BOARD OF STUDIES MEETING IN UG ZOOLOGY

DEPARTMENT OF ZOOLOGY

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A)
SULLURPET, TIRUPATI DISTRICT, ANDHRA PRADESH
ACCRIDITED BY NAAC WITH A GRADE
(Affiliated to Vikrama Simhapuri University, Nellore)
www.gdcsullurpet.edu.in, sullurpet.jkc@gmail.com

SEPTEMBER-2025

INDEX

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE
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Proceedings of the principal

Rc.No.6/SVSSC/Autonomous/ modif. Proc./ BoS /AC/2025-26. **Date: -10-07-2025**

Sir/Madam

Sub: Modification of Board of Studies in Zoology from the AY 2025-26

Ref: 1. No.F.2-10/2023 (AC-Policy), dated 10-07-2024.

2. Rc. No.1/SVSSC/Autonomous/ BoS /AC/2024-25

In partial modification of the earlier proceedings cited above the revised proceedings is issued in respect of UG Board of Studies in Zoology and Medical Laboratory Technology ,a term of two years from 2025–26 to 2026– 27, or until the employees retire or transfer, whichever comes first. I hope you will accept the appointment and provide insightful advice and recommendations for the college.

S. No	Name and designation	Position	Chairperson/ Member
1	**Dr. P. Victoria Rani** Lecturer in Botany , SVSSC Govt. Degree College(A),Sullurpet Email:pvrani25@gmail.com Mobile ,8919735237	In- charge of the Department	Chairperson
2	**Sri S. Srinivas** Lecturer in Zoology SVSSC Govt. Degree College (A),Sullurpet Email: sanakasrinivas00@gmail.com , 8247568643	Faculty Member	Faculty Member
3	**Dr. K. Siva Prasad** Head, Department of Zoology S.K.R. Govt. Degree College, Gudur Email: kanchi1976@gmail.com Mobile:9676841978	University Nominee	Member
4	**Dr. K. Narasimha Varma** Head, Department of Zoology S.V.A. Govt. Degree College,Srikalahasti Email:varmazoology@gmail.com, 9440167239	Subject Experts from outside parent University	Members
5	**Dr. K. Sucharita** Head, Department of Microbiology Govt. College for Women (A),Guntur Email: sucharitakk@gmail.com Mobile: 9963180561		

6	**Dr. P. Veerabhadraiah MD, pediatrics** Sri Lakshmi Specialty Hospital, Sullurpet Email: drbhadrapenubaka@gmail.com Mobile: 9494828797		
7	**Sri P.Samuel** Assistant Conservator of forests Office of the principle chief conservator of forests, Mangalagiri AP. 6281973576	Representative from Industry	Member
8	**Smt. M. R. Sujeevana Rao** J.L in Zoology MJPAPBCWREI School& College, Doravarisatram Email:sujiuday2513@gmail.com 9381533729	Alumnus	Member

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DEPARTMENT OF ZOOLOGY

BOARD OF STUDIES MEETING, 20th SEPTEMBER , 2025

AGENDA

- To approve the course structure and credits for the Zoology Minor ,III semester& Multidisciplinary Course in IV Semester.
- To approve the syllabus with minor modifications of the affiliating university.
- To approve the blue print and model question paper.
- To approve the internal, external, and practical assessment procedure.
- To approve the list of examiners.
- To approve the add-on course offered by the department.
- To approve the planned departmental activities for the 2025–26 academicyear.
- Whatever else, with the chair's approval

Chairman, Board of Studies in zoology Sri VSSC Government Degree college (A) Sullurupeta, Andhra Pradesh

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DEPARTMENT OF ZOOLOGY

BOARD OF STUDIES MEETING,20th SEPTEMBER ,2025

MINUTES OF THE MEETING

The members of the Board of Studies of Zoology met virtually on September 20, 2025, at 2:00 p.m. under the chairmanship of Sri. S. Srinivas, Head of the department of Zoology. Following extensive deliberation, the board resolved to approve the following resolutions: course structure, credits, syllabus, blue print, model question paper, internal, external, practical, and project assessment procedures, add-on course, activities to be carried out, list of examiners and multidisciplinary course for the 2025–26 academic year.

RESOLUTIONS

- Resolved to accept the II semester &Multidisciplinary course structure and credits as specified in Annexure I.
- Resolved to adopt the syllabus with the minor changes listed in Annexure II and IIA
- Resolved to accept the blue print and model question papers mentioned in Annexure III.
- Resolved to accept the external, internal, and practical evaluation and assessment procedures listed in Annexure IV.
- Resolved to approve the examiners' list provided in Annexure V.
- Resolved to approve the add-on course entitled Dairy Technology as provided in Annexure VI.
- The resolution was made to approve the list of activities carried out by the department for the academic year 2025–26, as mentioned in Annexure VII

P.V.Ramana

Chairman, Board of Studies in zoology Sri VSSC Government Degree college (A) Sullurupeta, Andhra Pradesh

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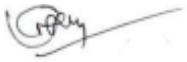
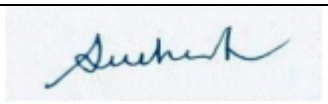
DEPARTMENT OF ZOOLOGY

BOARD OF STUDIES MEETING 14th AUGUST, 2024

Members Present

Sr.No	Name of the member present	Designation	Signature
1	Dr.P.Victoria Rani	Chairman	
2	Sri.S.Srinivas	Member	
3	Dr.k. Siva Prasad	Member	
4	Dr.K.NarasimhaVarma	Member	
5	Dr.K.Sucharita	Member	
6	Dr.P.Veerabhadraiah	Member	
7	Sri.P.Samuel	Member	
8	Smt.M.R.Sujeevana Rao	Member	

Chairman, Board of Studies in zoology
Sri VSSC Government Degree college (A)
Sullurupeta, Andhra Pradesh

ANNEXURE-I

COURSE STRUCTURE

ZOOLOGY

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
II	III	2	Animal Diversity-II Biology of Chordates	3	3
			Animal Diversity-II Biology of Chordates Practical Course	2	1
	IV	3	Embryology	3	3
			Embryology Practical Course	2	1
		4	Animal Physiology: Life Sustaining Systems	3	3
			Animal Physiology: Life Sustaining Systems Practical Course	2	1

Multidisciplinary courses for B.A and B.Com

Semester	Title of the Course	No. of Hrs /Week	No. of Credits
II	Principles of Biological Sciences	2	2
III	Health and Hygiene	2	2

P. V. Ramana

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Sullurupeta, Andhra Pradesh

SEMESTER-III

COURSE 2: ANIMAL DIVERISTY-II BIOLOGY OF CHORDATES

Theory Credits: 3 3 hrs/week

LEARNING OBJECTIVES

- To understand the animal kingdom.
- To understand the taxonomic position of Protochordata to Mammalia.
- To understand the general characteristics of animals belonging to Fishes to Reptilians.
- To understand the body organization of Chordata.
- To understand the taxonomic position of Protherian mammals.

LEARNING OUTCOMES:

By the completion of the course the graduate should able to –

- Describe general taxonomic rules on animal classification of chordates
- Classify Protochordata to Mammalia with taxonomic keys
- Understand Mammals with specific structural adaptations
- Understand the significance of dentition and evolutionary significance
- Understand the origin and evolutionary relationship of different phyla from Prochordata to Mammalia.

SYLLABUS:

UNIT - I

1.1 General characters and classification of Chordata up to classes

1.2 Salient features of Cephalochordata, Salient features of Urochordata

1.3 Structure and life history of *Herdmania,* Retrogressive metamorphosis –Process and Significance

1.4 Cyclostomata, General characters, Comparison of Petromyzon and Myxine

Activity:

Model preparation /Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT - II

2.1 General characters of Fishes, Salient features Dipnoi

2.2 *Scoliodon*: External features, Digestive system, Respiratory system

2.3 *Scoliodon* Structure and function of Heart, Structure and functions of the Brain.

2.4 Migration in Fishes, Types of Scales

Activity:

Model preparation /Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after

watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT - III

3.1 General characters of Amphibia, General characters of Reptilia

3.2 *Rana hexadactyla*: External features, Respiratory system, Structure and function of Heart

3.3 *Rana hexadactyla* structure and functions of the Brain

3.4 *Calotes*: External features, Digestive system, structure and function of Brain

3.5 Identification of Poisonous snakes

Activity:

Model preparation /Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT - IV

4.1 General characters of Aves

4.2 *Columba livia*: External features, Digestive system, Respiratory system

4.3 *Columba livia*: Structure and function of Heart, structure and function of Brain

4.4 Migration in Birds, Flight adaptation in birds

Activity:

Model preparation/Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT - V

5.1 General characters of Mammalia

5.2 Classification of Mammalia up to sub - classes with examples

5.3 Comparison of Prototherians, Metatherians and Eutherians

5.4 Dentition in mammals, Aquatic mammals Adaptations

Activity:

Model preparation/Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

Co-curricular activities (suggested)

- Preparation of charts on Chordate classification (with representative animal photos) and retrogressive metamorphosis
- Clay models of Herdmania and Amphioxus

- Visit to local fish market and identification of local cartilaginous and bony fishes
- Maintaining of aquarium by students
- Model of fish heart and brain
- Preparation of slides of scales of fishes
- Visit to local/nearby river to identify migratory fishes and prepare study notes

  Preparation of Charts on above topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.)
- Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc., and/or their skeletons
- Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology Museum
- Map pointing of prototherian and metatherian mammals
- Chart preparation for dentition in mammals

Reference Books:

- J.Z. Young, 2006. The life of vertebrates. (The Oxford University Press, New Delhi). 646 pages. Reprinted
- Arumugam, N. Chordate Zoology, Vol. 2. Saras Publication. 278 pages. 200 figs.
- A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker &Haswell, 1961).
- M. Ekambaranatha Ayyar, 1973. A manual of zoology. Part II. (S. Viswanathan Pvt. Ltd., Madras).
- P.S. Dhami & J.K. Dhami, 1981. Chordate zoology. (R. Chand & Co.). 550 pages.
- Gurdarshan Singh & H. Bhaskar, 2002. Advanced Chordate Zoology. Campus Books, 6 Vols., 1573 pp., tables, figs.
- A.K. Sinha, S. Adhikari& B.B. Ganguly, 1978. Biology of animals. Vol. II. Chordates. (New Central Book Agency, Calcutta). 560 pages.
- R.L. Kotpal, 2022. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.
- E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages.
- G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.
- Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs.
- Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

SEMESTER-III

COURSE 2: ANIMAL DIVERISTY-II BIOLOGY OF CHORDATES

Practical | Credits: 1 | 2 hrs/week

Learning objectives:

- To understand the importance of preservation of museum specimens
- To identify animals based on special identifying characters
- To understand different organ systems through demo or virtual dissections
- To maintain a neat, labeled record of identified museum specimens

SYLLABUS:

1. Protochordata: Herdmania, Amphioxus, Amphioxus T.S through pharynx.
2. Cyclostomes: Petromyzon and Myxine.
3. Pisces: Pristis, Torpedo, Hippocampus, Exocoetus, Echeneis, Labeo, Catla,Clarius, Channa, Anguilla.
4. Amphibia: Ichthyophis, Amblystoma, Axolotl larva, Hyla,
5. Reptilia: Draco, Chamaeleon, Uromastix, Testudo, Trionyx, Russels viper, Naja, Krait, Hydrophis, Crocodile.
6. Aves: Psittacula, Eudynamis, Bubo, Alcedo.
7. Mammalia: Ornithorhynchus, Pteropus, Funambulus.
8. **Dissections**-As per UGC guidelines
   Scoliodon IX and X, Cranial nerves
   Scoliodon Brain
   Mounting of fish scales

Note: 1. Dissections are to be demonstrated only by the faculty or virtual.
2.Laboratory Record work shall be submitted at the time of practical examination.

Reference Web Links:

- https://nt7-mhe-complex-assets.mheducation.com/nt7-mhe-complex-assets/Upload-20190715/InspireScience6-8CA/LS15/index.html
- https://themammallab.com/
- http://abacus.bates.edu/acad/depts/biobook/LabConCh.htm
- https://virtualzoology.wordpress.com/scoliodon/
- http://www.zoologyresources.com/uploadfiles/books/dc64b77d8769325515d17c945e461b45.pdf

SEMESTER-IV

COURSE 3: EMBRYOLOGY

Theory | Credits: 3 | 3 hrs/week

Learning objectives

- The objective of this course is to provide a comprehensive understanding of the concepts of early animal development.
- Students taking this course must develop a critical appreciation of methodologies specifically used to study the process of embryonic development in animals.
- In this course different concepts of animal development will be elaborated
- Students will be made familiar with different approaches that have been used to study embryology.
- Topics that will be discussed are organogenesis and regeneration.

Learning outcomes:

The overall course outcome is that the student shall develop deeper understanding of concepts of embryology. This course will provide students with a deep knowledge in embryology by the completion of the course the graduate shall able to –

- Understand the historical perspective and concepts of embryology
- Acquire knowledge on gametogenesis, fertilization and cleavage patterns
- Understand the fate of germinal layers and extraembryonic membranes
- Explain the process of regeneration in certain animals
- Examine the process of organogenesis

SYLLABUS:

UNIT-I:

1.1 Historical perspective and basic concepts: Phases of development

1.2 Cell-Cell interaction, Pattern formation, Differentiation and growth

1.3 Differential gene expression,

1.4 Cytoplasmic determinants and asymmetric cell division

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-II:

2.1 Gametogenesis, Spermatogenesis, Oogenesis;

2.2 Types of eggs, Egg membranes; Fertilization (External and Internal)

2.3 Planes and patterns of cleavage; Types of Blastulae; Fate maps

2.4 Early development of frog and chick up to gastrulation

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above/Model preparation on cleavage planes

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-III:

3.1 Fate of Germ Layers

3.2 Extra-embryonic membranes

3.3 Placenta (Structure, types and functions of placenta)

3.4 Amniocentesis

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above/Chart preparation on the placenta

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-IV:

4.1 Metamorphosis: Changes, hormonal regulations in amphibians

4.2 Regeneration: Modes of regeneration, epimorphosis, morphallaxis and compensatory regeneration (in Turbellarians)

4.3 Ageing: Concepts and Theories

4.4 Teratogenic agents and their effects on embryonic development

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Flow chart preparation on the process of metamorphosis highlighting the periodical changes vs hormone activity

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-V:

5.1 Organogenesis of Central Nervous system

5.2 Organogenesis of Eye, Ear

5.3 Organogenesis of Skin

5.3 Organogenesis of Circulatory system (* Organogenesis in Human need to be explained)

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Flow chart preparation on the process of organogenesis highlighting the gradual developments of organ systems

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

Co-curricular activities (Suggested)

- Preparation of models of different types of eggs in animals
- Chart on frog embryonic development, fate map of frog blastula, cleavage etc.
- Chart on the organogenesis
- RBPT on the Placenta
- Model of extra embryonic membrane
- Laboratory observation of chick embryonic development

References books:

- Developmental Biology by Balinksy
- Developmental Biology by Gerard Karp
- Chordate embryology by Varma and Agarwal
- Embryology by V.B. Rastogi
- Austen CR and Short RV. 1980. *Reproduction in Mammals.* Cambridge UniversityPress.
- Gilbert SF. 2006. *Developmental Biology,* 8th Edition. Sinauer Associates Inc.,Publishers, Sunderland, USA.
- Longo FJ. 1987. *Fertilization.* Chapman & Hall, London.
- Rastogi VB and Jayaraj MS. 1989. *Developmental Biology.* KedaraNath Ram NathPublishers, Meerut, Uttar Pradesh.
- Schatten H and Schatten G. 1989. *Molecular Biology of Fertilization.* AcademicPress, New York.

SEMESTER-IV

COURSE 3: EMBRYOLOGY

Practical | Credits: 1 | 2 hrs/week

Learning objectives

- The objective of this course is to provide a comprehensive practical knowledge on the embryology
- Must develop a critical understanding of the early embryological events
- Acquire knowledge on the developmental stages of chick
- Understand the histology of placenta

SYLLABUS:

1. Study of whole mounts and sections of developmental stages of frog through permanent slides: Cleavage stages, blastula, gastrula, neurula, tail-bud stage, tadpole (external and internal gill stages)
2. Study of whole mounts of developmental stages of chick through permanent slides: Primitive streak (13 and 18 hours), 21, 24, 28, 33, 36, 48, 72, and 96 hours of incubation (Hamilton and Hamburger stages)
3. Study of different sections of placenta (photomicrograph/ slides)
4. Project report on chick embryo development

Reference web links:

- https://praxilabs.com/en/3d-simulations/cultivation-and-preparation-of-the-virus-in-chick-embryo-virtual-lab
- https://vlab.amrita.edu/
- https://www.vlab.co.in/
- https://www.youtube.com/watch?v=p_tx88He8Pk
- https://core.ac.uk/download/143957972.pdf
- https://egyankosh.ac.in/bitstream/123456789/57549/1/Exercise%207%20Chick%20Embryo.pdf
- http://www.macollege.in/app/webroot/uploads/department_materials/doc_501.pdf
  http:/www.zoologyresources.com/uploadfiles/books/dc64b77d8769325515d17c945e461b45.pdf

SEMESTER-IV

COURSE 4: ANIMAL PHYSIOLOGY: LIFE SUSTAINING SYSTEMS

Theory | Credits: 3 | 3 hrs/week

Learning objectives

- To acquire knowledge of organ systems function.
- To develop the ability to integrate physiology from the cellular and molecular level to the organ system and organismic level of organization.
- To Effectively read, evaluate and communicate scientific information related to physiological processes in the body.
- To gain a deep knowledge of current topics in physiology.

Learning outcomes:

The overall course outcome is that the student shall develop deeper understanding of concepts of Physiology. This course will provide students with a deep knowledge in physiology by the completion of the course the graduate shall able to –

- Understand the physiology of digestion and hormonal control of digestion
- Develop a comprehensive picture of respiratory physiology
- Acquire knowledge on the Renal physiology
- Understand the physiology of Nerve and muscle
- Understand the physiology of heart

SYLLABUS:

UNIT-I: Physiology of Digestion

1.1 Structural organization and functions of gastrointestinal tract and associated glands;

1.2 Vitamins & Mineral composition of food & Mechanical and chemical digestion of food;

1.3 Absorptions of carbohydrates, lipids, proteins, water, minerals and vitamins;

1.4 Hormonal control of secretion of enzymes in Gastrointestinal tract.

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Chart preparation on the hormonal control of secretion of enzymes

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-II: Physiology of Respiration

2.1 Structural organization of Respiratory system, Mechanism of respiration, Control of respiration

2.2 Pulmonary ventilation; Respiratory volumes and capacities;

2.3 Transport of oxygen in blood and dissociation curves and the factors influencing it

2.4 Transport of Carbon dioxide in blood; dissociation curves and the factors influencing it, Carbon monoxide poisoning

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Group discussion on the CO poisoning/Debate on the dissociation curves

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-III: Renal Physiology

3.1 Structure of kidney and its functional unit

3.2 Mechanism of urine formation

3.3 Regulation of water balance

3.4 Regulation of acid-base balance

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Group discussion on the Urine formation/Working model of Kidney

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT-IV: Physiology of exciting tissues

4.1 Neuron structure and types

4.2 Nerve impulse transmission-(Myelinated, Non-myelinated, synaptic)

4.3 Ultra structure of muscle

4.4 Molecular and chemical basis of muscle contraction

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Group discussion on the impulse trasnmisson/Debate on the dissociation curves

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

UNIT- V: Physiology of Heart

5.1 Structure of mammalian heart, Coronary circulation;

5.2 Structure and working of conducting myocardial fibers. Origin and conduction of cardiac impulses

5.3 Cardiac Cycle-Cardiac output and its regulation

5.4 Nervous and chemical regulation of heart rate. Blood pressure and its regulation

Activity:

Assignment /Students Seminar/Quiz/Project/Peer teaching/Report writing after watching any video on the above /Group discussion on the phases of Cardiac output /case study on the Blood Pressure

Evaluation: Instructor supposed to prepare a detailed Rubrics for the evaluation of the above activity

Co-curricular activities (Suggested)

- Chart on cardiac cycle, human lung, kidney/nephron structure etc.
- Working model of human / any mammalian heart.
- Working model of human / any mammalian urine formation
- Chart/model of sarcomere
- Chart/model on nerve impulse transmission

References books:

- Eckert H. *Animal Physiology: Mechanisms and Adaptation.* W.H. Freeman &Company.
- Floray E. *An Introduction to General and Comparative Animal Physiology.* W.B.Saunders Co., Philadelphia.
- Goel KA and Satish KV. 1989. *A Text Book of Animal Physiology*, RastogiPublications, Meerut, U.P.
- Hoar WS. *General and Comparative Physiology.* Prentice Hall of India, New Delhi.
- Lehninger AL. Nelson and Cox. *Principles of Biochemistry.* Lange MedicalPublications, New Delhi.
- Prosser CL and Brown FA. *Comparative Animal Physiology.* W.B. SaundersCompany, Philadelphia.

SEMESTER-IV

COURSE 4: ANIMAL PHYSIOLOGY: LIFE SUSTAINING SYSTEMS

Practical | Credits: 1 | 2 hrs/week

Learning objectives

- To acquire knowledge of anatomy of certain important organs.
- To develop the ability to test the biological sample like saliva and urine.
- To Effectively estimate the blood haemoglobin.
- To Acquire skill to use the sphygmomanometer in recording blood pressure.
- To observe the ECG

SYLLABUS:

1. Examination of sections of mammalian oesophagus, stomach, duodenum, ileum, rectum liver, trachea, lung, kidney
2. Study of activity of Salivary amylase under optimum condition
3. Qualitative tests for identification of Carbohydrates
4. Qualitative tests for identification of Proteins
5. Qualitative tests for identification of Fats
6. Urine test for sugar, albumin
7. Estimation of haemoglobin using Sahli's haemoglobinometer
8. Recording of blood pressure using a sphygmomanometer
9. Recording of frog's heart beat under in situ and perfused conditions
10. ECG observation- Spotting/identification of curves from the given ECG

Reference web links:

- https://www.vlab.co.in/participating-institute-amrita-vishwa-vidyapeetham
- https://library.csi.cuny.edu/oer/virtuallabs-simulations#anatomy
- https://www.labster.com/simulations?course-packages=animal-physiology
- http://www.zoologyresources.com/uploadfiles/books/dc64b77d8769325515d17c945e461b45.pdf
- https://physiology.elte.hu/gyakorlat/jegyzet/Physiology_Pactical_(2013).pdf

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA,

FOUR YEAR B.A,B.Com. HONORS (CBCS) SECOND SEMESTER

MDC: PRINCIPLES OF BIOLOGICAL SCIENCES

Credits:2 2hrs/week

Learning Objectives:

By the end of this course the learner can:

1. Acquire logic to evaluate fundamental biological concepts at various levels of biological organisation including the molecular, cellular, organismal and systems levels.
2. Communicate fundamental biological knowledge between tiers of biological organisation.
3. Apply common biological principles across all levels of biological organization.

Learning Outcomes:

On completion of this course students will be able to:

1. Understand the relationship between structure and function at all levels.
2. Recognise the mechanisms underlying biological evolution, its patterns, and its significance as biology's overarching unifying principle.
3. Understand the contributions of biology to the resolution of medical, ethical, social, and environmental concerns in human affairs.

UNIT-I Diversity of Life

1.1 Introduction to Biology, Branches of Biology, Basic Principles of Biology

1.2 Biological Classification - Five kingdom classification, Viruses, Viroids and Lichens

1.3 Diversity in the living world, Taxonomic categories, Taxonomic aids

1.4 Plant organization - The form, structure and function of plant vegetative and reproductive organs, Classification of Plant Kingdom

1.5 Basis of Animal Classification, Classification of Animal Kingdom

UNIT-II Biomolecules and Metabolism

2.1Ultra structure of cell and Cell organelles (Structure and Functions), Plant cell vs Animal cell

2.2 Plant Physiology: Photosynthesis, Respiration, Transportation

2.3 Plant and animal biochemistry

2.4 Human Physiology: Digestion, Blood circulation

2.5 Human excretory system, Hormonal coordination

UNIT-III Principles of Biology

3.1 Genetics: Mendel's laws of inheritance, Genetic disorders – Colour blindness, Sickle cell anaemia.

3.2 Evolution: Geological time scale for evolution of plants and vertebrates.

3.3 Common Human Diseases: Causing organism, prevention and treatment – malaria, dengue, AIDS, cancer, corona.

3.4 Common Plant Diseases: Causing organism, prevention and treatment – Black spot, Leaf spots, Powdery mildew, Blight, Canker.

3.5 Biotechnology: Applications of biotechnology in agriculture, food industry, medicine and transgenic animals.

Text Books

1. Pandey, B.P. (2013). College Botany, Volume-I. S. Chand Publishing, New Delhi.

2. Kotpal, R.L. (2022). Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut).

3. Verma P.S., Agarwal V.K., (2006). Cell biology, genetics, Molecular Biology, Evolution and Ecology. S. Chand Publishers, New Delhi, India.

Reference Books

1. Sreekrishna V. (2005). Biotechnology – I, Cell Biology and Genetics. New Age International Publ., New Delhi, India.

2. Rastogi, S.C. (2019). Essentials of animal physiology, 4th Edition. New Age International Publishers.

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA,

FOUR YEAR B.A,B.Com. HONORS (CBCS) THIRD SEMESTER

MDC: HEALTH AND HYGIENE

SYLLABUS

Unit I: Basics of Nutrition **10 Hrs.**

1. Nutrition – definition, importance, Good nutrition and mal nutrition; Balanced Diet: Basics of Meal Planning
2. Carbohydrates –functions, dietary sources, effects of deficiency.
3. Lipids –functions, dietary sources, effects of deficiency.
4. Proteins –functions, dietary sources, effects of deficiency.
5. Brief account of Vitamins- functions, food sources, effects of deficiency,
6. Macro and micro minerals –functions, effects of deficiency; food sources of Calcium, Potassium and Sodium; food sources of Iron, Iodine and Zinc
7. Importance of water– functions, sources, requirement and effects of deficiency.

Unit II: Health **10 Hrs.**

8. Health - Determinants of health, Key Health Indicators, Environment health & Public health; Health-Education: Principles and Strategies
9. Health Policy & Health Organizations: Health Indicators and National Health Policy of Govt. of India-2017; Functioning of various nutrition and health organizations in India viz., NIN (National Institution of Nutrition), FNB (Food and Nutrition Board), ICMR (Indian Council of Medical Research), IDA (Indian Dietetics Association),WHO-India, UNICEF-India
10. National Health Mission: National Rural Health Mission (NRHM) Framework, National Urban Health Mission (NUHM) Framework
11. Women & Child Health Care Schemes: Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH+); Janani Shishu Suraksha Karyakaram (JSSK); Rashtriya Bal Swasthya Karyakram(RBSK); India Newborn Action Plan (INAP); Adolecent Heatlh- Rashtriya Kishor Swasthya Karyakram (RKSK)
12. Disaster Management – Containment, Control and Prevention of Epidemics and Pandemics – Acts, Guidelines and Role of Government and Public

Unit III: Hygiene **10 Hrs.**

13. Hygiene – Definition; Personal, Community, Medical and Culinary hygiene; WASH (**WA**ter, **S**anitation and **H**ygiene) programme
14. Rural Community Health: Village health sanitation & Nutritional committee (Roles & Responsibilities); About Accredited Social Health Activist (ASHA); Village

Health Nutrition Day, Rogi Kalyan Samitis

15. Community & Personal Hygiene: Environmental Sanitation and Sanitation in Public places
16. Public Awareness through Digital Media - An Introduction to Mobile Apps of Government of India: NHP, Swasth Bharat, No More Tension, Pradhan Mantri Surakshit Mantritva Abhiyan (PM Suman Yojana), My Hospital (Mera aspataal), India fights Dengue, JSK Helpline, Ayushman Bhava, Arogya Setu, Covid 19AP

ANNEXURE IIA

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A)

SULLURPET, TIRUPATI DISTRICT, ANDHRA PRADESH

ACCRIDITED BY NAAC WITH A GRADE

(Affiliated to Vikrama Simhapuri University, Nellore)

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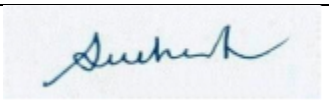
DEPARTMENT OF ZOOLOGY

BOS MEETING ON 20 SEPTEMBER 2025

MODIFICATIONS WITH JUSTIFICATION

Semester	Course	Title of the paper	Modification
III,	course 2	Animal Diversity-II Biology Of Chordates	No changes
IV	course3	Embryology	No changes
	course4	Animal Physiology: Life Sustaining Systems	No changes
II	MDC	Principles of Biological Sciences	No changes
III	MDC	Health and Hygiene	No changes

Signatures of members present

Sr.No	Name of the member present	Designation	Signature
1	Dr.P.Victoria Rani	Chairman	
2	Sri.S.Srinivas	Member	
3	Dr.k. Siva Prasad	Member	
4	Dr.K.NarasimhaVarma	Member	
5	Dr.K.Sucharita	Member	
6	Dr.P.Veerabhadraiah	Member	
7	Sri.P.Samuel	Member	
8	Smt.M.R.Sujeevana Rao	Member	

Chairman, Boad of Studies in zoology
Sri VSSC Government Degree college (A)
Sullurupeta, Andhra Prades

ANNEXURE III

SRIV.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A)

SULLURPET, TIRUPATI DISTRICT, ANDHRA PRADESH

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DEPARTMENT OF ZOOLOGY

BLUE PRINT AND MODEL QUESTION PAPERS

- SEMESTER III,COURSE II BLUE PRINT
- SEMESTERIII,COURSE II MODEL QUESTION PAPER
- SEMESTERIV,COURSE III BLUE PRINT
- SEMESTERIV,COURSE III MODEL QUESTION PAPER
- SEMESTERIV,COURSE IV BLUE PRINT
- SEMESTERIV,COURSE IV MODEL QUESTION PAPER
- SEMESTERII ,MDC COURSE IV BLUE PRINT
- SEMESTER II, MDC MODEL QUESTION PAPER
- SEMESTER III,MDC BLUE PRINT
- SEMESTER III,MDC MODEL QUESTION PAPER

SRI V.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREECOLLEGE(A),SULLURPETA

ZOOLOGY MINOR : SEMESTER III

COURSE 2: ANIMALDIVERSITY-1BIOLOGYOFNON-CHORDATES

BLUE PRINT

Time:2½Hours **Max.Marks:60**

SECTION– A

Answer any FIVE of the following questions (5x4=20marks)

1 From Unit I

2 From Unit I

3 From Unit II

4 From Unit II

5 From Unit III

6 From Unit III

7 From Unit IV

8 From Unit V

SECTION– B

Answer the following questions (5x8=40marks)

9(a)From Unit I

OR

(b) From Unit I

10 (a)From Unit II

OR

(c) From Unit II

11(a)From Unit III

OR

(d) From Unit III

12 (a)From Unit IV

OR

(e) From Unit IV

13 (a)From Unit V

OR

(f) From Unit V

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A) SULLURPET

ZOOLOGY MINOR SEMESTER III

COURSE 2: ANIMALDIVERSITY-1BIOLOGY OF NON-CHORDATES
MODEL QUESTION PAPER

Time: $2\frac{1}{2}$ Hours **Max. Marks: 60**

SECTION – A

Answer any five of the following questions (5 x 4= 20 marks)

.

1. Urochordata.
2. Petromizon
3. Dipnoi fishes
4. Types of scales
5. Apoda
6. Rhynchocephalia
7. Quill father
8. Prototheria

SECTION – B

Answer the following questions (5 x 8 = 40 marks)

9. Describe the retrogressive metamorphosis herdmania.

or

Explain the general characters of cyclostomes.

10. Explain the structure and functions for scoliodone brain.

or

Write an essay on migration in fishes.

11. Write about the structure and functions of heart of frog .

Or

Write about the identification of poisonous snakes.

12. Describe the respiratory system in pegion.

or

Explain the flight adaptations in birds.

13. Explain the general characters of mammalia

or

Write about the dentition in mammals

SRI V.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE(A),SULLURPETA

ZOOLOGY MINOR SEMESTER IV

COURSE3: EMBRYOLOGY
BLUE PRINT

Time:2½Hours **Max.Marks:60**

SECTION– A

Answer any FIVE of the following questions (5x4=20marks)

1 From Unit I

2 From Unit I

3 From Unit II

4 From Unit II

5 From Unit III

6 From Unit III

7 From Unit IV

8 From Unit V

SECTION– B

Answer the following questions (5x8=40marks)

9(a)From Unit I

OR

(g) From Unit I

10 (a)From Unit II

OR

(h) From Unit II

11(a)From Unit III

OR

(i) From Unit III

12 (a)From Unit IV

OR

(j) From Unit IV

13 (a)From Unit V

OR

(k) From Unit V

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A),SULLURPETA

ZOOLOGY MINOR SEMESTER IV

COURSE3: EMBRYOLOGY
MODEL QUESTION PAPER

Time: $2\frac{1}{2}$ Hours **Max. Marks: 60**

SECTION – A

Answer any five of the following questions (5 x 4= 20 marks)

1. Cytoplasmic determinants
2. Types of eggs
3. Aminocentesis
4. Extra embryonic membranes
5. Fate maps
6. Ageing
7. Metamorphosis
8. Organogenesis of ear

SECTION – B

Answer the following questions (5 x 8 = 40 marks)

9. Write in detail about the different phases of development

   or

   Discuss about the basics of differential gene expression
10. Write an essay on Gametogenisis

    or

    Explain about the early development of frog up to gastrulation
11. Describe the structure, types and functions of placenta

    Or

    Write in detail about the fate of germ layers
12. Explain about the modes of regeneration

    Or

    What are teratogenic agents. Write its effects on embryonic development
13. Describe the organogenesis of central nervous system of man

    or

    Write about the organogenesis of skin

SRI V.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE(A),SULLURPET

ZOOLOGY MINOR SEMESTER IV

COURSE4: ANIMAL PHYSIOLOGY

BLUE PRINT

Time:2½Hours **Max.Marks:60**

SECTION– A

Answer any FIVE of the following questions (5x4=20marks)

1 From Unit I

2 From Unit I

3 From Unit II

4 From Unit II

5 From Unit III

6 From Unit III

7 From Unit IV

8 From Unit V

SECTION– B

Answer the following questions (5x8=40marks)

9(a)From Unit I

OR

(l) From Unit I

10 (a)From Unit II

OR

(m) From Unit II

11(a)From Unit III

OR

(n) From Unit III

12 (a)From Unit IV

OR

(o) From Unit IV

13 (a)From Unit V

OR

(p) From Unit V

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A) SULLURPETA

ZOOLOGY MINOR SEMESTER IV

COURSE 4: ANIMAL PHYSIOLOGY

MODEL QUESTION PAPER

Time: $2\frac{1}{2}$ Hours **Max. Marks: 60**

SECTION – A

Answer any five of the following questions (4 x 5= 20 marks)

1. Absorption of macro molecules
2. Composition of food
3. Mechanism of respiration
4. Carbon monoxide poisoning
5. Henle's loop
6. Structure of Neuron
7. Cardiac cycle
8. Coronary circulation

SECTION – B

Answer the following questions (4 x 10 = 40 marks)

9. Describe the structure organization of gastrointestinal tract and associated glands

   or

   Write about the mechanical and chemical digestion of food

10. Give an account of pulmonary ventilation

    or

    Explain about the oxygen dissociation curves and the factors influencing it

11. Describe the structure of kidney and a note on its functional unit.

    Or

    Write an essay on the regulation of acid-base balance.

12. Discuss about the nerve impulse transmission

    or

    Explain about the chemical basis of muscle contraction

13. Describe the structure of mammalian heart

    or

    Write about blood pressure and its regulation.

1041MDC23

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA,

FOUR YEAR B.A,B.Com. HONORS (CBCS) SECOND SEMESTER

MDC: PRINCIPLES OF BIOLOGICAL SCIENCES

BLUE PRINT

Time:2½Hours **Max.Marks:50**

SECTION– A

Answer any FIVE of the following (5x4=20marks)

1. From Unit I
2. From Unit I
3. From Unit I
4. From Unit II
5. From Unit II
6. From Unit II
7. From Unit III
8. From Unit III

SECTION– B

Answer any THREE questions (3x10=30marks)

9. From Unit I
10. From Unit I
11. From Unit II
12. From Unit II
13. From Unit III
14. From Unit III

1041MDC23

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA,

FOUR YEAR B.A,B.Com. HONORS (CBCS) SECOND SEMESTER

MDC: PRINCIPLES OF BIOLOGICAL SCIENCES

MODEL QUESTION PAPER

Time:2½Hours **Max.Marks:50**

SECTION– A

Answer any FIVE of the following (4x5=20marks)

1. Branches of Biology
2. Taxonomic aids
3. Lichens
4. Structure of mitochondria
5. Fluid mosaic model
6. Sickle cell aneamia
7. Prevention and treatment of malaria
8. Transgenic animal

SECTION– B

Answer any THREE questions (3x10=30marks)

9. Explain five kingdom classification
10. Describe the vegetative organs of plants
11. Explain the process of transportation in plants
12. Write about the circulatory system in humans
13. Explain about Mendels's laws of Inheritance.
14. Write about the applications of biotechnology in agriculture and medicine.

3045MDC23

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA,

FOUR YEAR B.A,B.Com. HONORS (CBCS) THIRD SEMESTER

MDC: HEALTH AND HYGIENE

BLUE PRINT

Time:2½Hours **Max.Marks:50**

SECTION– A

Answer any FIVE of the following (5x4=20marks)

1. From Unit I
2. From Unit I
3. From Unit I
4. From Unit II
5. From Unit II
6. From Unit II
7. From Unit III
8. From Unit III

SECTION– B

Answer any THREE questions (3x10=30marks)

9. From Unit I
10. From Unit I
11. From Unit II
12. From Unit II
13. From Unit III
14. From Unit III

3045MDC23

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A) SULLURPETA, FOUR YEAR B.A,B.Com. HONORS (CBCS) THIRD SEMESTER

MDC: HEALTH AND HYGIENE

Time:2 Hours **Max.Marks:50**

SECTION– A

Answer any FIVE of the following (5x4=20marks)

1. Balanced Diet
2. Malnutrition
3. Functions and effects of Calcium deficiency
4. National Institution of Nutrition (NIN)
5. National Rural Health Mission (NRHM)
6. Rashtriya Bal Swasthya Karyakram(RBSK)
7. Rogi Kalyan Samitis
8. Arogya Setu

SECTION– B

Answer any THREE questions (3x10=30marks)

9. Explain the dietary sources and functions of Carbohydrates.
10. Write about the brief account of Vitamins.
11. Describe about the Health indicators and National Health Policy of Govt. of India.
12. Write an essay on National Health Mission.
13. Write about Rural Community Health.
14. Explain about Environmental sanitation and Sanitation in Public places.

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ANNEXURE-IV

SRIV.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A)

SULLURPET,TIRUPATI DISTRICT, ANDHRAPRADESH

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DEPARTMENT OF ZOOLOGY

ASSESSMENT AND EVALUATION PROCEDURE

The College has a system of Continuous Internal Assessment (CIA) and Semester End Examination (SEE).The ratio between CIA and SEE is 40:60 for all 100 marks courses.

Continuous Internal Assessment

- TheCIAisbasedonconsistsoftests,assignments,seminars,projects,etc.Allotmentof marks is distributed as the following:

Mid-SemesterTest1	:	20 marks
Mid-SemesterTest2	:	20 marks
Seminar/GD	:	10marks
Project	:	10marks
Peer group learning /Assignments	:	10marks
Attendance/Participation in clean And green programme	:	05 marks
Total	:	75marks

Semester End Examination (SEE)

- Semester End Examination (SEE) will be conducted at the end of the semester for 60 marks.

Multidisciplinary Course (SEE)

The Multidisciplinary Course in Semester I will undergo an end semester examination worth 50 Marks.

Minimum marks

- The student requires 16 marks for internal examinations and 24 marks for external

examinations, for a total of 40 marks to pass the 100-mark examination and 20 marks to pass the 50-mark examination.

Practical examinations

- At the end of the semester, there will be a practical exam for worth fifty marks Exams will be conducted by an external examiner.
- Marks allotted to the practical examination.

Record	:	10marks
Dissection and display	:	20marks
Identification of Spotters And slides	:	15marks
Viva voice	:	05 marks

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Sri VSSC Government Degree college (A)
Sullurupeta, Andhra Pra

ANNEXURE-V

SRI V.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE(A)

SULLURPET,TIRUPATI DISTRICT,ANDHRAPRADESH

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DEPARTMENT OF ZOOLOGY, LIST OF EXAMINERS

S.No	Nominee Name	Contact Number	Emailid
1.	Dr. K. Siva Prasad Lecturerinzoology S.K.R.Govt.degreecollege,Gudur	9676841978	Kanchi1976@gmail.com
2.	Dr.I.S .Chakrapani Lecturerinzoology Govt.DegreeCollegevidavaluru	8500088788	ischakrapani@gmail.com
3.	Dr.K.NagendraPrasad Lecturer in zoology D.K.Govt.College(w)(A)Nellore	9848767090	nagzoo1966@gmail.com
4.	Dr. K. Lavanya Lecturerinzoology Govt.DegreeCollege,Kovur	9490279458	lavanya.kuppuru@gmail.com
5.	Dr.K.R.Shanmugam Lecturer in zoology Govt.DegreeCollege,Vidavaluru	9440079415	krshanmugamphd@gmail.com
6.	Dr.K.Narasimhavarma Lecturer in zoology S.V.A.GovtDegreecollege,srikalaharsti	9440167239	varmazoology@gmail.com
7.	Dr.R.Chandramouli Lecturer in zoology S.V.A.GovtDegreecollege,srikalaharsti	8125969136	Reddy.cmouli@gmail.com
8.	Dr.S.J.M.Prathapkumar Lecturer in zoology Govt.DegreeCollege(w),Guntur	6281637767	prathapsirivella@gmail.com

9.	Dr.K.BhanuPrakash Lecturer in zoology Govt.DegreeCollege(w),Guntur	9848651662	bhanuprakashkarumanchi@gmail.com
10.	Sri.E. Ramaraju Lecturerinzoology Y.A.Govt.Degreecollege(w),Chirala	9440988891	ramarajuedeboyina@gmail.com

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Sullurupeta, Andhra Pradesh

ANNEXURE-VI

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A) SULLURPETA
ZOOLOGY MINOR

ADD-ON PROGRAMME: DAIRY TECHNOLOGY

Total: (02h/week) **Max 50 Marks**

Learning Objectives:

1. To understand the Dairy development in India.
2. To understand the Management Practices for the Dairy farming.
3. To learn the process of milk Pasteurization.
4. To understand the preparation of cream from the milk.
5. To understand the reproductive behavior of cattle.
6. To understand the economics of dairy farming.
7. To understand the suitable breeds for rearing.

SYLLABUS

Section I (Introduction and Establishment of a Dairy Farm): 05 Hrs

1. Dairy development in India – Dairy Cooperatives (NDRI, NDDB, T CMPF) (1hr)
2. Constraints of Present Dairy Farming and Future Scope of Dairy Farmer. (1 hr)
3. Selection of site for dairy farm; Systems of housing – Loose housing system,Conventional Dairy Farm; Records to be maintained in a dairy farm. (2 hrs)

Section II (Livestock Identification and Management): 13 Hrs

1. Breeds of Dairy Cattle and Buffaloes – Identification of Indian cattle and buffalo breeds and Exotic breeds; Methods of selection of Dairy animals. (5 hrs)
2. Systems of inbreeding and crossbreeding. (2 hrs)
3. Weaning of calf, Castration, Dehorning, Deworming and Vaccination programme (3 hrs)
4. Care and management of calf, heifer, milk animal, dry and pregnant animal, bulls and bullocks. (3 hrs)

Section III (Feed Management, Dairy Management, Cleaning and Sanitation): 8 Hrs

1. Basic Principles of Feed, Important Feed Ingredients, Feed formulation and Feed Mixing (2 hrs)

2. Operation Flood –Definition of Milk and Nutritive value of milk and ICMR recommendation of nutrients –Per Capita Milk production and availability in India and Andhra Pradesh -Methods of Collection and Storage of Milk–Labeling and Storage of milk products (4 hrs)
3. Cleaning and sanitation of dairy farm – Safety precautions to prevent accidents in an industry. (2 hrs)

Learning Outcomes:

After successful completion of the course, students will be able to;

1. Understand the pre-requisites for starting a Dairy farm
2. Recognize different bree ds of Cows & buffaloes following safety precautions.
3. Prepare and give recommended feed and water for livestock
4. Maintain health of lives tock along with productivity
5. Vaccination of cattle, nutrients requirements
6. Entrepreneurship i.e., Effectively market dairy products
7. Ensure safe and clean dairy farm and Standard safety measures to be taken in establishingam industry
8. Efficiently start and manage to establish or develop a Dairy Industry

Co-curricular Activities Suggested: **(**4 hrs)

1. Group discussion & SWO T analysis
2. Visit to a Dairy Farm
3. Visit to Milk Cooperative Societies
4. Visit to Feed Milling Plants
5. Market Study and Identification of Government Schemes, Insurance and Bank Loans in relation to dairy farming

Reference books:

1. Dairy Science: Petersen (W.E.) Publisher – Lippincott & Company
2. Principles and practices of Dairy Farm –Jagdish Prasad
3. Textbook of Animal Hu sbandry - G C Benarjee
4. Handbook of Animal Hu sbandry - ICAR Edition
5. Outlines of Dairy Techno logy – Sukumar (De) – Oxford University pres s
6. Indian Dairy Products – Rangappa (K.S.) & Acharya (KT) – Asia Publishing House.
7. The technology of milk Proceesing – Ananthakrishnan, C.P., Khan, A.Q. and Padmanabhan, P.N. – Shri Lakshmi Publications.
8. Dairy India 2007, Sixth edition
9. Economics of Milk Production – Bharati Pratima Acharya Publishers.
10. http://www.asci-india.co m/BooksPDF/Dairy%20Farmer%20or%20Entre preneur.pdf
11. https://labour.gov.in/indu strial-safety-health

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A) SULLURPETA
ZOOLOGY MINOR- Add on Course

DAIRY TECHNOLOGY

Practical syllabus

1. Identification of different breeds of dairy cattle and buffaloes. (observation of charts of breeds in the laboratory – at least 3 breeds should be identified by the students in their locality with video, photo)
2. Symptoms of heat in cow (Study and understanding the physiological symptoms during heat)
3. Artificial insemination (Flow chart of implements – Procedure – Precautions)
4. Pregnancy diagnosis in cattle.
5. Dairy farm layout (In the laboratory student has to sketch a dairy farm with all its components)
6. Castration of bulls (Method – Protocol – Precautions)
7. Deworming of dairy cattle : (schedule – method – benefits)
8. Pasteurization of milk (Batch method – Procedure – Observations)
9. Sterilization of milk. (In bottle sterilization- Procedure – Protocol)
10. Cream separation (By gravity method – Procedure – Hands on experiment)
11. Study of various activities carried out in a dairy farm and submission of a report.

SRI V.S. SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE,(A) SULLURPETA
ZOOLOGY MINOR - Add on Course

DAIRY TECHNOLOGY

Max. Marks: 50 **Time: 2 hrs (120 Minutes)**

SECTION A

Answer any **four** questions. (4x5 = 20 Marks)

1. Conventional Dairy Farm
2. Animal Inbreeding
3. Sanitation of Dairy Farm
4. Dairy development in India
5. Feed Mixing
6. Deworming
7. Milk Storage Methods
8. Identification of characters of any Two Dairy cattle.

SECTION B

Answer any **three** questions (3 x10 = 30 Marks)

1. Write an essay on Dairy development in India, its current position and future scenario.
2. List our different methods involved in selection of dairy animals and discuss briefly.
3. Give an account of feeding redients and feed management required for dairy animals.
4. Explain different methods of collection of milk.
5. Explain two methods of systems of housing of dairy animals.

P.V.Rani

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Sullurupeta, Andhra Pradesh

ANNEXURE-VII

SRIV.S.SIVALINGAM CHETTIAR GOVERNMENT DEGREE COLLEGE (A)

SULLURPET,TIRUPATI DISTRICT,ANDHRAPRADESH

ACCREDITEDBYNAACWITHAGRADE
(Affiliated toVikrama Simhapuri University, Nellore)
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DEPARTMENT OF ZOOLOGY

ACTIVITES FOR THE ACADEMICYEAR 2025-26

Departmental events not only foster personal development, but also give students the practical experience and employability skills necessary to thrive in this competitive environment. The Zoology Department organizes a variety of annual activities to assist students' general growth. Students who preferred participated enthusiastically in these events and gained knowledge from them. We have planned some of the activities for the academic year 2025–26.

- Each semester, at least two guest lectures.
- Oneworkshop,OneSeminar,andawarenessprogrammesonHealthManagement,Diseases,and Clinical pathology etc.,
- Twofieldtrips,1.GovernmentHospital,Sullurpet.2.ApolloHospitals,Nellore
- To plan essay writing, poster presentations, and quizzes for significant occasions like World Malaria Day, World Health Day, World Heart Day, World Hepatitis Day, World Environment Day, World Ozone Day, National Pollution Control Day, World Water Day, World Soil Day etc.,
- To honor the contributions that Edward jenner, Louis Pasteur, Robert Koch, Joseph Lister and Alexander Fleming made to the students on their birth anniversaries.

P.V.Rani

Dr.P.Victoria Rani
Chairman, Boad of Studies in zoology
Sri VSSC Government Degree college (A)
Sullurupeta, Andhra Pradesh