B.SC., ZOOLOGY

FROM THE ACADEMIC YEAR 2023 – 2024

Programme Outcomes:	**PO1: Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study **PO2: Communication Skills:** Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups. **PO3: Critical thinking:** Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development. **PO4: Problem solving: Capacity** to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations. **PO5: Analytical reasoning**: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the

	arguments of others; analyze and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints. **PO6: Research-related skills**: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation **PO7: Cooperation/Team work:** Ability to work effectively and respectfully with diverse teams; facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team **PO8: Scientific reasoning**: Ability to analyse, interpret and draw conclusions from quantitative/qualitative data; and critically evaluate ideas, evidence and experiences from an open-minded and reasoned perspective. **PO9: Reflective thinking**: Critical sensibility to lived experiences, with self awareness and reflexivity of both self and society. **PO10 Information/digital literacy:** Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate, and use a variety of relevant information sources; and use appropriate software for analysis of data. **PO 11 Self-directed learning**: Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion. **PO 12 Multicultural competence:** Possess knowledge of the values and beliefs of multiple cultures and a global perspective; and capability to effectively engage in a multicultural society and interact respectfully with diverse groups. **PO 13: Moral and ethical awareness/reasoning**: Ability toembrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstratingthe ability to identify ethical issues related to one"s work, avoid unethical behaviour such as fabrication, falsification or misrepresentation of data or committing plagiarism, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.
	PO 14: Leadership readiness/qualities: Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way. **PO 15: Lifelong learning:** Ability to acquire knowledge and skills, including „learning how to learn", that are necessary for participating in learning activities throughout life, through self-paced and self-directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling.

Programme Specific Outcomes:	**PSO1 – Placement:** To prepare the students who will demonstrate respectful engagement with others' ideas, behaviors, beliefs and apply diverse frames of reference to decisions and actions. **PSO 2 - Entrepreneur:** To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate startups and high potential organizations **PSO3 – Research and Development:** Design and implement HR systems and practices grounded in research that comply with employment laws, leading the organization towards growth and development. **PSO4 – Contribution to Business World:** To produce employable, ethical and innovative professionals to sustain in the dynamic business world. **PSO 5 – Contribution to the Society:** To contribute to the development of the society by collaborating with stakeholders for mutual benefit

Method of Assessment

Remembering (K1)	• The lowest level of questions require students to recall information from the course content. • Knowledge questions usually require students to identify information in the text book.
Understanding (K2)	• Understanding of facts and ideas by comprehending organizing, comparing, translating, interpolating and interpreting in their own words. • The questions go beyond simple recall and require students to combined altogether
Application (K3)	• Students have to solve problems by using/applying a concept learned in the class room. • Students must use their knowledge to determine a exact response.
Analyze (K4)	• Analyzing the question is one that asks the students to break down something in to its component parts. • Analyzing require students to identify reasons causes or motives and reach conclusions or generalizations.
Evaluate (K5)	• Evaluation requires an individual to make judgment on something. • Questions to be asked to judge the value of an idea, a character, a work of art, or a solution to a problem. • Students are engaged in decision-making and problem–solving. • Evaluation questions donot have single right answers.
Create (K6)	• The questions of this category challenge students to get engaged increative and original thinking. • Developing original ideas and problem solving skills

Course Outcomes		
Course Outcomes		
CO1	Understand the basic concepts of invertebrate animals and recall its structure and functions.	PO1
CO2	Illustrate and examine the systemic and functional morphology of various groups of invertebrata.	PO1, PO2
CO3	Differentiate and classify the animal's mode of life in various taxa and estimate the biodiversity.	PO4, PO6
CO4	To compare and distinguish the various physiological processes and organ systems in lower animals.	PO4, PO5, PO6
CO5	Infer and integrate the parasitic and economic importance of invertebrate animals.	PO3, PO8

Methods of Assessment	
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or overview
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong (3) M-Medium (2) L-Low (1)

SEMESTER – I

LAB ON CORE COURSE I: LAB ON INVERTEBRATA

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Identify and label the external features of different groups of invertebrate animals.	PO1
CO2	Illustrate and examine the, nervous system and reproductive system of invertebrate animals.	PO1, PO2
CO3	Differentiate and compare the structure, function and mode of life of various groups of animals.	PO4, PO6
CO4	Compare and distinguish the dissected internal organs of lower animals.	PO4, PO5, PO6
CO5	Prepare and develop the mounting procedure of economically important invertebrates.	PO3, PO8

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) M-Medium (2) L-Low (1)

SEMESTER – II CORE COURSE 2.1 CHORDATA

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Classify, identify and recall the name and distinct features of different subphylum belonging to phylum Chordata.	PO1
CO2	Explain, and relate the origin, structural organization and evolutionary aspects of vertebrates.	PO1, PO2
CO3	Analyze, compare and distinguish the developmental stages and describe the important biological process.	PO3, PO4, PO5
CO4	Correlate the different modes of life and parental care among different vertebrates.	PO3, PO5, PO6
CO5	Summarise the morphology and ecological adaptations in vertebrates and list out the economic importance.	PO2, PO3, PO5, PO8

Methods of Assessment	
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or overview
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3		S	S	S	S	S		S
CO 4			S	S	S	M		
CO 5			S		S			S

S-Strong(3) M-Medium (2) L-Low (1)

SEMESTER – II

LAB ON CORE COURSE II: LAB ON CHORDATA

Course Outcomes	On completion of this course, students will;	
CO1	Identify and recall the name and distinct external and internal features of animals belonging to phylum Chordata.	PO1
CO2	Explain the structural organization of various organs and systems in different classes of vertebrates.	PO1, PO2
CO3	Analyse, compare and distinguish the morphological features and developmental stages of chordates	PO4, PO6
CO4	Dissect and explain various organs and internal systems in different vertebrates and correlate its function.	PO4, PO5, PO6
CO5	Summarise the morphology and ecological adaptations in vertebrates and list out the economic importance.	PO3, PO8

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) **M-Medium (2)** **L-Low (1)**

ELECTIVE/ GENERIC COURSE ALLIED ZOOLOGY I SEMESTER - I

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Recall the characteristic features invertebrates and chordates.	PO1
CO2	Classify invertebrates up to class level and chordates up to order level	PO1, PO2
CO3	Explain and discuss the structural and functional organisation of some invertebrates and chordates	PO4, PO6
CO4	Relate the adaptations and habits of animals to their habitat	PO4, PO5, PO6
CO5	Analyse the taxonomic position of animals.	PO3, PO8

Methods of Assessment	
Recall (K1)	Simple definitions, MCQ, Reort summary or overviewcall steps, Concept definitions
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Sh
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) M-Medium (2) L-Low (1)

SEMESTER – II

Allied Zoology II

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Recall the parts and working of body organs and developmental stages, name the patterns of inheritance and list different types of animal behaviour	PO1
CO2	Analyse the different developmental stages	PO1, PO2
CO3	Analyse the working of body and immune systems	PO4, PO6
CO4	Analyse the different patterns of inheritance	PO4, PO5, PO6
CO5	Relate the behaviour of animals to physiology. Analyse the different types of behaviour	PO3, PO8

Methods of Assessment	
Recall (K1)	Simple definitions, MCQ, Reort summary or overviewcall steps, Concept definitions
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Sh
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M	S						
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) M-Medium (2) L-Low (1)

SEMESTER I ALLIED ZOOLOGY LAB COURSE I

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Compare and distinguish the dissected internal organs of lower and higher animals.	PO1,PO3,PO5
CO2	Prepare and develop the mounting procedure of important invertebrate and chordate anatomical parts and to appreciate the structure, function and mode of life.	PO1, PO3,PO5
CO3	Identify and label the external features of different groups of invertebrate animals	PO6, PO8
CO4	Identify and label the external features of different groups of chordate animals	PO6, PO8
CO5	Understand and apply the theoretical knowledge. To plan the area of research and to identify different groups of invertebrate and chordate animals.	PO1,PO3, PO8

Mapping with Programme Outcomes:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M		M					
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) **M-Medium (2)** **L-Low (1)**

SEMESTER II ALLIED ZOOLOGY LAB COURSE II

Course Outcomes		
Course Outcomes	On completion of this course, students will;	
CO1	Compare the different types of excretory products and pattern of excretion.	PO1,PO3,PO5
CO2	Examine the role of haemoglobin and Analyse the function of the heart, neurons and sense organs	PO1, PO3,PO5
CO3	Identify and examine the developmental stages and its significances.	PO6, PO8
CO4	Comprehend the role of genes and the pattern of inheritance	PO6, PO8
CO5	Understand and apply the theoretical knowledge about the immunization and behavioural types in daily life.	PO1,PO3, PO8

Mapping with Programme Outcomes:

	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**
CO 1	S							
CO 2	M		M					
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3) **M-Medium (2)** **L-Low (1)**

SEMESTER I: ELECTIVE/ GENERIC COURSE 1.1- BIOLOGY OF FISH

COURSE OUTCOMES (COs)

On successful completion of the course the student will be able to

CO1: recognise the basic concept of biological features of fishes
CO2: understand and compare the structure and function of fishes
CO3: apply and synthesize the behaviour and feeding pattern
CO4: evaluate the strategy for rearing practices and marketing

CO5: design suitable breeding methods and scientific approachand understand

the biology, food value, marketing of fishes and fishery products.

COs at Cognitive level and mapping with POs and PSOs

SEMESTER I PART III ELECTIVE/ GENERIC COURSE 1: BIOLOGY OF FISH																
CO	**COGNITIVE LEVEL**	**PO**							**PSO**							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
CO1	**K2- Understand**	3	3	3	3	2	-	1	3	2	3	3	3	2	1	1
CO2	**K3-Apply**	3	3	3	2	1	3	1	3	3	3	3	2	3	3	1
CO3	**K4- Analyse**	3	3	3	3	3	3	1	3	3	3	2	3	2	3	2
CO4	**K5- Evaluate**	3	2	2	2	3	2	-	3	3	3	2	3	2	3	1
CO5	**K6 -Creativity**	2	3	3	2	3	2	-	2	3	3	3	2	3	-	1

Strongly Correlated (3), Moderately Correlated (2), Weakly Correlated (1), No Correlation (0)

SEMESTER II ELECTIVE/ GENERIC COURSE II -CAPTURE FISHERIES

COURSE OUTCOMES (COs):

On successful completion of the course the student will be able to

CO1: recollect the basic concepts of fisheries and recognize and solve the problems in capture fisheries

CO2: understand and adopt suitable/ recent technology for capturing

CO3: applythe knowledge on feeding pattern and design local strategy for management

CO4: evaluate and adopt suitable marketing method and overcome the problems

CO5: emphasize the application of laws and acts of Fisheries welfare

COs at Cognitive level and mapping with POs and PSOs

SEMESTER II PART III INDUSTRIAL FISH AND FISHERIES – ELECTIVE/ GENERIC COURSE 2.1 - CAPTURE FISHERIES																
CO	**COGNITIVE LEVEL**	**PO**							**PSO**							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
CO1	**K2-Understand**	3	3	3	2	1	-	-	3	3	3	3	3	3	-	-
CO2	**K3-Apply**	3	3	3	2	1	2	1	3	3	3	3	2	3	3	1
CO3	**K4- Analyse**	3	3	3	3	3	2	1	3	3	3	2	3	2	3	2
CO4	**K5- Evaluate**	3	2	3	2	2	2	1	3	3	2	2	3	2	3	1
CO5	**K6–Creativity**	2	3	3	1	2	1	1	2	3	2	2	3	2	1	-

Strongly Correlated (3), Moderately Correlated (2), Weakly Correlated (1), No Correlation (0)