Meet | R.S.P. |

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|-----|---|--|---------------------|---|---|--|
| | | Pollution :- Types of Pollutants - Types of Pollution - Air Pollution - Water Pollution - Thermal Pollution - Marine Pollution - Soil Pollution - Control Measures - Noise Pollution - Radiation Pollution. | Zoology | | through Google Meet | |
| Nov | V | Unit :V Environmental Ethics and Social Issues : Attitudes of Major Religions towards the Environment - Human Population and Environment - Globalisation and the Environment - Global Environmental Issues - Alternative Lifestyles - Role of Individuals, Organisations and Government in protecting the Environment. | III B.Sc Zoology | 6 | Online teaching through Google Meet | |

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Signature of the Head


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LESSON PLAN 2021-2022

Class : III B.Sc Zoology

Sem : V

Sub. Code : 17Z62P

Title : Lab in Physiology, Microbiology & Immunology and Biotechnology

Total Hours :60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------------------|--------------------------|
| July | | Animal Physiology: 1. Estimation of oxygen consumption by fish 2. Haemoglobinometer | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Aug | II | Microbiology: 3. Media preparation – Agar plate method. 4. Structure of Bacteria, HIV, TMV and Algae. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Sep | III | Immunology: 1. Histology of Bone marrow, Bursa fabricus, Spleen, Thymus 2. ABO blood groups & Rh factor | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Oct | IV | Biotechnology: 1. Transgenic fish & mice 2. Super bug – Pseudomonas putida | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Nov | V | 3. pBR 322 | III B.Sc Zoology | 12 | Online teaching through Google Meet | |

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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : V

Sub. Code : 17Z61P

Title of the Paper: Lab in Genetics, Ecology & Evolution and Biochemistry

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------------------|--------------------------|
| July | I | Genetics: 1. Observation of simple Mendelian Traits in Man. 2. Study of probability with two coins using tossing experiments. | III B.Sc Zoology | 12 | Online teaching through Google Meet | R.S.N |
| Aug | II | Ecology 1. Detection of Transparency of water by Secchi disc. 3. Observation of Animal association, symbiosis parasitism, predation and commensalism. | III B.Sc Zoology | 12 | Online teaching through Google Meet | R.S.N |
| Sep | III | Evolution: 1. Variations - finger prints. 2. Homologous & Analogous organs. 3. Vestigial organs. | III B.Sc Zoology | 12 | Online teaching through Google Meet | R.S.N |
| Oct | IV | Bio Chemistry: 1.Principle and pH Measurements of various samples using pH meter. | III B.Sc Zoology | 12 | Online teaching through Google Meet | R.S.N |
| Nov | V | 4. Principle and Electrophoresis-demonstration (PAGE). | III B.Sc Zoology | 12 | Online teaching through Google Meet | R.S.N |

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|-----|----|---|------------------|----|-------------------------------------|------------|
| Oct | IV | Enzymes: classification, physico-chemical nature and mechanism of enzyme action, factors affecting enzyme activity-role of coenzymes and enzymes. | III B.Sc Zoology | 6 | Online teaching through Google Meet | <i>MAR</i> |
| Nov | V | Bio-chemical techniques, Principle and biological application of Paper chromatography and Electrophoresis (PAGE only), pH meter, Spectro photometry | III B.Sc Zoology | 12 | Online teaching through Google Meet | <i>MAR</i> |

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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : V

Sub. Code : 17ZE5B

Title of the Paper: Biochemistry

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------------------|--------------------------|
| July | I | Carbohydrates: classification and biological importance - carbohydrate metabolism - Glycogenesis , Glycolysis , Citric acid cycle and Hexose Monophosphate Shunt . | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Aug | II | Amino acid structure and classification , Protein - structure, classification and biological importance- Transamination , Decarboxylation, Transamination, Transmethylation, Urea cycle. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Sep | III | Lipids: Classification and structure of cholesterol- β -oxidation of fatty acids - Biological importance of lipids- biosynthesis of fattyacids. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |

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| Oct | IV | Evidences of Evolution : Brief account on morphological , comparative anatomy Embryological,physiological and Biochemical evidences. Homology & Analogy(example-forelimbs), Vestigial organ- (Vermiform appendix, Plica semilunaris), | III B.Sc Zoology | 6 | Online teaching through Google Meet R.S. Ravi |
| | IV | Fossil evidence -Archaeopteryx .Lamarckism , Darwinism,Neo-Darwinism - Mimicry - Batesian and Mullerian Mimicry. | | 6 | Online teaching through Google Meet R.S. Ravi |
| Nov | V | Hardy Weinberg law & its Significance- . Factors affecting gene equilibrium- Natural selection - Isolating mechanisms- Speciation - Allopatric & Sympatric speciation - Human evolution - Physical and cultural Evolution. | III B.Sc Zoology | 12 | Online teaching through Google Meet R.S. Ravi |

G. Indira Kumari
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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : V

Sub. Code : 17ZE5A

Title of the Paper: Ecology & Evolution

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------------------|--------------------------|
| July | I | Ecosystem: Pond as an ecosystem - food chain and its types. Food web -ecological pyramids Light as a limiting factor – Effects of light on metabolism and reproduction. Temperature as a limiting factor .Effects of light on metabolism and morphology. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Aug | II | Terrestrial habitat- grass land, fresh water & marine habitat : Characteristics, stratification, deep sea adaptations. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Sep | III | Characteristics of Community Ecology. Ecotone and edge effect. Ecological niche, equivalence, ecotypes and ecological succession. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |

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|-----|---|---|------------------|----|-------------------------------------|----|
| | | Aneuploidy, In born errors of metabolism - phenylketoneuria-Parkinson's disease | | | | |
| Nov | V | Microbial and Population genetics : Microbial genetics- Recombination in bacteria: Transformation- Griffith experiment, Conjugation- F Factor, H Factor, Sexduction, Transduction- Hershey and Chase experiment- Plasmids and episomes. Population genetics - Hardy Weinberg law, Gene pool and gene frequency, significance and applications | III B.Sc Zoology | 12 | Online teaching through Google Meet | 26 |

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2021-2022

Class : III B.Sc Zoology
Sem : V
Sub. Code : 17Z51
Title of the Paper: Genetics
Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------------------|--------------------------|
| July | I | Introduction to Genetics History of Genetics, General areas of Genetics (Classical, Molecular & Evolutionary) ,Basis of Mendelian Inheritance and Mendelian laws, Interaction of Gene - Complementary Factors, Supplementary Factor, Simple mendelian traits in man | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Aug | II | Linkage and Crossing over - Drosophila-Morgan's experiments - Complete and Incomplete linkage, Linkage groups, Crossing over types, Mechanisms - Cytological evidence for Crossing over- Blood Groups and their inheritance in Human | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Sep | III | Sex Determination and Sex Linked Inheritance: Sex Determination in Man, Sex influenced and Sex limited genes - Non Disjunction and Gynandromorphs - Cytoplasmic inheritance - Maternal effect on <i>Limnaea</i> (Shell Coiling), Kappa Particles in <i>Paramecium</i> , Sex Linked Inheritance- Colour Blindness and Haemophilia in Man. | III B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Oct | IV | Chromosomal aberrations :Mutation-Molecular Basis of Mutation, Types of Mutation, Mutagens, Mutable and Mutator genes, Chromosomal Aberrations-Autoploidy and | III B.Sc Zoology | 12 | Online teaching through Google Meet | |



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LESSON PLAN
2021-2022

Class : II B.Sc Zoology

Sem : III

Sub. Code : 17Z4P

Title of the Paper: Lab in Cell and Molecular Biology, Developmental Biology

Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|-----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Cell Biology: 1.Mitosis in Onion Root tip cells | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Ravi |
| Aug | II | 4.Preparation of Squamous Epithelium and Human Blood Smear. 5.Sketch of organelles Electron Micrograph of | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Ravi |
| Sep | III | Molecular Biology: Preparation and Identification of Barr body in Squamous Epithelial cells from Buccal cavity | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Ravi |
| Oct | IV | Developmental Biology: 1. Structure of Egg and Sperm. | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Ravi |
| Nov | V | 4.Mammalian Placenta. (Pig and Sheep) 5. Teratology-Abnormal embryos. | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Ravi |

G. Indranil
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R. S. Ravi
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|-----|----|--|--------------------|----|---|-------------------|
| Oct | IV | Structure of nucleic acids-DNA-RNA- Replication ,Repair of DNA, photo re-activation- incision repair-Modern concept of genes: Cistron-Recon - Muton - Genetic code- mutation at molecular level- Frame shift mutation- base analogues - Control of gene expression- Lac operon. | II B.Sc Zoology | 12 | Online teaching through Google Meet | R.S. Ravi H.S. |
| Nov | V | Ribosomes-Structure -Central dogma of Protein synthesis- Transcription - Translation - Post translational processes. | II B.Sc Zoology | 12 | Online teaching through Google Meet | R.S. Ravi H.S. |

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LESSON PLAN

2021-2022

Class : II B.Sc Zoology

Sem : III

Sub. Code : 17 Z31

Title of the Paper: Cell and Molecular Biology

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|-----------------|-----------------|-------------------------------------|----------------------------|
| July | I | Microscopy – Study of Compound and Electron Microscope -Ultra structure of Prokaryotic and Eukaryotic cells- | II B.Sc Zoology | 6 | Online teaching through Google Meet | R.S. Rajalakshmi |
| July | I | Protoplasm : Physical & Biological properties-Plasma membrane - ultra structure and functions. | II B.Sc Zoology | 6 | Online teaching through Google Meet | M.H. ✓ |
| Aug | II | Ultra structure and functions of Mitochondria - Endoplasmic reticulum – Lysosome-Golgi body- Nucleus – Nucleolus. | II B.Sc Zoology | 12 | Online teaching through Google Meet | R.S. Rajalakshmi M.H. ✓ |
| Sep | III | Chromosomes - Structure- types and functions,-Cell division - Cell cycle- Mitosis and Meiosis, Significance of Meiosis - Mitotic apparatus and Synaptonemal complex.Cancer cells- Characteristics of cancer cells, Aging and Stem cells. | II B.Sc Zoology | 12 | Online teaching through Google Meet | R.S. Rajalakshmi M.H. ✓ |

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LESSON PLAN
2021-2022

Class : I B.Sc Zoology

Sem : I

Sub. Code : 21Z2P

Title of the Paper: Lab in Invertebrata & Chordata

Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Cockroach - Digestive System & Earthworm - Nervous system Spotters: Protozoa: Paramecium conjugation, Entamoeba | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Aug | II | Cockroach - Reproductive System Coelenterata: Physalia and Aurelia Porifer: Spicules and gemmules, Calotes - Arterial system | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Sep | III | Rabbit - Reproductive System Spotters: Platyhelminthes: Taenia solium, Liver fluke entire Annelida: Chaetopterus and Heteroneries Arthropoda Peripatus and Sauculina. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Oct | IV | Earthworm -Body Setae Mollusca: Nautilus and Chiton. Prochordata: Amphioxus, Balanoglossus and Ascidian | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Nov | V | House Fly- Mouth Parts Agnatha: Petromyzon Pisces : Echinels and Hippocampus | I B.Sc Zoology | 6 | Online teaching through Google Meet | |

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LESSON PLAN

2021-2022

Class : I B.Sc Zoology

Sem : I

Sub. Code : 21NMZ1

Title of the Paper: Medical Microbiology

Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Protozoan diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Malaria 2. Amoebiasis | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Aug | II | Fungal diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Candidiasis 2. Mycetoma (Madurai Foot) | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Sep | III | Bacterial diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Tuberculosis (airborne) 2. Syphilis (contagious) | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Oct | IV | Viral diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Bird flu 2. Polio | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Nov | V | Insect-borne diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Chikungunya 2. Dengue fever | I B.Sc Zoology | 6 | Online teaching through Google Meet | |

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LESSON PLAN
2021-2022

Class : I B.Sc Zoology
Sem : I
Sub. Code : 21SEZ12
Title of the Paper: Aquaculture
Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Introduction -Need and scope of aquaculture- Aquaculture potentials of India - Inland Fishery resources- cultivable fishes. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Aug | II | Monoculture – poly culture- pen culture – cage culture – Raft culture – its problems – Integrated fish farming- paddy cum fish culture and salt cum shrimp culture. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Sep | III | Predators – control measures – Aquatic weeds and their control measures – Types of fishing nets – Marketing. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Oct | IV | Pearl oyster culture – pearl formation. Mass culture of live feed Artemia, Algae, Spirulina and Daphnia. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |
| Nov | V | Prawn culture (fresh water) – hatchery stocking density – fresh water fish farming – selection of pond, construction, water quality management – conditioning the pond. | I B.Sc Zoology | 6 | Online teaching through Google Meet | |

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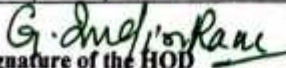


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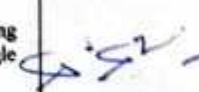

Class : I B.Sc Zoology
Sem : I
Sub. Code : 21SEZ11
Title of the Paper: Computer application
Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|----------------|-----------------|-------------------------------------|---|
| July | I | Introduction to Computer - Block diagram- Characteristics of computer- Generations of computer - Hardware components of computer. | I B.Sc Zoology | 6 | Online teaching through Google Meet |  |
| Aug | II | Computer and communication- types - needs - communication media- Network topologies. | I B.Sc Zoology | 6 | Online teaching through Google Meet |  |
| Sep | III | MS Word-Word basic - Starting Word - Creating document - Key board operation - Mouse operation - Menu - File Menu - Editing Menu - Tool Bars and their icons - Drawing tool bar - Closing and opening the document. | I B.Sc Zoology | 6 | Online teaching through Google Meet |  |
| Oct | IV | MS Excel - Selecting the cells - Entering the formulae - Entering data - Alignment - Format tool bar - Data menu - Inserting rows and columns. | I B.Sc Zoology | 6 | Online teaching through Google Meet |  |
| Nov | V | MS. Powerpoint - View menu - Slide show - Tool menu - Create a new slide -Close presentation - Internet and its applications - E.mail and its advantages. | I B.Sc Zoology | 6 | Online teaching through Google Meet |  |


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| | | Corals and Coral reefs - Theories of reef formation. | | | | |
| Sep | | HELMINTHES -General characters and classification of Helminthes upto class level with one example. Type study: <i>Fasciola hepatica</i> - External morphology - Excretory System - Reproductive system and Life history. General topics: 1. Structure - Pathology - Control measures of <i>Ascaris lumbricoides</i> and <i>Wuchereria bancrofti</i> . 2. Parasitic adaptations of Helminthes. | I B.Sc Zoology | 7 | Online teaching through Google Meet |  |
| | III | ANNELIDA -General characters and classification of Annelida upto class level with one example. Type study: <i>Megascolex mauritii</i> - External morphology - Setae - Nephridia - Nervous system - Reproductive system only. General topics: 1. Metamerism in Annelida 2. Affinities of <i>Peripatus</i> . | I B.Sc Zoology | 8 | Online teaching through Google Meet |  |
| Oct | | ARTHROPODA General characters and classification of Arthropoda upto class level with one example. Type study: <i>Palaemon</i> -External morphology - Appendages - Excretory system - Reproductive system and development. General topics: Beneficial insects:- Honey bee, Lac insect and silkworm | I B.Sc Zoology | 7 | Online teaching through Google Meet |  |
| Nov | V | MOLLUSCA General characters and classification of Mollusca upto class level with one example. Type study: <i>Pila globosa</i> - External morphology - Digestive system - Nervous system, Respiratory system and Osphradium | I B.Sc Zoology | 8 | Online teaching through Google Meet |  |

Dr. Indira Rani



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LESSON PLAN

2021-2022

Class : I B.Sc Zoology

Sem : I

Sub. Code : 21Z11

Title of the Paper: Invertebrata

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|------|---|----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Principles of taxonomy and Binomial nomenclature - classification. PROTOZOA -General characters and classification of Protozoa up to class level with one example. Type study: <i>Paramecium caudatum</i> - External morphology - Nutrition -Cyclosis -Contractile vacuole - Conjugation only. General topics: 1. Protozoan parasites: Life Cycle - Symptoms - Diagnosis - Prevention and Treatment of 1. <i>Plasmodium vivax</i> . 2. <i>Entamoeba histolytica</i> . | I B.Sc Zoology | 8 | Online teaching through Google Meet | |
| | I | PORIFERA - General characters and classification of Porifera upto class level with one example. Type study: Sycon Sponge - Structure - Histology - Spicules - Gemmules and Parenchymula larva. General topic: Canal system in sponges. | I B.Sc Zoology | 7 | Online teaching through Google Meet | |
| August | II | COELENTERATA - General characters and classification of Coelenterata upto class level with one example. Type study: <i>Obelia</i> - Structure and Metagenesis only. General topics: 1. Polymorphism in Coelenterates 2. | I B.Sc Zoology | 8 | Online teaching through Google Meet | |



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LESSON PLAN
2021-2022

Class : II B.Sc Zoology

Sem : IV

Sub. Code : 17Z4P

Title of the Paper: Lab in Cell and Molecular Biology, Developmental Biology

Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signatures |
|-------|------|--|-----------------|-----------------|-------------------------|---------------------------|
| Jan | I | Cell Biology 1. Microscopy - Cell Observation - Operational methods and uses of microscope | II B.Sc Zoology | 6 | Hands on practicals | |
| Feb | II | 3. Cell Counts (Demo Only) a) Total count RBC & WBC - Human b) Differential Count. | II B.Sc Zoology | 6 | Hands on practicals | |
| March | III | Molecular Biology 1. Mounting of Barr bodies in the buccal cavity 2. Isolation of Genomic DNA from Bacteria / Liver tissue (Goat or Chick) | II B.Sc Zoology | 6 | Hands on practicals | |
| April | IV | Developmental Biology: 1. Whole mounts of 48hrs and 72hrs Chick Embryo (Demo Only). | II B.Sc Zoology | 6 | Spotters | |
| May | V | <input type="checkbox"/> DNA & RNA , <input type="checkbox"/> Mitochondria , <input type="checkbox"/> Golgi complex, <input type="checkbox"/> Ribosomes, <input type="checkbox"/> Lysosomes, <input type="checkbox"/> Nucleus <input type="checkbox"/> Blastula and Gastrula of Frog. | II B.Sc Zoology | 6 | Spotters | |

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**EVEN SEMESTER
LESSON PLAN
2021-2022**



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**LESSON PLAN
2021-2022**

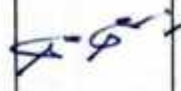



Class : III B.Sc Zoology
Sem : VI
Sub. Code : 17Z61
Title : Physiology
Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|---------------------|-----------------|-------------------------|--------------------------|
| Jan | I | Nutrition, Types of Nutrition- Balanced Diet- Malnutrition (Marasmus & kwashiorkor) Physiological role of carbohydrates, proteins, fats, vitamins and minerals. Digestion -Function of digestive glands – role of enzymes in digestion – hormonal control of digestion. | III B.Sc Zoology | 12 | Chalk & Talk method | R.S.P |
| Feb | II | Respiration -Types and mechanism of respiration- respiratory pigments- Oxygen transport - CO ₂ transport – Respiratory Quotient (RQ). Circulation - Structure and function of human heart – coronary circulation-ischemic heart diseases- origin and conduction of heart beat- Electrocardiogram(ECG) Blood pressure (BP)- – blood sugar, blood cholesterol, blood urea level in man – blood coagulation. | III B.Sc Zoology | 12 | PPT | R.S.P |

| | | | | | | |
|-------|-----|---|------------------|----|-----|-------|
| Mar | III | Osmoregulation - Mechanisms of osmoregulation - Polkilosmotic and Homeosmotic animals. Euryhaline, Stenohaline - Osmoconformers, Osmoregulators, Osmoregulations in crustaceans, fishes and birds .Excretion - Ultra structure and function of kidney and nephron - mechanism of urine formation - hormonal control -Diabetes insipidus . | III B.Sc Zoology | 12 | PPT | R.S.P |
| April | IV | Muscles - Ultra structure of skeletal muscle — Physico chemical properties and mechanism of muscle contraction. Sense organs: Physiology of vision and hearing .Chronobiology - Biological clock, Lunar Rhythm and Circadian Rhythm. | III B.Sc Zoology | 12 | PPT | R.S.P |
| May | V | Nervous system: Structure and types of neuron — conduction of nerve impulse through Axon, Synapse and Neuromuscular junctions - Reflex arc. Endocrine system- Hormones of Pituitary, Thyroid, Parathyroid, Adrenal and Sex glands. | III B.Sc Zoology | 12 | PPT | R.S.P |

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|-------|-----|--|------------------|----|-----|---|
| | III | Biogeochemical cycles - Nitrogen Cycle and Phosphorus Cycle . | III B.Sc Zoology | 6 | PPT |  |
| | | Microbes for alternate source of energy - Hydrogen producing bacteria - <i>Halobacterium halobium</i> | | 6 | PPT |  |
| April | IV | Ontogeny of Lymphoid organs - Myeloid Lineage and Lymphoid Lineage . Primary and secondary organs - Thymus, Bone marrow, Spleen, lymph node- Specific and non specific immunity - B cells, T cells and sub cells - Immune response- cell mediated immune response & humoral immune response. | III B.Sc Zoology | 12 | PPT |  |
| May | V | Structure and properties of antigen. Antigen - antibody reaction(precipitation & agglutination). Transplantation- MHC, HLA typing, Hypersensitivity reactions - Type I- anaphylactic reactions, Type II - cytotoxic reactions, Type III - immune complex reactions, Type IV - delayed type hypersensitivity reactions- Vaccine programme. | III B.Sc Zoology | 12 | PPT |  |


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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : VI

Sub. Code : 17Z62

Title : Microbiology & Immunology

Total Hours :60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|------------------|-----------------|-------------------------|--------------------------|
| Jan | I | Introduction to Microbiology - The historical development and scope of Microbiology - Sterilization and disinfections - Physical methods (UV Radiation, Autoclave & Incineration) - Chemical methods (antibiotics & other chemicals) Preparation of nutrient agar and selective agar media - pure culture.- Principles of bacterial staining, Bacterial growth curve. | III B.Sc Zoology | 12 | Chalk & Talk method | |
| Feb | II | Food Microbiology- Perishable & non - perishable food - Spoilage of meat, Vegetables, fish, sea foods, Milk & dairy products and cereals - Food preservation - principle and methods. Removal of Microorganisms-maintenance of anaerobic condition - preservation by high & low temperatures-by drying and use of chemical-Food storage | III B.Sc Zoology | 12 | PPT | |

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|-------|----|--|------------------|----|-----|-----------|
| | | solubilizers & nitrogen fixers - application - super bug - treatment of oil spills in marine environment. | | | | |
| April | IV | Animal Biotechnology - Animal tissue culture - Basic requirements - Culture media and its composition - Transgenesis - Transgenic mice, Transgenic cattle - transgenic plants. Monoclonal Antibody (mAb) - production & its application. | III B.Sc Zoology | 12 | PPT | <i>as</i> |
| May | V | Applied Biotechnology : r-DNA Proteins and their uses - Interferon, IL-2, Factor VIII, Urokinase, TPA, FMD Vaccine in Cattle- Composting, Bioleaching and Bioremediation - Biosafety and Ethics - GMO & constraints. | III B.Sc Zoology | 12 | PPT | <i>as</i> |

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LESSON PLAN

2021-2022

Class : III B.Sc Zoology



Sem : VI

Sub. Code : 17ZE6A

Title : Biotechnology

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|---------------------|-----------------|-------------------------|--------------------------|
| Jan | I | Recombinant DNA Technology - Conventional vs Modern Biotechnology . Biotechnology tree-Tools of gene cloning : Restriction Endonucleases , DNA ligase. Cloning vectors: Plasmid, cosmid, & expression vectors. Major steps in gene cloning- Cloning of human insulin gene. | III B.Sc Zoology | 12 | Chalk & Talk method | |
| Feb | II | Industrial Biotechnology: Microbial products - Production of Cyanocobalamine (primary) and Penicillin (Secondary) - Bio Gas Production - stages of methanogenesis - uses. Industrial production and application of ethanol (green fuel) | III B.Sc Zoology | 12 | PPT | |
| Mar | III | Environmental Biotechnology- Biopesticides - biological control of crop pest (bacterial pesticides only) - plant extracts - bt toxin production - biofertilizers - types - definition - phosphate | III B.Sc Zoology | 12 | PPT | |

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|-------|----|---|------------------|---|-----|--|
| April | IV | Poultry -Commercial layers and broilers. Poultry housing- deep litter system, cage rearing., feeders & waterers. Summer management, winter management in brief. Debeaking Poultry diseases- viral disease, bacterial disease, fungal disease and parasitic diseases (one each) Vaccination programme. | III B.Sc Zoology | 6 | PPT |  |
| May | V | women entrepreneur – marketing -Management - Dairy farming - Breeds of cattles- dairy products-management. Diseases and mode of prevention- self help groups. | III B.Sc Zoology | 6 | PPT |  |


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LESSON PLAN
2021-2022

Class : III B.Sc Zoology
Sem : VI
Sub. Code : 17SEZ61
Title : Economic Zoology
Total Hours :30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|-------------------------|--------------------------|
| Jan | I | Sericulture - Introduction to Sericulture - Types of silk worms - culture of Mulberry silkworms-Diseases and enemies of silkworms - uses of silk-ahimsa silk | III B.Sc Zoology | 6 | Chalk & Talk method | |
| Feb | II | Apiculture - Introduction to Apiculture - Types of Honey Bee - Bee Keeping - Precautions - Products of Bee keeping - Economic Products of Bee Keeping - Economic importance of honey - enemies and diseases of bees - Bee Keeping industry | III B.Sc Zoology | 6 | PPT | |
| Mar | III | Aquaculture - Qualities of culturable fishes - Types of Fish farming .Fish culture - Breeding ponds - nursery ponds - rearing ponds - stocking ponds - Harvesting - Preservation of fishes-fish feed | III B.Sc Zoology | 6 | PPT | |



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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : VI

Sub. Code : 17Z62P

Title of the Paper: Lab in Physiology, Microbiology & Immunology and Biotechnology

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|----------------------------|--------------------------|
| Jan | I | Animal Physiology: 3. Qualitative analysis of ammonia, urea and uric acid. 4. Demonstration of blood pressure using Sphygmomanometer | III B.Sc Zoology | 12 | Hands on Practical classes | |
| Feb | II | Microbiology: 1. Simple staining. 2. Gram staining. | III B.Sc Zoology | 12 | Hands on Practical classes | |
| Mar | III | Immunology: 3. HLA & MHC | III B.Sc Zoology | 12 | Spotters | |
| April | IV | Biotechnology: 4. Ti plasmid | III B.Sc Zoology | 12 | Spotter | |
| May | V | 5. Humulin | III B.Sc Zoology | 12 | Spotter | |

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LESSON PLAN
2021-2022

Class : III B.Sc Zoology

Sem : VI

Sub. Code : 17Z61P

Title of the Paper: Lab in Genetics, Ecology & Evolution and Biochemistry

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|------------------|-----------------|----------------------------|--------------------------|
| Jan | I | Genetics: 3. Multiple Allelic Inheritance-Rh factor 4. Observation on the study of Polygenetic inheritance of quantitative traits to be interpreted(Neem leaf serration). | III B.Sc Zoology | 12 | Hands on Practical classes | MNV |
| Feb | II | Ecology 2. Analysis of dissolved oxygen in water sample. | III B.Sc Zoology | 12 | Hands on Practical classes | R.S.N |
| Mar | III | Evolution: 4. Connecting link- Archaeopteryx 5. Examples of evolutionary importances - Peripatus , Limulus & Archaeopteryx. | III B.Sc Zoology | 12 | Spotters | R.S.D |
| April | IV | Bio Chemistry: 2. Principle and Amino acids separations using Paper Chromatography-demonstration | III B.Sc Zoology | 12 | Hands on Practical classes | R.S.N |
| May | V | 4. Principle and Electrophoresis- demonstration (PAGE). | III B.Sc Zoology | 12 | Spotter | R.S.L |


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LESSON PLAN

2021-2022

Class : II B.Sc Zoology



Sem : IV

Sub. Code : 17Z41

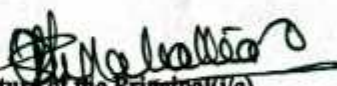
Title : Developmental Biology

Total Hours :60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|-----------------|-----------------|-------------------------|--------------------------|
| Jan | I | Theories - Preformation theory- Epigenesis- Biogenetic law and Von Baer's Law- Types of Sperm and Ovum- Gametogenesis- Spermatogenesis and Oogenesis. | II B.Sc Zoology | 6 | PPT | RSD |
| Feb | II | Fertilization: Chemotaxis, fertilizin & anti-fertilizin reaction-acrosomal reaction-cortical reaction-physiological and biochemical changes in fertilization. | II B.Sc Zoology | 6 | PPT | MH |
| Mar | III | Cleavage: Types, patterns and Laws of cleavage factors that influences the cleavage- Morula -Blastula and Gastrula- Gastrulaion in Frog: Fate Map - construction of fate map(Frog only)- Morphogenetic movements. | II B.Sc Zoology | 6 | PPT | RSD |

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|-------|----|--|-----------------|---|-----|---|
| April | IV | Formation of primitive streak and endoderm in chick-Extra embryonic membranes of Chick-Organogenesis: Development of Heart in mammal-Placentation in Mammals . | II B.Sc Zoology | 6 | PPT |  |
| May | V | Experimental embryology : Organizer concept- Fields and Gradients -Amphibian metamorphosis - Biochemical changes and hormonal control. | II B.Sc Zoology | 3 | PPT |  |
| | | Regeneration - Types and Regeneration in Salamander limbs-Applied embryology : IVF, Birth control methods. | | 3 | PPT | |


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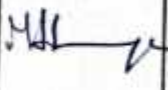


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LESSON PLAN
2021-2022

Class : I B.Sc Zoology
Sem : II
Sub. Code : 21NMZ2
Title : Ornamental fish culture
Total Hours :30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|-------------------|--------------------|----------------------------|-----------------------------|
| Jan | I | Scope and importance of Ornamental fishes. Identification and salient features- Siamese fighting fish, Gold fish, Rosy barb, tiger barb, Angel fish, Black molly, Guppy and Swordtail. | I B.Sc Zoology | 6 | PPT | |
| Feb | II | Construction of aquarium : Size and Shape of fish tank, bottom settings, stocking of fish Accessories of fish tank - aerators, types of filters, nets, lights and hood. | I B.Sc Zoology | 6 | PPT | |
| Mar | III | Transport of fishes: Oxygen packing, Food and feeding: Culture of live food organisms - Chironomous larva tubifex Artificial feed - Pellet feed. | I B.Sc Zoology | 6 | PPT | |

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|-------|----|---|-------------------|---|-----|---|
| April | IV | Breeding methods: Siamese fighting fish, Gold fish , Black molly , Guppy and sword tail. | I B.Sc Zoology | 6 | PPT |  |
| May | V | Common diseases and treatment of ornamental fishes : Protozoan diseases (White spot disease), Fungal disease (Ichthyosporidium), Bacterial diseases (Dropsy disease and ectoparasites). | I B.Sc Zoology | 6 | PPT |  |

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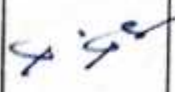



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LESSON PLAN
2021-2022

Class : I B.Sc Zoology
Sem : II
Sub. Code : 21SEZ22
Title : Clinical Microbiology
Total Hours :30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|----------------|-----------------|-------------------------|--------------------------|
| Jan | I | Protozoan diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Amoebiasis 2. Balantidiasis 3. Vaginitis | I B.Sc Zoology | 6 | PPT | |
| Feb | II | Fungal diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Phycomycoses 2. Candidiasis 3. Actinomycosis (Actinomycitis bovis) | I B.Sc Zoology | 6 | PPT | |
| Mar | III | Bacterial diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Tuberculosis (air-borne) 2. Syphilis (contagious) 3. Cholera (water-borne). | I B.Sc Zoology | 6 | PPT | |

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|-------|----|---|-------------------|---|-----|---|
| April | IV | Viral diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Influenza (Bird flu) 2. Polio. 3. Chicken pox | I B.Sc Zoology | 6 | PPT |  |
| May | V | Insect - borne diseases: Causative organisms, mode of transmission, pathogenicity, symptoms, treatment and prophylaxis 1. Chikungunya 2. Dengue fever 3. Sleeping sickness. | I B.Sc Zoology | 6 | PPT |  |


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LESSON PLAN
2021-2022

Class : I B.Sc Zoology
Sem : II
Sub. Code : 21SEZ21
Title : Vermitechnology
Total Hours :30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|----------------|-----------------|-------------------------|--------------------------|
| Jan | I | Introduction-Scope & Importance of Vermitechnology- Classification of earthworms - External morphology of earthworm. | I B.Sc Zoology | 6 | Chalk & Talk Method | P.S Rajakrishni |
| Feb | II | Selection of earthworm species for composting - commercially available earthworm-Collection and preservation of earthworms for Vermicomposting - Vermiculture techniques. | . | 6 | PPT | R.S.Daniel |
| Mar | III | Raw materials for Vermicomposting -Maintenance of composting- Methods of Vermicomposting -Collection of Vermicompost- vermiwash. | " | 6 | Chalk & Talk Method | R.S.Daniel |

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|-------|----|---|---|---|---------------------|-----------------|
| April | IV | Role of Earthworms in organic farming - Use of Vermicompost for crop production, Land improvement and Reclamation - Recycling of Wastes through Vermicomposting. | " | " | Chalk & Talk Method | R. S. Bhatnagar |
| May | V | Large scale manufacture of Vermicompost, Packaging of Vermicompost and its Marketing - Economic importance of vermicompost - vermicompost agencies (BERI - Bhawalkar Ecological Research Institute in pune & BAIF - Bhartiya Agro Industries Foundation). | " | " | PTT | R. S. Bhatnagar |

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|-------|-----|--|----|---------------------|----------------|
| Mar | III | <p>Amphibia: External features and biological significance of the following Examples: a. <i>Rana hexadactyla</i>, b. <i>Rana tigrina</i>, c. <i>Rana cyanophlyctis</i> - respiratory system (<i>Rana hexadactyla</i> only) General Topics: Parental care in Amphibia.</p> <p>Reptilia: External morphology of <i>Calotes versicolor</i> only. Identification of poisonous and non-poisonous snakes of south India - poison apparatus- Biting mechanism venom and Anti venom - First aid for snake bite.</p> | 6 | Chalk & Talk Method | G. Indira Rani |
| April | IV | <p>Aves: External morphology of Pigeon (<i>Columba livia</i>) - structure and function of eye - respiratory system. General Topics: Flight adaptation in Birds, Migration in Birds.</p> | 12 | Chalk & Talk Method | G. Indira Rani |
| May | V | <p>Mammalia - External morphology of Rabbit (<i>Oryctolagus cuniculus</i>) - structure & function of heart, respiratory system only. General Topics: Dentition in mammals, monotremes (egg laying mammals).</p> | 12 | PPT | G. Indira Rani |

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LESSON PLAN
2021-2022

Class : I B.Sc Zoology
Sem : II
Sub. Code : 21Z21
Title : Chordata
Total Hours :60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|----------------|-----------------|-------------------------|--------------------------|
| Jan | I | General characters (Diagnostic characters and additional characters) classification upto class level with one example. Prochordates General characters and classification of Prochordates upto class level with example. Type study: Prochordata - <i>Amphioxus lanceolatum</i> - External morphology- Digestion - Respiration. General topics: Retrogressive metamorphosis in Ascidians , Affinities of Hemichordata. | I B.Sc Zoology | 12 | Chalk & Talk Method | G. Indira Rani |
| Feb | II | Agnatha: <i>Petromyzon</i> - External morphology ; Ammocoetes larva. - Pisces- Shark(<i>Scoliodon</i>) External Morphology- Lateral Line Sense organ - Urinogenital System General topics: Affinities of <i>Petromyzon</i> and Accessory respiratory organs in Fishes. | | 12 | PPT | S. S. S. |



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LESSON PLAN

2021-2022

Class : III B.Sc Zoology

Sem : VI

Sub. Code : 174VE6

Title of the Paper: Value Education

Total Hours : 30

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|------------------|-----------------|-------------------------|--------------------------|
| Jan | I | Value Education – Need and Importance – Objectives - Types of Values-Nature and concept of Moral education –Value Education Vs Moral Education. | III B.Sc Zoology | 6 | lecture | |
| Feb | II | Values of Home –Role of Women in Decision Making –Parental Care-Care of the Aged –Family Conflicts and Resolutions-Gender Justice-Social Justice- Social Integration- Socio Political Awareness | III B.Sc Zoology | 6 | lecture | |
| Mar | III | Character Formation towards Positive Personality –Truthfulness, Sacrifice, Sincerity, Self control, Altruism, Tolerance, Confidence, Honesty and Courage. | III B.Sc Zoology | 6 | lecture | |
| April | IV | Karma Yoga in Hinduism –Love and Justice in Christianity –Brotherhood in Islam, Compassion in Buddhism – Ahimsa in Jainism and Courage in Sikhism –Need for Religious Harmony. | III B.Sc Zoology | 6 | lecture | |
| May | V | Human rights –Fundamental Rights – Human Rights Act 1993 (Amended 2006)- Consumer Protection Act 1986 –Right to Information Act 2005 – Right to Education Act 2009- Protective Laws for Women –Dowry Prohibition Act 1961 (Amended 1986)And Domestic Violence Act 2005- Constitutional Values- Liberty-Democracy – International Peace. | III B.Sc Zoology | 6 | lecture | |

Signature of the Head

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PRINCIPAL/JC
E.M.G. YADAV WOMEN'S COLLEGE
MADURAI-625 011

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LESSON PLAN

2021-2022

ALLIED CHEMISTRY
(UG – Odd & Even Semester)



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LESSON PLAN

2021-2022

Class : I B.Sc Zoology & Mathematics

Sem : I

Sub. Code : 21AK1

Title of the Paper: General chemistry -I

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|------|---|----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Periodic Table :Mendeleef's Periodic table -characteristics of Mendeleef's periodic table - merits and demerits - Modern periodic law -Periodic variations in properties - Atomic radius - Ionisation potential- metallic and non metallic characters. | I B.Sc Zoology | 11 | Online teaching through Google Meet | <i>c. b. s.</i> |
| August | II | Metallurgy: Minerals and Ores -definition, examples, differences -various terms used in metallurgy: Flux, Gangue, Slag -Various steps involved in metal extraction: Grinding , pulverising , ore dressing, calcinations , roasting , smelting -Refining Methods: Van Arkel method, zone refining - Platinum: Extraction- Various forms of Platinum - preparation and uses. | I B.Sc Zoology | 12 | Online teaching through Google Meet | <i>c. b. s.</i> |
| sep | III | Dyes: Definition- theory of colour and constitution- chromophore - auxochrome theory - classification: Based on chemical structure, based on their mode of application - preparation and uses. Methyl orange , bismark brown, malachite green. | I B.Sc Zoology | 11 | Online teaching through Google Meet | <i>c. b. s.</i> |

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|-----|----|--|-------------------|----|-------------------------------------|--------|
| Oct | IV | <p>Catalysis: Definition, Types of catalysts : Positive catalyst, negative catalyst, auto catalyst- examples-types of catalysis: Homogenous-acid-base catalysis, heterogenous catalysis - promoter -catalytic poison.</p> <p>Photo Chemistry: Definition, comparison of thermal and photo chemical reaction - laws of photo chemistry - Grotthus -draper law and Einstein's law - quantum efficiency (problems are not expected).</p> | I B.Sc Zoology | 13 | Online teaching through Google Meet | c-b-b. |
| Nov | V | <p>Colloids: Definition - size of colloidal particles - classification-differences between lyophilic sols and lyophobic sols - preparation of sols-dispersion Method :Bredig's arc method, peptization -properties: Optical property-tyndall effect , kinetic property-brownian movement ,electrical property-electrical double layer-application of colloids - colloidal medicines, sewage disposal, purification of water, artificial rain.</p> | I B.Sc Zoology | 13 | Online teaching through Google Meet | c-b-b. |

c-b-b.
Signature of the HOD

Dyalabhatia
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LESSON PLAN
2021-2022

Class : I B.Sc Zoology & Mathematics

Sem : I

Sub. Code : 21AK1

Title of the Paper: General chemistry -I

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|------|---|--------------|-----------------|-------------------------------------|--------------------------|
| July | I | Periodic Table :Mendeleef's Periodic table -characteristics of Mendeleef's periodic table - merits and demerits - Modern periodic law -Periodic variations in properties – Atomic radius - Ionisation potential- metallic and non metallic characters. | I B.Sc Maths | 11 | Online teaching through Google Meet | <i>c.k.l.</i> |
| August | II | Metallurgy: Minerals and Ores – definition, examples, differences – various terms used in metallurgy: Flux, Gangue, Slag –Various steps involved in metal extraction: Grinding , pulverising , ore dressing, calcinations , roasting , smelting –Refining Methods: Van Arkel method, zone refining – Platinum: Extraction- Various forms of Platinum - preparation and uses. | I B.Sc Maths | 12 | Online teaching through Google Meet | <i>c.k.l.</i> |
| sep | III | Dyes: Definition- theory of colour and constitution- chromophore – auxochrome theory - classification: Based on chemical structure, based on their mode of application – preparation and uses: Methyl orange , bismark brown, malachite green. | I B.Sc Maths | 11 | Online teaching through Google Meet | <i>c.k.l.</i> |

| | | | | | | |
|-----|----|--|-----------------|----|-------------------------------------|------|
| Oct | IV | <p>Catalysis: Definition, Types of catalysts : Positive catalyst, negative catalyst, auto catalyst- examples-types of catalysis: Homogenous-acid-base catalysis, heterogenous catalysis - promoter - catalytic poison.</p> <p>Photo Chemistry: Definition, comparison of thermal and photo chemical reaction - laws of photo chemistry - Grothaus -draper law and Einstein's law - quantum efficiency (problems are not expected).</p> | I B.Sc Maths | 13 | Online teaching through Google Meet | c.b. |
| Nov | V | <p>Colloids: Definition - size of colloidal particles - classification-differences between lyophilic sols and lyophobic sols - preparation of sols-dispersion Method :Bredig's arc method, peptization -properties: Optical property-tyndall effect , kinetic property-brownian movement ,electrical property-electrical double layer-application of colloids - colloidal medicines, sewage disposal, purification of water, artificial rain.</p> | I B.Sc Maths | 13 | Online teaching through Google Meet | c.b. |


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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics
Sem : III
Sub. Code : 17AK3
Title of the Paper: General chemistry -III
Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|------|---|-----------------|-----------------|-------------------------------------|--------------------------|
| July | I | Chemical Bonding a) Valence Bond Theory-Postulates of VB Theory -Application to the formation of simple molecules like Hydrogen and Oxygen - Explanation of the following with suitable example -s -s Overlapping -s- p Overlapping -p - p Overlapping -Sigma bond, pi bond and their differences. b) Molecular Orbital Theory -Formation of molecular orbital (combination of s - s Orbital only) -Differences between bonding and anti bonding molecular orbitals-Molecular orbital diagram for the following homonuclear diatomic molecules - Hydrogen, Helium, Oxygen -Bond Order and Magnetic Properties. | II B.Sc Zoology | 12 | Online teaching through Google Meet | M. S. J. [Signature] |
| August | II | Oxidation and Reduction- Electronic concept of Oxidation and Reduction- oxidation number-differences between oxidation number and valency- rules for calculating oxidation number-solved examples-oxidation number concept of oxidation and reduction-oxidising agents and reducing agents-redox reactions. Modern concepts of Acids and Bases- Arrhenius concept, bronsted-lowry concept, LuX- | II B.Sc Zoology | 13 | Online teaching through Google Meet | M. S. J. [Signature] |

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|-----|-----|--|-----------------|----|---|
| | | Flood concept, Lewis concept and Usanovich concept- relative strengths of acids and bases - amphoteric solvents-Levelling effects | | | |
| sep | III | Halogen Compounds -Aliphatic halogen compounds -Preparation, Properties and uses of Chloroform -Aromatic halogen compounds - Preparation, Properties and uses of Chlorobenzene and Benzyl Chloride -Differences between Chloro benzene and benzyl chloride-Mechanism of aliphatic nucleophilic substitution -SN ₁ - Explanation with Example -SN ₂ - Explanation with Example. | II B.Sc Zoology | 12 | Online teaching through Google Meet M.S. Jha |
| Oct | IV | Polymers a) Polymers-Definition- Explain the following with suitable Example-Addition-Polymerization-Condensation Polymerization. b) fibres-Definition-Manufacture and uses of important fibres -Polyamide fibre-Polyester fibre. c) Resins - Definition -Manufacture and uses of Amino resin, Unsaturated Polyester resin. d) Plastics - Definition -Classification of Plastic -Thermoplastics -Thermo setting plastics- Manufacture and uses of Polythene and PolyVinyl Chloride. | II B.Sc Zoology | 12 | Online teaching through Google Meet M.S. Jha |
| Nov | V | Ionic Equilibria -Ionic Product of Water -Hydrolysis - definition - Nature of Salts solution undergoing Hydrolysis, degree of Hydrolysis and Hydrolysis constant of the following-Salts of strong acid and strong base -Salts of weak acid and strong base- Salts of strong acid and weak base -Salts of weak acid and weak base. | II B.Sc Zoology | 11 | Online teaching through Google Meet M.S. Jha |


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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics

Sem : III

Sub. Code : 17AK3

Title of the Paper: General chemistry -III

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|------|---|---------------|-----------------|-------------------------------------|--------------------------|
| July | I | Chemical Bonding a)Valence Bond Theory-Postulates of VB Theory - Application to the formation of simple molecules like Hydrogen and Oxygen -Explanation of the following with suitable example -s -s Overlapping -s- p Overlapping -p - p Overlapping -Sigma bond, pi bond and their differences. b) Molecular Orbital Theory -Formation of molecular orbital (combination of s - s Orbital only) -Differences between bonding and anti bonding molecular orbitals-Molecular orbital diagram for the following homonuclear diatomic molecules -Hydrogen, Helium ,Oxygen -Bond Order and Magnetic Properties. | II B Sc Maths | 12 | Online teaching through Google Meet | M.S.P. 17/7/22 |
| August | II | Oxidation and Reduction- Electronic concept of Oxidation and Reduction- oxidation number-differences between oxidation number and valency- rules for calculating oxidation number-solved examples-oxidation number concept of oxidation and reduction-oxidising agents and reducing agents-redox reactions Modern concepts of Acids and Bases- Arrhenius concept, bronsted-lowry concept, LuX-Flood concept, Lewis concept and Usanovich | II B Sc Maths | 13 | Online teaching through Google Meet | M.S.P. 17/7/22 |

| | | | | | | |
|-----|-----|--|---------------|----|-------------------------------------|--------|
| | | concept- relative strengths of acids and bases -amphoteric solvents- Levelling effects | | | | |
| sep | III | Halogen Compounds -Aliphatic halogen compounds -Preparation, Properties and uses of Chloroform - Aromatic halogen compounds - Preparation, Properties and uses of Chlorobenzene and Benzyl Chloride -Differences between Chloro benzene and benzyl chloride- Mechanism of aliphatic nucleophilic substitution -SN ₁ - Explanation with Example -SN ₂ - Explanation with Example. | II B.Sc Maths | 12 | Online teaching through Google Meet | M.H.P. |
| Oct | IV | Polymers a) Polymers-Definition- Explain the following with suitable Example-Addition-Polymerization- Condensation Polymerization. b) fibres-Definition-Manufacture and uses of important fibres -Polyamide fibre-Polyester fibre. c) Resins - Definition -Manufacture and uses of Amino resin, Unsaturated Polyester resin. d) Plastics -Definition - Classification of Plastic - Thermoplastics -Thermo setting plastics- Manufacture and uses of Polythene and PolyVinyl Chloride. | II B.Sc Maths | 12 | Online teaching through Google Meet | M.H.P. |
| Nov | V | Ionic Equilibria -Ionic Product of Water -Hydrolysis - definition - Nature of Salts solution undergoing Hydrolysis, degree of Hydrolysis and Hydrolysis constant of the following-Salts of strong acid and strong base -Salts of weak acid and strong base- Salts of strong acid and weak base -Salts of weak acid and weak base. | II B.Sc Maths | 11 | Online teaching through Google Meet | M.H.P. |


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LESSON PLAN

2021-2022

Class : I B.Sc Zoology & Mathematics

Sem : II

Sub. Code : 21AK2

Title of the Paper: General chemistry -II

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|----------------|-----------------|-------------------------------------|--------------------------|
| Jan | I | Atomic Structure: Determination of e/m ratio for cathode rays - Thomson's experiment - determination of charge of an electron - Millikan's oil drop method - Rutherford scattering experiment - Rutherford atom model - defects of Rutherford model - Planck's quantum theory of radiation - postulates of Bohr Atom model - defects of Bohr model - Sommerfeld modifications - differences between Orbit and Orbital. | I B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Feb | II | Hydrogen : Hydrogen - Position of hydrogen in the periodic table. Isotopes of hydrogen - Separation of isotopes : gaseous diffusion method, electrolysis method - heavy hydrogen - preparation, chemical properties and uses - hydrides: definition, classification, Preparation and uses - covalent hydride , polymeric hydride. | I B.Sc Zoology | 12 | Online teaching through Google Meet | |
| March | III | Fundamental Concepts: Tetra valency of carbon- hybridisation: sp^3 (CH_4), sp^2 (C_2H_4) and sp (C_2H_2) - bond fission: homolytic fission , heterolytic fission (one example each). Reaction intermediates: Definition - formation of carbonium ion, carbanion and free radical. | I B.Sc Zoology | 13 | Online teaching through Google Meet | |

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|-------|----|---|-------------------|----|-------------------------------------|-------------|
| | | Attacking reagents: Definition – nucleophiles and electrophiles (one example) | | | | |
| April | IV | Condensed System & Heterocyclic Compounds: Condensed system: Introduction, Naphthalene -synthesis and properties (No structural elucidation). Heterocyclic compounds: Preparation and properties of furan, pyridine and quinoline. | I B.Sc Zoology | 12 | Online teaching through Google Meet | <i>c.b.</i> |
| May | V | Carbohydrates: Introduction-Classification – Mono Saccharide: Glucose- preparation, properties and uses -straight chain structure, cyclic structure and Haworth's structure of glucose -conversion of glucose into fructose and vice-versa. Disaccharide – sucrose manufacture, properties -structure only -distinction between glucose, fructose and sucrose. | I B.Sc Zoology | 11 | Online teaching through Google Meet | <i>c.b.</i> |

c.b.
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Shalini
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LESSON PLAN
2021-2022

Class : I B.Sc Zoology & Mathematics

Sem : II


Sub. Code : 21AK2

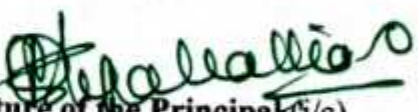
Title of the Paper: General chemistry -II

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|--------------|-----------------|-------------------------------------|--------------------------|
| Jan | I | Atomic Structure: Determination of e/m ratio for cathode rays - Thomson's experiment - determination of charge of an electron - Millikan's oil drop method - Rutherford scattering experiment - Rutherford atom model - defects of Rutherford model - Planck's quantum theory of radiation - postulates of Bohr Atom model - defects of Bohr model - Sommerfeld modifications - differences between Orbit and Orbital. | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| Feb | II | Hydrogen : Hydrogen - Position of hydrogen in the periodic table. Isotopes of hydrogen - Separation of isotopes : gaseous diffusion method, electrolysis method - heavy hydrogen - preparation, chemical properties and uses - hydrides: definition, classification, Preparation and uses - covalent hydride, polymeric hydride. | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| March | III | Fundamental Concepts: Tetra valency of carbon - hybridisation: sp ³ (CH ₄), sp ² (C ₂ H ₄) and sp (C ₂ H ₂) - bond fission: homolytic fission, heterolytic fission (one example each). Reaction intermediates: Definition - formation of carbonium ion, carbanion and free radical. Attacking reagents: Definition - nucleophiles and | I B.Sc Maths | 13 | Online teaching through Google Meet | |

| | | | | | | |
|-------|----|--|--------------|----|-------------------------------------|-------|
| | | electrophiles (one example) | | | | |
| April | IV | Condensed System & Heterocyclic Compounds: Condensed system: Introduction, Naphthalene -synthesis and properties (No structural elucidation). Heterocyclic compounds: Preparation and properties of furan, pyridine and quinoline. | I B.Sc Maths | 12 | Online teaching through Google Meet | c-h-2 |
| May | V | Carbohydrates: Introduction- Classification - Mono Saccharide: Glucose- preparation, properties and uses -straight chain structure, cyclic structure and Haworth's structure of glucose -conversion of glucose into fructose and vice-versa. Disaccharide - sucrose manufacture, properties -structure only -distinction between glucose, fructose and sucrose. | I B.Sc Maths | 11 | Online teaching through Google Meet | c-h-6 |


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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics

Sem : IV

Sub. Code : 17AK4

Title of the Paper: General chemistry -IV

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|--|-----------------|-----------------|-------------------------------------|--------------------------|
| Jan | I | Double Salts, Alums and Coordination compounds a) Double Salts And Alums - Definition -Double Salts -Alum-Distinction between Double salts and alums -Preparation and uses of ferrous ammonium sulphate - Preparation and uses of ferric Alum b) Coordination compounds - Definition -Definition of various terms involved in Coordination Chemistry -Werner's Theory - illustrate with example -Effective Atomic Number rule with examples -Valence Bond Theory -postulates, formation of $[\text{Co}(\text{NH}_3)_6]^{3+}$ complex. | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Feb | II | Alkaloids and Terpenoids:- Alkaloids -Definition - Occurrence- Classification of alkaloids- Extraction of alkaloids-General Properties of alkaloids - Structure of Cocaine, Piperine and Nicotine. b) Terpenoids - Definition -Isoprene rule - special isoprene rule -Classification - Isolation of Terpenoids (Steam distillation method) -General properties-Structure of Citral, Geraniol, Menthol and α -Terpineol (no structural elucidation) | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| March | III | Organic Compounds and Industrial Organic Compounds:- a) Preparation and uses of some Important Organic Compounds - | II B.Sc Zoology | 12 | Online teaching through Google Meet | |

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|-------|----|--|--------------------|----|---|
| | | Saccharin, Salicylic acid, Aspirin, Salol and Picric acid b) Manufacture and uses of some Industrial organic compounds - Alcoholic beverages (Beer and wine), Absolute alcohol, n-butyl alcohol, vinegar and lactic acid. | | | |
| April | IV | Chemotherapy: Introduction-characteristics of a drug-Antibacterials-Definition-preparation and uses of sulphadiazine-Antimalarials - definition-preparation and uses of chloroquine-Antibiotics-definition-classification-based on the specificity of their action, based on gram staining method-structure and uses of Penicillin-Arsenical drugs-definition- preparation and uses of Salvarsan. | II B.Sc Zoology | 12 | Online teaching through Google Meet <i>M. H. P. - dr</i> |
| May | V | Fertilizers, Insecticides, Pesticides and Fungicides a) Fertilizers - Definition-role of various elements in plant growth -Manufacture and uses of Nitrogenous fertilizers-Calcium Ammonium Nitrate-Urea-Phosphatic fertilizers -Calcium Super Phosphate -Triple Super Phosphate -Potash fertilizers-Potassium Chloride -Potassium Sulphate b) Insecticides, Pesticides and Fungicides -Definition - Classification according to the mode of action -Preparation and uses of DDT and BHC. | II B.Sc Zoology | 12 | Online teaching through Google Meet <i>M. H. P. - dr</i> |

e. b. b.
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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics

Sem : IV

Sub. Code : 17AK4

Title of the Paper: General chemistry -IV

Total Hours : 60

| Month | Unit | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|------|---|---------------|-----------------|-------------------------------------|--------------------------|
| Jan | I | Double Salts, Alums and Coordination compounds a) Double Salts And Alums -Definition -Double Salts -Alum-Distinction between Double salts and alums -Preparation and uses of ferrous ammonium sulphate -Preparation and uses of ferric Alum b) Coordination compounds -Definition -Definition of various terms involved in Coordination Chemistry -Werner's Theory - illustrate with example - Effective Atomic Number rule with examples -Valence Bond Theory - postulates, formation of $[\text{Co}(\text{NH}_3)_6]^{3+}$ complex. | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| Feb | II | Alkaloids and Terpenoids:- Alkaloids -Definition -Occurrence- Classification of alkaloids- Extraction of alkaloids- General Properties of alkaloids -Structure of Cocaine, Piperine and Nicotine. b) Terpenoids -Definition -Isoprene rule - special isoprene rule - Classification -Isolation of Terpenoids (Steam distillation method) -General properties- Structure of Citral, Geraniol, Menthol and α - Terpineol (no structural elucidation) | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| March | III | Organic Compounds and Industrial Organic Compounds:- a) Preparation and uses of some Important Organic Compounds - Saccharin, Salicylic acid, Aspirin, | II B.Sc Maths | 12 | Online teaching through Google Meet | |

| | | | | | | |
|-------|----|--|---------------|----|-------------------------------------|---------------|
| | | Salol and Picric acid. b) Manufacture and uses of some Industrial organic compounds -Alcoholic beverages (Beer and wine), Absolute alcohol, n-butyl alcohol, vinegar and lactic acid. | | | | |
| April | IV | Chemotherapy: Introduction-characteristics of a drug-Antibacterials-Definition-preparation and uses of sulphadiazine-Antimalarials -definition-preparation and uses of chloroquine-Antibiotics-definition-classification-based on the specificity of their action, based on gram staining method-structure and uses of Penicillin-Arsenical drugs-definition- preparation and uses of Salvarsan. | II B.Sc Maths | 12 | Online teaching through Google Meet | <i>M.F.P.</i> |
| May | V | Fertilizers, Insecticides, Pesticides and Fungicides a) Fertilizers - Definition-role of various elements in plant growth -Manufacture and uses of Nitrogenous fertilizers-Calcium Ammonium Nitrate-Urea-Phosphatic fertilizers -Calcium Super Phosphate -Triple Super Phosphate -Potash fertilizers-Potassium Chloride - Potassium Sulphate b) Insecticides, Pesticides and Fungicides -Definition -Classification according to the mode of action -Preparation and uses of DDT and BHC. | II B.Sc Maths | 12 | Online teaching through Google Meet | <i>M.F.P.</i> |

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LESSON PLAN

2021-2022

Class : I B.Sc Zoology & Mathematics


Sem : I & II

Sub. Code : 21AK2P

Title of the Paper: Salt Analysis

Total Hours : 60

| Month | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|---|----------------|-----------------|-------------------------------------|--------------------------|
| Jan | Instruction Demonstration Analysis of Anions (Acid radical) Demonstration Analysis of Cations (Basic radical) | I B.Sc Zoology | 12 | Online teaching through Google Meet | M. H. K. |
| Feb | Analysis of Anions for 2 batches Analysis of Cations for 2 batches | I B.Sc Zoology | 12 | Online teaching through Google Meet | M. H. K. |
| March | Analysis of inorganic salt - I for 2 batches Analysis of inorganic salt - II for 2 batches Analysis of inorganic salt - III for 2 batches | I B.Sc Zoology | 12 | Online teaching through Google Meet | M. H. K. |
| April | Analysis of inorganic salt - IV for 2 batches Analysis of inorganic salt - V for 2 batches Analysis of inorganic salt - VI for 2 batches | I B.Sc Zoology | 12 | Online teaching through Google Meet | M. H. K. |
| May | Revision for 2 batches Model test for 2 batches | I B.Sc Zoology | 12 | Online teaching through Google Meet | M. H. K. |


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LESSON PLAN
2021-2022

Class : I B.Sc Zoology & Mathematics

Sem : I & II

Sub. Code : 21AK2P

Title of the Paper: Salt Analysis

Total Hours : 60

| Month | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-------|---|--------------|-----------------|-------------------------------------|--------------------------|
| Jan | Instruction Demonstration Analysis of Anions (Acid radical) Demonstration Analysis of Cations (Basic radical) | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| Feb | Analysis of Anions for 2 batches Analysis of Cations for 2 batches | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| March | Analysis of inorganic salt - I for 2 batches Analysis of inorganic salt - II for 2 batches Analysis of inorganic salt - III for 2 batches | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| April | Analysis of inorganic salt - IV for 2 batches Analysis of inorganic salt - V for 2 batches Analysis of inorganic salt - VI for 2 batches | I B.Sc Maths | 12 | Online teaching through Google Meet | |
| May | Revision for 2 batches Model test for 2 batches | I B.Sc Maths | 12 | Online teaching through Google Meet | |

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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics

Sem : III & IV

Sub. Code : 17AK4P

Title of the Paper: Volumetric Analysis

Total Hours : 60

| Month | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|---|-----------------|-----------------|-------------------------------------|--------------------------|
| July | Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| August | Estimation of Na_2CO_3 for 2 batches Estimation of Mohr's salt for 2 batches | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| sep | Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Oct | Estimation of FeSO_4 for 2 batches Estimation of $\text{C}_2\text{H}_2\text{O}_4$ for 2 batches | II B.Sc Zoology | 12 | Online teaching through Google Meet | |
| Nov | Revision for 2 batches Model test for 2 batches | II B.Sc Zoology | 12 | Online teaching through Google Meet | |

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LESSON PLAN

2021-2022

Class : II B.Sc Zoology & Mathematics

Sem : III & IV

Sub. Code : 17AK4P

Title of the Paper: Volumetric Analysis

Total Hours : 60

| Month | Description of the Syllabus | Class | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|--------|---|---------------|-----------------|-------------------------------------|--------------------------|
| July | Instruction Demonstration for estimation of given solution Demonstration for estimation of given solution | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| August | Estimation of Na_2CO_3 for 2 batches Estimation of Mohr's salt for 2 batches | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| sep | Estimation of KMnO_4 for 2 batches Estimation of NaOH for 2 batches | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| Oct | Estimation of FeSO_4 for 2 batches Estimation of $\text{C}_2\text{H}_2\text{O}_4$ for 2 batches | II B.Sc Maths | 12 | Online teaching through Google Meet | |
| Nov | Revision for 2 batches Model test for 2 batches | II B.Sc Maths | 12 | Online teaching through Google Meet | |

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**LESSON PLAN
2021-2022**

**ALLIED BOTANY
(UG – Odd & Even Semester)**



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LESSON PLAN
2021-2022
ODD SEMESTER


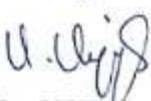
Class : II B.Sc. Zoology- Allied Botany

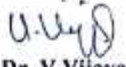
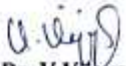
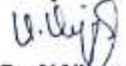
Semester : III

Sub. Code : 17AG3

Total Hours : 60 Hours

Title of the Paper: Plant diversity - Algae, Fungi, Bryophytes,
Pteridophytes and Gymnosperms

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|----------|------|---|-----------------|-------------------------|---|
| Aug 2021 | I | Introduction to Plant Diversity Plant diversity – Concept, Plant Kingdom-Position of plants in five kingdom system (Robert Whittaker) and Classification of plant kingdom Oswald Tippo 1942. Algae - Occurrence, Cell Structure and Life Cycle Patterns of: - a. Cyanophyceae - <i>Oscillatoria</i> b. Chlorophyceae - <i>Oedogonium</i> c. Phaeophyceae - <i>Sargassum</i> d. Rhodophyceae - <i>Polysiphonia</i> | 14 | Online Google Meet |  Dr. V.Vijaya |
| Sep 2021 | II | Fungi - Occurrence, Cell Structure and Life Cycle Patterns of: - a. Phycomycetes – <i>Mucor</i> b. Ascomycetes – <i>Aspergillus</i> c. Basidiomycetes – <i>Puccinia</i> d. Lichens – <i>Usnea</i> | 14 | Online Google Meet |  Dr. V.Vijaya |

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|----------|-----|--|----|--------------------|---|
| Oct 2021 | III | Bryophytes : Structure and Life Cycle of <i>Marchantia</i> | 15 | Online Google Meet |  Dr. V. Vijaya |
| Nov 2021 | IV | Pteridophytes Structure and life history of <i>Selaginella</i> | 15 | Online Google Meet |  Dr. V. Vijaya |
| Dec 2021 | V | Gymnosperms Structure and reproduction of <i>Cycas</i> | 17 | Online Google Meet |  Dr. V. Vijaya |


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LESSON PLAN
2021-2022
ODD SEMESTER

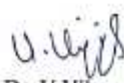
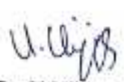
Class : III B.Sc. Zoology Allied Botany

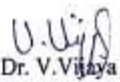
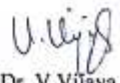
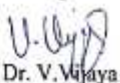
Semester : V

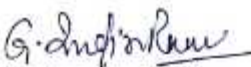
Sub. Code : 17AG5

Total Hours : 60 Hours

Title of the Paper: **Plant Morphology, Taxonomy,
 Medicinal Botany, Economic Botany,**

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|----------|------|--|-----------------|--------------------------|---|
| Aug 2021 | I | Plant Morphology Root – Fusiform, Napiform and Conical, Stem – Aerial – Tendril, Thorn, Bulbils and Cladode. Underground Stem – Bulb, Corm, Sucker and Stolen modifications, Leaf – Phyllotaxy – Alternate, Opposite, Ternate and Whorled – Modifications of leaf – Phyllode. | 14 | Online Google Meet |  Dr. V. Vijaya |
| Sep 2021 | II | Plant Morphology Inflorescence – Definition, Types – a) Racemose – Raceme, Spike, Spadix, Umbel and Capitulum b) Cymose – Solitary Cyme, Monochasial Cyme and Dichasial Cyme and Polychasial Cyme. Flower – Parts of a typical flower, floral whorls a) Calyx – Modifications and Types of aestivation b) Corolla – Forms – Cruciform, Papilionaceous, Infundibuliform and Bilabiate and types of aestivation c) Androecium – Parts of stamen – Monadelphous, Diadelphous and Polyadelphous. d) Gynoecium – Parts of carpel, apocarpus and syncarpus, types of placentation in ovules. Fruit – Classification Types a) Simple – Fleshy and Dry | 13 | Online Google Meet |  Dr. V. Vijaya |

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|----------|-----|---|----|-------------------------------------|--|
| | | (Dehiscent and Indehiscent) b) Aggregate – Eaterio of Berries and Follicles c) Multiple – Sorosis and Syconus. | | | |
| Oct 2021 | III | Taxonomy of Angiosperms General outline of Bentham and Hooker's classification, its merits and demerits. Study the salient features of the following families and their Economic Importance: - Cacsalpiniaceae, Asclepiadaceae, Lamiaceae, Euphorbiaceae and Poaceae | 16 | Online Google Meet |  Dr. V. Vijaya |
| Nov 2021 | IV | Medicinal Botany Description of the individual plant, Common name, Botanical name, Family, Morphology of the useful part, Chemical constituents and Medicinal uses of the following plants:- Insulin leaf – <i>Costus igneus</i> – Turmeric – <i>Curcuma longa</i> – Nelavembu – <i>Andrographis paniculata</i> Thudhuvalai – <i>Solanum trilobatum</i> Thulsi – <i>Ocimum sanctum</i> – Vallarai – <i>Centella asiatica</i> – Sotrukatrallai – <i>Aloe vera</i> Keelanelli – <i>Phyllanthus amara</i> Perunelli – <i>Phyllanthus emblica</i> Arukampul – <i>Cyanodon dactylon</i> | 17 | Online Google Meet |  Dr. V. Vijaya |
| Dec 2021 | V | Economic Botany Cereals – 1. Paddy (<i>Oryza sativa</i>) Poaceae 2. Millets – Ragi (<i>Eleusine coracana</i>) Poaceae 3. Pulses – Cowpea (<i>Vigna unguiculata</i>) Fabaceae 4. Fruits – Banana- (<i>Musa paradisiaca</i>) Musaceae - Ripe Fruit, Inflorescence, Pseudostem 5. Nuts- Cashew nut- (<i>Anacardium occidentale</i>) Anacardiaceae. | 15 | Online Teaching through Google Meet |  Dr. V. Vijaya |


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LESSON PLAN
2021-2022
EVEN SEMESTER




Class : II B.Sc. Zoology- Allied Botany

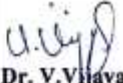

Sub. Code : 17AG4

Semester : IV

Total Hours : 60 Hours

Title of the Paper: Cell biology, Plant Anatomy, Genetics,
Plant breeding, Horticulture

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|----------|------|--|-----------------|-------------------------|--|
| Aug 2021 | I | Cell biology: Overall structure of a typical plant cell, Prokaryotic & Eukaryotic cell difference (table form) – Structural organization and functions of intracellular organelles – Mitochondria and Chloroplast. Structure of Plasma-membrane (Unit membrane concept – Robertson; Fluid mosaic model – Singer and Nicolson) | 12 | PPT, Chalk & Talk |  Dr. V. Vijaya |
| Sep 2021 | II | Plant Anatomy Tissues – Meristematic and Permanent tissue – Simple permanent tissue – a) Parenchyma b) Collenchyma c) Sclerenchyma, Complex permanent tissue – a) Xylem b) Phloem (Meristematic theories need not be discussed). Primary structure and Secondary thickening in dicot stem and dicot root. Differentiate Dicot & Monocot stem and Root. | 14 | Chalk & Talk |  Dr. V. Vijaya |
| Oct 2021 | III | Genetics: Mendelian Principles – Explain law of Dominance, Segregation and Independent assortment. Mendel's Experiment on Pea | 15 | Chalk & |  Dr. V. Vijaya |

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|----------|----|---|----|-------------------|---|
| | | plant – Monohybrid Cross, Dihybrid Cross, Back Cross, Test Cross and Incomplete Dominance | | Talk | |
| Nov 2021 | IV | Plant Breeding Objectives of plant breeding and methods of crop improvement – Introduction, Selection (Mass selection and Clonal selection), Hybridization –Types and Techniques of Hybridization. Mutation and Polyploidy in plant breeding (Achievements only). | 10 | Chalk & Talk |  Dr. V. Vijaya |
| Dec 2021 | V | Horticulture Introduction, Branches and Importance of horticulture. Methods of Propagation: Vegetative: – a) Natural – Rhizome, bulb, corm and sucker. b) Artificial – Stem Cutting (Herbaceous, Softwood, Semi – Hardwood and Hardwood cutting) – Layering (Simple, Compound and Air layering) – Grafting (Approach, Whip, Cleft and Top). Kitchen Garden (Home Garden) – aim, layout, choices of vegetable plants and Advantages. Greenhouse structure – a) Site selection and orientation b) Structure materials c) Covering materials d) Temperature and humidity control. Advantages of greenhouse in growing ornamental, vegetable, fruit and medicinal plants. | 14 | PPT, Chalk & Talk |  Dr. V. Vijaya |


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LESSON PLAN
2021-2022
EVEN SEMESTER

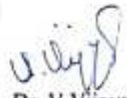
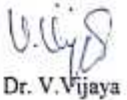
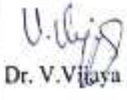
Class : III B.Sc. Zoology Allied Botany

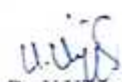
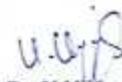
Semester : VI

Sub. Code : 17AG6

Total Hours : 60 Hours

Title of the Paper: Plant Physiology, Embryology,
Tissue Culture, Plant Pathology

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|----------|------|---|-----------------|-------------------------|--|
| Aug 2021 | I | Plant Physiology Photosynthesis - Light harvesting complexes, Hill's Light Reaction -Noncyclic Photophosphorylation (Z Scheme), Calvin's - Dark reaction (C ₃ cycle) in the chloroplast. | 10 | PPT, Chalk &Talk |  Dr. V. Vijaya |
| Sep 2021 | II | Plant Physiology Absorption of water (Active and Passive absorption) in roots. Transpiration – Types, Stomatal Movement and Guttation in leaves - Ascent of sap through xylem (Vital theories – Physical theory (Dixon and Jolly) – Transpiration pull. Respiration (Glycolysis, Kerb's Cycle and Electron Transport Chain (ETC) in Mitochondria. Plant hormones – Role of phytohormones in plants- Auxins, Cytokinins and Gibberellins. | 14 | PPT, Chalk &Talk |  Dr. V. Vijaya |
| Oct 2021 | III | Embryology Structure and development of anther, male gametophyte. Structure of mature megasporangium (ovule) – development of female gametophyte (Embryosac) (e.g. <i>Polygonum</i> type of embryosac), Double fertilization. Endosperm – | 12 | PPT, Chalk &Talk |  Dr. V. Vijaya |

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|-------------|----|---|----|--------------------|--|
| | | Different types (Nuclear, Cellular and Helobial). | | | |
| Nov 2021 | IV | Tissue Culture Tissue culture – laboratory requirements for plant tissue culture – Tissue culture techniques (Steps) – Applications of tissue culture – Production and uses of haploid plants. | 12 | Video, Chalk &Talk |  Dr. V. Vijaya |
| Dec 2021 | V | Plant Pathology General account about Bacterial and Viral diseases – Symptoms, Causative organism and control measures of the following diseases: Viral disease – Bunchy top of Banana; Bacterial disease –Canker of Citrus; Fungal disease – Tikka disease of ground nut. | 12 | PPT, Chalk &Talk |  Dr. V. Vijaya |


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LESSON PLAN
2021-2022
PRACTICAL

Class : III B.Sc. Zoology Allied Botany

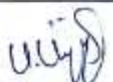

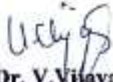
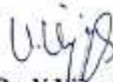
Semester : III & IV

Sub. Code : 17AG4P


Total Hours : 30 Hours

Title of the Paper: Algae, Fungi, Bryophytes, Pteridophytes,
Gymnosperm/Cell Biology, Anatomy, Genetics,
Plant Breeding, Horticulture

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|------------------|------|--|-----------------|---|--------------------------|
| January 2022 | I | Algae : a. Cyanophyceae - <i>Oscillatoria</i> b. Chlorophyceae - <i>Oedogonium</i> c. Phaeophyceae - <i>Sargassum</i> d. Rhodophyceae - <i>Polysiphonia</i> | 10 | Algal cell mounting | Dr. V.Vijaya |
| | II | Fungi - a. Phycmycetes – <i>Mucor</i> b. Ascomycetes – <i>Aspergillus</i> c. Basidiomycetes – <i>Puccinia</i> d. Lichens - <i>Usnea</i> | | Spotter Identification | Dr. V.Vijaya |
| | III | Bryophyte : <i>Marchantia</i> | | Spotter identification of the structural parts & Thallus Sectioning | Dr. V.Vijaya |
| February 2022 | IV | Pteridophyte - <i>Selaginella</i> | 4 | Spotter identification of the structural parts & Stem Sectioning | Dr. V.Vijaya |
| | V | Gymnosperms Structure and reproduction of <i>Cycas</i> | | Spotter identification of the | Dr. V.Vijaya |

| | | | | structural parts & leaf Sectioning | |
|------------|-----|--|---|--|---|
| March 2022 | I | Cytology Structure of Plant cell, Mitochondria and Chloroplast. | 6 | Spotter Identification |  Dr. V. Vijaya |
| | II | Plant Anatomy a) Parenchyma b) Collenchyma c) Sclerenchyma a) Xylem b) Phloem Primary structure and Secondary thickening in dicot stem and dicot root. Differentiate Dicot & Monocot stem and Root. | | Spotter Identification Sectioning of Dicot & Monocot Stem |  Dr. V. Vijaya |
| April 2022 | III | Genetics: Mendelian Principles - Monohybrid Cross Dihybrid Cross Back Cross Test Cross Incomplete Dominance | 4 | Chalk & Talk, Demonstration |  Dr. V. Vijaya |
| | IV | Plant Breeding Demonstration of Hybridization Technique. | | | |
| May 2022 | V | Horticulture Methods of Propagation: Vegetative: a) Natural - Rhizome, bulb, corm and sucker. b) Artificial - Stem Cutting Herbaceous, Softwood, Semi - Hardwood and Hardwood cutting. c) Layering - Simple, Compound Grafting - Approach, Whip, Cleft and Top. Kitchen Garden layout. Greenhouse construction | 6 | Demonstration |  Dr. V. Vijaya |


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LESSON PLAN
2021-2022
PRACTICAL


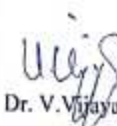
Class : III B.Sc. Zoology Allied Botany

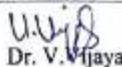
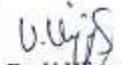
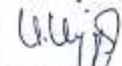
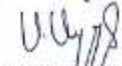
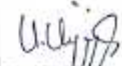
Semester : V & VI

Sub. Code : 17AG6P

Total Hours : 30 Hours

Title of the Paper: Plant Morphology, Taxonomy,
Medicinal Botany, Economic Botany,
Plant Physiology, Embryology, Tissue Culture and Plant Pathology

| Month | Unit | Description of the Syllabus | Hours Allocated | Teaching Mode & Methods | Course Teacher Signature |
|-----------------|------|---|-----------------|-------------------------|--|
| January 2022 | I | Plant Morphology Root – Fusiform, Napiform and Conical Stem – Aerial – Tendril, Thorn, Bulbils and Cladode. Underground Stem –Bulb, Corm, Sucker and Stolen modifications. Leaf – Phyllotaxy – Alternate, Opposite, Ternate and Whorled – Modifications of leaf – Phyllode. | 8 | Specimen observation |  Dr. V. Vijaya |
| | II | Plant Morphology Inflorescence –a) Racemose – Raceme, Spike, Spadix, Umbel and Capitulum b) Cymose – Solitary Cyme, Monochasial Cyme and Dichasial Cyme and Polychasial Cyme. Flower – Parts of a flower, floral whorls a) Calyx –c) Corolla and types of aestivation c) Androecium – d) Gynoecium - Types of placentation in ovules. Fruit – Classification Types a) Simple – Fleshy and Dry (Dehiscent and Indehiscent) b) Aggregate – Berries and Follicles. c) Multiple – Sorosis and Syconus. | | Specimen observation |  Dr. V. Vijaya |

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|------------------|-----------|--|---|--|---|
| February 2022 | III | Taxonomy of following families: - Caesalpiniaceae,, Asclepiadaceae, Lamiaceae, Euphorbiaceae and Poaceae | | Specimen observation and Dissection |  Dr. V. Vijaya |
| | IV | Medicinal Botany: Medicinal uses of the following plants:- 1. Insulin leaf - <i>Costus igneus</i> 2. Turmeric - <i>Curcuma longa</i> 3. Nelavembu - <i>Andrographis naniculata</i> 4. Thudhuvalai - <i>Solanum trilobatum</i> 5. Thulsi - <i>Ocimum sanctum</i> 6. Vallarai - <i>Centella asiatica</i> 7. Sotrukatrallai - <i>Aloe vera</i> 8. Keelanelli - <i>Phyllanthus amara</i> 9. Perunelli - <i>Phyllanthus emblica</i> 10. Arukampul - <i>Cyanodon dactylon</i> | 8 | Specimen observation |  Dr. V. Vijaya |
| March 2022 | VI | Economic Botany: Cereals - 1. Paddy (<i>Oryza sativa</i>) 2. Millets - Ragi (<i>Eleusine coracana</i>) 3. Pulses - Cowpea (<i>Vigna unguiculata</i>) 4. Banana- (<i>Musa paradisiaca</i>) - 5. Nuts- Cashew nut- (<i>Anacardium occidentale</i>) Anacardiaceae. Plant Physiology Photosynthesis - Experiment | | Specimen observation Demonstration |  Dr. V. Vijaya |
| April 2022 | III IV | Embryology Structure of anther and ovule. Endosperm - Nuclear, Cellular and Helobial. Tissue Culture Demonstration of Plant Tissue culture technique. | | Specimen observation Demonstration |  Dr. V. Vijaya |
| May 2022 | V | Plant Pathology Identification of Viral disease - Bunchy top of Banana; Bacterial disease - Canker of Citrus; Fungal disease - Tikka disease of ground nut. | | Specimen observation |  Dr. V. Vijaya |


Signature of the HOD


Signature of the Principal
PRINCIPAL VC
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