



V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)

An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai

Re-accredited with 'A' Grade (3rd Cycle) by NAAC

VIRUDHUNAGAR - 626 001

PEOs, POs, PSOs and COs

M.Sc. ZOOLOGY

Programme Educational Objectives (PEOs)

PEOs are broad statements that describe the career and professional achievements that the Programme is preparing the graduates to achieve within the first few years after graduation. PEOs are framed for each Programme and should be consistent with the Mission of the Institution.

Programme Outcomes (POs)

POs shall be based on Graduate Attributes (GAs) of the Programme. The GAs are the attributes expected of a graduate from a Programme in terms of knowledge, skills, attitude and values. The Graduate Attributes include Disciplinary Knowledge, Communication Skills, Critical Thinking, Problem Solving, Analytical Reasoning, Research Related Skills, Co-operation/Team Work, Scientific Reasoning, Reflective Thinking, Information/Digital Literacy, Multicultural Competence, Moral and Ethical Awareness/Reasoning, Leadership Qualities and Lifelong Learning.

On successful completion of the Programme, the students will be able to

- 1 Apply their in depth domain knowledge and practical skills in interdisciplinary fields for research-based endeavours, employment and entrepreneurship development. (*Disciplinary Knowledge*)
- 2 Communicate proficiently and confidently with the ability to present complex ideas in a concise manner to assorted groups. (*Communication Skills*)
- 3 Identify, formulate and solve problems in a consistent and systematic way with updated skills using modern tools and techniques. (*Scientific Reasoning and Problem Solving*)

- 4 Analyze the data, synthesise the findings and provide valid conclusion by critical evaluation of theories, policies and practices for the betterment of society. (*Critical Thinking and Analytical Reasoning*)
- 5 Explore and evaluate globally competent research methodologies to apply appropriately in interdisciplinary research; Develop and sustain the research capabilities to meet the emerging needs for the welfare of the society. (*Research Related Skills*)
- 6 Use ICT to mould themselves for lifelong learning activities to face career challenges in the changing environment. (*Digital Literacy, Self - directed and Lifelong Learning*)
- 7 Self-manage and function efficiently as a member or a leader in diverse teams in a multicultural society for nation building. (*Co-operation/Team Work and Multicultural Competence*)
- 8 Uphold the imbibed ethical and moral values in personal, professional and social life for sustainable environment. (*Moral and Ethical Awareness*)

Programme Educational Objectives (PEOs)

The students will be able to

- To prioritize the competence in Life sciences and scientific research in order to constitute the principal knowledge of their degree.
- To appraise knowledge and make successful career in all the aspects of Zoology.
- To perceive the impact of scientific solutions in global, environmental and societal context.

Key Components of the Mission Statement	PEO1	PEO2	PEO3
To impart quality education to meet out the needs of rural women folk.	✓	✓	✓
To mould the students to be responsible and successful citizens.	-	✓	✓
To motivate them to apply the academic skill for the improvement of society.	-	✓	✓

Programme Specific Outcomes (PSOs)

Based on the Programme Outcomes, Programme Specific Outcomes are framed for each PG Programme. Programme Specific Outcomes denote what the students would be able to do at the time of graduation. They are Programme-specific and it is mandatory that each PO should be mapped to the respective PSO.

On successful completion of the M.Sc Programme, the students will be able to

PO1. Disciplinary Knowledge

PSO1.a: Illustrate the comprehensive knowledge and understanding major concepts, theoretical principles and experimental findings in Zoology and its subfields to pursue research.

PSO1.b: Extend the use of modern instrumentation techniques to enhance practical skills in various fields of Zoology.

PO2. Communication Skills

PSO2: Communicate technical knowledge in specific area of study by apply their writing and oral communicative skills to present a technical core content in a concise manner to academicians.

PO3: Scientific Reasoning and Problem Solving

PSO3.a: Utilize contextual knowledge by adopting ecological, biostatistical, bioinformatic and biotechnological tools of research for uplifting the society.

PSO3.b: Identify, analyze and secure experimental processes to trigger solutions by interpreting data in various fields of Biology.

PO4. Critical thinking and Analytical Reasoning

PSO4: Predict various day to day problems (such as understanding environmental issues, conservation processes, pollution control, biodiversity and protection of endangered species) faced by the society, identify the causes and come out with appropriate solutions.

PO5. Research related skills

PSO5: Improve the use of technical skills in the field of life science research to meet out the emerging needs for the welfare of the society.

PO6. Digital Literacy, Self - directed and Lifelong learning

PSO6: Make use of ICT and Construct various application oriented twigs of Zoology to become an entrepreneur by fulfilling the economic needs of their life.

PO7. Cooperation/Teamwork and Multi-Cultural Competence

PSO7: Adapt to work in groups efficiently in diverse areas like research laboratories, industries and academic based institutions.

PO8. Moral and Ethical awareness

PSO8: Compile and follow the ethical strategies of environmental management and conservation for sustainable life on earth.



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Semester I	CELL BIOLOGY	Hours/Week: 6	
Core course-1		Credits: 4	
Course Code 20PZYC11		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: understand the structures and functions of basic components of cells. [K2]

CO2: apply the knowledge to know working mechanisms at cellular level. [K3]

CO3: identify the different kinds of cellular organelles that make up organisms related to Cell function. [K3]

CO4: analyze the characteristics and behaviour of a cell to know the changes occurring in it. [K4]

CO5: assess the merits of cellular events in vital processes and mechanisms behind pathways. [K5]

Course Code 20PZYC1 1	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO7	PSO8
CO1	H	-	H	L	L	-	H	H	L	M
CO2	M	L	H	M	M	-	M	-	L	M
CO3	H	L	H	M	M	-	-	M	L	L
CO4	H	-	H	H	H	-	H	L	M	-
CO5	H	-	H	H	H	M	M	H	-	-



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Semester I	BIOCHEMISTRY AND BIOPHYSICS	Hours/Week: 6	
Core course-2		Credits: 4	
Course Code 20PZYC12		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the biological significance of biomolecules in living things. [K2]

CO2: apply knowledge on working mechanisms of biomolecules, enzymes and hormones.
[K3]

CO3: apply the knowledge on biochemical components of several biomolecules which in turn helps to find novel drugs. [K3]

CO4: compare the merits of various biological pathways and their applications in macromolecules. [K4]

CO5: assess the significance of the cellular metabolic pathways in our body. [K5]

Course Code 20PZYC12	PO1		PO2	PO3		PO4	PO5	PO6	PO 7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	L	-	H	H	L	M	M
CO2	H	H	H	M	M	M	L	H	L	M
CO3	H	H	M	M	H	H	H	M	L	L
CO4	H	H	M	H	M	H	M	M	M	L
CO5	H	H	M	H	H	H	M	H	-	L



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Semester I	DEVELOPMENTAL BIOLOGY	Hours/Week: 6	
Core course-3		Credits: 4	
Course Code 20PZYC13		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the key concepts in Developmental Biology. [K2]

CO2: apply knowledge on the essential features in Embryology. [K3]

CO3: make use of the concepts on basic cellular events and processes during embryonic development. [K3]

CO4: analyse the importance of embryological processes during pre and post embryonic development. [K4]

CO5: evaluate all aspects that occur during development of an organism. [K5]

Course Code 20PZYC13	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	-	L	L	L	M	L
CO2	H	M	H	M	M	M	H	-	M	L
CO3	H	M	H	M	H	M	M	L	M	L
CO4	H	-	H	H	M	M	M	-	M	H
CO5	H	H	H	H	H	H	M	H	M	H



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Semester: I	LAB IN CELL BIOLOGY, BIOCHEMISTRY, BIOPHYSICS AND DEVELOPMENTAL BIOLOGY	Hours/Week: 6	
Core Practical-1		Credits: 3	
Course Code 20PZYC11P		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: apply the theoretical concepts in biological, biochemical, biophysical and developmental aspects. [K3]

CO2: write the procedure/ flow charts/description/diagrams/tabular column/ graph/ formulae/ map to explain the required parameters. [K3]

CO3: analyze the given parameters with observation/ calculations/ results/Inference and comments on the spotter. [K3]

CO4: examine the obtained results with proper illustrations and completion of record work. [K4]

CO5: justify and validate the concepts learnt in Cell Biology/ Biochemistry/ Biophysics and Developmental biology. [K5]

Course Code 20PZYC11P	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PS04	PSO5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	M	H	H	H	-
CO2	H	H	H	H	H	M	M	H	H	-
CO3	H	H	H	H	H	H	H	H	H	L
CO4	H	H	H	H	H	H	H	H	H	-
CO5	H	M	H	H	H	H	M	H	H	-



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Semester I	FISH CULTURE	Hours/Week: 6	
DSEC-1		Credits: 4	
Course Code 20PZYE11		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the culture techniques and scope of fish farming. [K2]

CO2: apply the knowledge on fish culture to promote self employment. [K3]

CO3: make use of skills to maintain a successful fish culture unit. [K3]

CO4: analyze the fish culture practices for good productivity. [K4]

CO5: recommend the sustainable management of fish farms to promote

Entrepreneurship. [K5]

Course Code 20PZYE11	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	L	L	H	M	H	M	H
CO2	H	-	H	M	-	H	M	H	M	L
CO3	H	-	H	M	-	L	H	H	M	-
CO4	H	-	H	H	-	L	M	-	M	M
CO5	H	-	H	H	L	L	M	H	M	M



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Semester I	VERMITECHNOLOGY	Hours/Week: 6	
DSEC-1		Credits: 4	
Course Code 20PZYE12		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: describe the basic concepts of vermiculture along with its importance. [K2]

CO2: make use of the ideas about cultivable species to set up a culture Unit. [K3]

CO3: apply the knowledge on vermicomposting to develop their practical skills which promotes self-employment opportunities. [K3]

CO4: analyse the role of Vermiculture in organic farming for better agricultural practices in an eco-friendly manner. [K4]

CO5: recommend the better management practices by evaluating the profit outputs.[K5]

Course Code 20PZYE12	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	-	H	M	H	M	M
CO2	H	-	H	M	-	M	M	H	M	M
CO3	H	M	H	M	-	H	-	H	-	L
CO4	H	-	H	H	-	H	-	H	M	-
CO5	H	L	H	H	-	L	M	H	-	L



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Semester I	APPLIED BIOTECHNOLOGY	Hours/Week: 6	
DSEC-1		Credits: 4	
Course Code 20PZYE13		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the concepts of Biotechnology in various fields of biology. [K2]

CO2: make use of biotechnological techniques to improve the health of mankind and the quality of the environment.[K3]

CO3: apply the skills for the sustainable maintenance of the environment. [K3]

CO4: analyze the advantages of various novel applications in the field of Biotechnology. [K4]

CO5: assess the merits of conventional and recent techniques. [K5]

Course Code 20PZYE13	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	L	H	L	-	H	H	L	-	M
CO2	H	-	H	M	-	H	H	-	-	L
CO3	H	H	H	M	-	H	M	-	L	H
CO4	H	L	H	H	-	H	H	H	L	-
CO5	H	M	H	H	-	H	H	H	L	H



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Semester II	ANIMAL PHYSIOLOGY	Hours/Week: 6	
Core Course-4		Credits: 4	
Course Code 20PZYC21		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the basic fundamental concepts of Physiology. [K2]

CO2: make use of knowledge on the anatomical and physiological functions of various Organisms. (K3]

CO3: apply the ideas to know the key features of physiology and its systematic regulations. [K3]

CO4: Analyse the regulatory mechanisms behind the normal functioning of body. [K4]

CO5: assess the efficacy of organs and various systems to lead a healthy life. [K5]

Course Code 20PZYC21	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	L	H	L	H	M	M	H	M	M
CO2	H	L	H	M	M	M	M	M	M	M
CO3	H	L	H	M	M	L	-	L	L	L
CO4	H	-	H	H	H	M	-	-	M	-
CO5	H	L	H	H	M	L	M	H	M	L



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Semester II	ANIMAL PHYSIOLOGY	Hours/Week: 6	
Core Course-4		Credits: 4	
Course Code 20PZYC21N		Internal 40	External 60

COURSE

OUTCOMES

On completion of the course, the students will be able to

CO1: explain the basic fundamental concepts of Physiology. [K2]

CO2: make use of knowledge on the anatomical and physiological functions of various organisms. (K3]

CO3: apply the ideas to know the key features of physiology and its systematic regulations. [K3]

CO4: Analyse the regulatory mechanisms behind the normal functioning of body.[K4]

CO5: assess the efficacy of organs and various systems to lead a healthy life [K5].

Course Code 20PZYC21N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	L	H	M	H	M	L	-	H	-
CO 2	H	L	H	-	M	-	L	-	H	M
CO 3	H	L	H	-	M	M	-	-	H	-
CO 4	H	-	H	M	H	-	-	M	H	-
CO 5	H	L	H	L	M	L	-	M	H	H



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Semester II	IMMUNOLOGY	Hours/Week: 6	
Core Course-5		Credits: 4	
Course Code 20PZYC22		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the fundamental concepts of immunology. [K2]

CO2: make use of the knowledge on the various immunological reactions in our body.

[K3]

CO3: apply the knowledge on important mechanisms and recent concepts in the field of Immunology. K3]

CO4: compare the cells, molecules and diseases related to immunology. [K4]

CO5: assess the merits of immunological response and immunological techniques. [K5]

Course Code 20PZYC22	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	L	H	L	H	L	L	-	M	-
CO2	H	L	H	M	M	-	-	L	M	-
CO3	H	H	H	M	H	-	L	M	L	L
CO4	H	M	H	H	M	L	L	L	M	H
CO5	H	H	H	H	M	-	L	H	L	L



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Semester II	IMMUNOLOGY	Hours/Week: 6	
Core Course-5		Credits: 4	
Course Code 20PZYC22N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1 : explain the fundamental concepts of immunology (K2).

CO2 : make use of the knowledge on the various immunological reactions in our body (K3).

CO3 : apply the knowledge on important mechanisms and recent concepts in the field of Immunology (K3)

CO4 : compare the cells, molecules and diseases related to immunology (K4)

CO5 : assess the merits of immunological response and immunological techniques (K5).

	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	L	H	M	H	M	-	H	M	-
CO 2	M	L	H	H	M	M	L	M	H	L
CO 3	H	H	M	H	H	M	H	M	L	-
CO 4	H	M	H	M	M	L	M	H	M	H
CO 5	M	H	M	H	M	M	H	H	L	M



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Semester II	ENTOMOLOGY	Hours/Week: 6	
Core Course-6		Credits: 4	
Course Code 20PZYC23		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the classification and Biology of insects. [K2]

CO2: apply theoretical knowledge to know the key features and significance of insect Bionomic. [K3]

CO3: make use of the impact of insects in an ecosystem to lead a healthy lifestyle. [K3]

CO4: compare the role of various species of insects in agriculture, human health and environment. K4]

CO5: analyze the physiology of insects and its role in various fields of Biology. [K5]

Course Code 20PZYC23	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	H	H	H	H	M	H	M
CO2	H	-	H	H	H	H	H	L	H	H
CO3	H	-	H	H	L	M	H	H	H	H
CO4	H	-	H	H	H	H	H	M	H	H
CO5	H	-	H	M	H	H	H	H	H	H



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Semester II	ENTOMOLOGY	Hours/Week: 6	
Core Course-6		Credits: 4	
Course Code 20PZYC23N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the classification and Biology of insects [K2].

CO2: apply theoretical knowledge to know the key features and significance of insect bionomics. [K3].

CO3: make use of the impact of insects in an ecosystem to lead a healthy lifestyle.[K3].

CO4: compare the role of various species of insects in agriculture, human health and environment. [K4]

CO5: analyze the physiology of insects and its role in various fields of Biology. [K5]

Course Code 20PZYC23N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PS O 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	H	H	H	M	H	H	M
CO 2	H	-	H	H	H	H	L	H	H	H
CO 3	H	-	H	H	L	M	H	H	H	H
CO 4	H	-	H	H	H	H	M	H	H	H
CO 5	H	-	H	M	H	H	H	H	H	H



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Semester II	LAB IN ANIMAL PHYSIOLOGY, IMMUNOLOGY AND APPLIED ENTOMOLOGY	Hours/Week: 6	
Core Practical-2		Credits: 3	
Course Code 20PZYC21P		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: apply the theoretical knowledge in the field of Animal Physiology, Immunology and Applied Entomology. [K3]

CO2: write the procedure/flow charts/description/diagrams/tabular column/graph/formulae/ map to explain the required parameters. [K3]

CO3: analyze the given parameters with observation/ calculations/ results/Inference and comments on the spotter. [K3]

CO4: examine the obtained results with proper illustrations and completion of record work. [K4]

CO5: justify and evaluate the concepts learnt in Animal physiology, Immunology and Applied Entomology. [K5]

Course Code 20PZYC21P	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO	PSO
	1.a	1.b	2	3.a	3.b	4	5	6	7	8
CO1	H	H	H	H	H	H	H	H	H	-
CO2	H	H	H	H	H	M	M	H	H	-
CO3	H	H	H	H	H	H	M	H	H	L
CO4	H	H	H	H	H	H	H	H	H	-
CO5	H	H	H	H	H	H	M	H	H	-



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Semester II	ENVIRONMENTAL BIOTECHNOLOGY	Hours/Week: 6	
DSEC-2		Credits: 4	
Course Code 20PZYE21		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the basic concepts of ecosystem and Environmental pollution. [K2]

CO2: apply the knowledge to control Environmental pollution. [K3]

CO3: apply the skills for maintaining a healthy Environment. [K3]

CO4: analyze biotechnological processes and methods to protect environmental quality. [K4]

CO5: assess all the biotechnological aspects for making a sustainable pollution free Environment. [K5]

Course Code 20PZYE21	PO1		PO2	PO3		PO4	PO5	PO6	PO 7	PO 8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO5	PSO6	PSO7	PSO8
CO1	H	-	H	L	M	H	M	H	M	H
CO2	H	M	H	M	M	H	H	-	M	H
CO3	H	H	H	M	M	H	H	M	M	H
CO4	H	M	H	H	H	H	M	M	M	H
CO5	H	M	H	H	H	H	H	H	M	H



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Semester II	POULTRY FARMING	Hours/Week: 6	
DSEC-2		Credits: 4	
Course Code 20PZYE22		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the basic concepts and scope of the Poultry industry. [K2]

CO2: apply the theoretical knowledge construct a poultry house and plan for self employment opportunity.[K3]

CO3: apply the skills to set up a poultry unit among rural folk to uplift their economic status as entrepreneurs. [K3]

CO4: compare the conventional and recent methods in poultry management. [K4]

CO5: recommend the effective farming practices to obtain more profit. [K5]

Course Code 20PZYE22	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	M	H	L	H	L	L	H	M	M
CO 2	H	H	H	M	M	L	H	H	M	M
CO 3	H	M	H	M	M	H	H	H	M	L
CO 4	H	H	H	H	H	M	H	H	M	M
CO5	H	H	H	H	M	H	M	H	M	L



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Semester II	POULTRY FARMING	Hours/Week: 6	
DSEC-2		Credits: 4	
Course Code 20PZYE22N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the basic concepts and scope of the Poultry industry [K2].

CO2: apply the theoretical knowledge construct a poultry house and
promoteself-employment opportunity[K3].

CO3: apply the skills to set up a poultry unit among rural folk to uplift their economic
status as entrepreneurs [K3].

CO4: compare the conventional and recent methods in poultry management [K4].

CO5: recommend the effective farming practices to obtain more profit. [K5]

	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
Course Code 20PZYE22N	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	M	H	H	H	M	H	L	H	M
CO 2	H	H	H	M	M	M	H	H	H	-
CO 3	H	M	H	H	M	H	H	H	H	-
CO 4	H	H	H	M	H	H	H	H	H	-
CO5	H	H	H	H	M	M	M	L	H	-



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Semester II	MS OFFICE	Hours/Week: 6	
DSEC-2		Credits: 4	
Course Code 20PZYE23		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: describe the essential concepts of MS office and its applications. [K2]

CO2: make use of the MS Office program to create academic documents. [K3] CO3:

apply practical skills to promote self employability. [K3]

CO4: examine new innovative methods of learning and teaching. [K4]

CO5: choose the suitable tools to create presentations for academic proposals. [K5]

Course Code 20PZYE23	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	L	L	H	H	M	L
CO2	H	L	H	M	M	M	H	H	M	L
CO3	H	H	H	M	M	M	H	H	M	L
CO4	H	M	H	H	M	L	H	H	M	-
CO5	H	-	H	H	L	L	M	H	M	-



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Semester III	GENETICS	Hours/Week: 6	
Core course-7		Credits: 6	
Course Code 20PZYC31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: to understand the basic principles of inheritance biology. [K2]

CO2: apply the knowledge to know the mechanism of inheritance. [K3]

CO3: comparing and contrasting different molecular aspects of inheritance to detect the genetic defects. [K4]

CO4: assess the role of genetics to lead a healthy life by choosing proper diagnostic tools. [K5]

CO5: justify the mode of inheritance of genes and its impacts on organisms. [K5]

Course Code 20PZYC31	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PS O 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	-	M	H	L	L	H
CO2	H	-	H	M	-	M	M	L	L	H
CO3	H	-	H	M	-	M	-	-	L	H
CO4	M	-	H	H	-	H	H	L	M	M
CO5	M	-	H	H	-	H	M	-	L	M



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Semester III	BIODIVERSITY AND CONSERVATION	Hours/Week: 6	
Core course-8		Credits: 6	
Course Code 20PZYC32		Internal 140	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the diversity of living organisms and its importance. [K2]

CO2: apply the conservation methods of fauna and its sustainable maintenance. [K3]

CO3: assess the better conservation methods to enrich productivity. [K4]

CO4: evaluate the values of Biodiversity and Conservation for the betterment of the environment. [K5]

CO5: develop novel strategies to preserve biological diversity. [K5]

Course Code 20PZYC32	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	H	H	L	M	M	-
CO2	H	-	H	M	H	H	L	-	M	H
CO3	H	-	H	M	H	M	M	-	M	H
CO4	H	-	H	H	H	H	L	L	M	M
CO5	H	-	H	H	H	H	L	H	M	H



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Semester III	BIostatistics AND Bioinformatics	Hours/Week: 6	
Core course-9		Credits: 6	
Course Code 20PZYC33		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the key concepts and scope of Biostatistics and Bioinformatics. [K2]

CO2: apply the tools and methods to carry out data analysis. [K3]

CO3: compare the applications for the improvement of the health of mankind. [K4]

CO4: evaluate the biological data by using software tools. [K5]

CO5: assess available biological databases to develop research oriented skills. [K5]

Course Code 20PZYC33	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	-	-	-	H	-
CO2	H	H	H	H	-	H	H	-	H	-
CO3	H	-	H	M	L	-	M	-	H	-
CO4	H	M	H	H	H	-	H	-	H	M
CO5	H	M	H	H	-	M	H	H	H	-



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Semester III	LAB IN GENETICS, BIODIVERSITY AND CONSERVATION, BIOSTATISTICS AND BIOINFORMATICS	Hours/Week: 6	
Core Practical-3		Credits: 3	
Course Code 20PZYC31P		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: apply the theoretical concepts in various fields of biology. [K3]

CO2: write the procedure/ flow charts/description/diagrams/tabular column/graph/formulae/map in or to explain the required parameters. [K3]

CO3: analyze the given parameters with observation/ calculations/ results/Inference and comment On the spotter. [K3]

CO4: examine the obtained results with proper illustrations and completion of record work. [K4]

CO5: evaluate the concepts learnt in the field of Genetics, Biodiversity and Conservation and Bioinformatics. [K5]

Course Code 20PZYC31P	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	H	H	L	H	-
CO2	H	H	H	H	H	H	H	M	H	-
CO3	H	H	H	H	H	M	H	H	H	L
CO4	H	H	H	H	H	H	H	M	H	-
CO5	H	H	H	H	H	M	H	H	H	-



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Semester III	APICULTURE	Hours/Week: 5	
NMEC		Credits: 4	
Course Code 20PZYN31		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: describe the basic concepts in beekeeping. [K1].

CO2: understand the role of bees in maintaining healthy ecosystem. [K2]

CO3: apply knowledge to set up an apiary to promote self employment and Entrepreneurship. [K3]

CO4: analyse the behavioral patterns of bees along with its seasonal management Practices. [K4]

CO5: evaluate the beekeeping practices to increase the yield through proper management. [K5]

Course Code 20PZYN31	PO1	PO2	PO3	PO 4	PO5	PO6	PO7	PO 8
CO1	H	H	M	M	H	H	M	-
CO2	H	H	L	H	H	H	L	-
CO3	H	H	M	H	M	H	M	-
CO4	M	H	L	L	H	H	-	-
CO5	H	H	-	H	H	H	M	-



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Semester III	PRACTICE FOR CSIR / NET – GENERAL PAPER	Hours/Week:1	
Course Code		Credits: 1	
20PGOL32		Internal 100	-

COURSE OUTCOMES

On completion of the course, the students will be able to

- CO1 : explain various concepts related to numbers, quantitative comparison, monetary problems and logical reasoning. [K2]
- CO2 : apply the analytical skills and logical reasoning in solving problems related to competitive examinations. [K3]
- CO3 : solve typical problems, geometrical type problems, daily life problems in an effective manner. [K3]
- CO4 : analyze the techniques used in solving complicated real life problems. [K4]
- CO5 : interpret the data using logical reasoning and observational ability. [K5]

Course code 20PGOL32	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	H	H	M	M	-	M	-	-
CO2	H	H	H	H	-	M	-	-
CO3	H	H	H	H	-	H	-	-
CO4	H	M	H	H	-	H	-	-
CO5	H	M	H	H	-	H	-	-



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Semester IV	EVOLUTION	Hours/Week: 6	
Core course -10		Credits: 6	
Course Code 20PZYC41		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the fundamental principles and basic concepts of evolution. [K2]

CO2: apply their knowledge to appreciate the adaptation of animals during the evolutionary

period. [K3]

CO3: analyse the merits of evolutionary concepts and its applications. [K4]

CO4: assess the role of factors that induce the origin of life of an organism. [K5]

CO5: evaluate the value of evidences in evolutionary biology. [K5]

Course Code 20PZYC41	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PS O 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	M	-	L	H	M	-
CO2	H	-	H	M	L	-	M	-	M	-
CO3	H	-	H	M	M	L	L	H	M	-
CO4	H	-	H	H	M	L	-	M	M	L
CO5	H	-	H	H	M	M	L	H	M	-



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Semester IV	EVOLUTION	Hours/Week: 6	
Core course -10		Credits: 6	
Course Code 20PZYC41N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the fundamental principles and basic concepts of evolution. [K2]

CO2: apply their knowledge to appreciate the adaptation of animals during the evolutionary period. [K3]

CO3: make use of their knowledge to identify the merits of evolutionary concepts. [K3]

CO4: analyze the role of factors that bring out the evolutionary changes in animals. [K4]

CO5: evaluate the value of evidences in evolutionary biology. [K5]

	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
Course Code 20PZYC41N	PSO 1.a	PSO 1.b	PSO 2	PS O 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	-	M	M	-	-	H	L
CO 2	M	-	H	H	L	H	-	M	H	M
CO 3	M	-	H	M	M	L	-	L	H	M
CO 4	M	-	H	M	M	L	M	-	H	-
CO 5	H	-	H	M	M	M	-	L	H	-



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Semester IV	MICROBIOLOGY	Hours/Week: 6	
Core course -11		Credits: 5	
Course code 20PZYC42		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: describe the basic concepts and culture methods of microorganisms. [K2]

CO2: apply the knowledge on the microbes for the betterment of society. [K3]

CO3: analyze the characteristic features and the key role of microbes in the health of Mankind. [K4]

CO4: assess the impact of microbial action in various fields. [K5]

CO5: evaluate the role of microbes to promote productivity. [K5]

Course Code 20PZYC42	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PS O 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	L	H	-	H	H	M	H
CO2	H	-	H	M	H	H	H	-	M	H
CO3	H	-	H	M	H	H	M	M	M	H
CO4	H	-	H	H	H	H	L	L	M	H
CO5	H	-	H	H	-	-	L	H	L	H



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Semester IV	MICROBIOLOGY	Hours/Week: 6	
Core course -11		Credits: 5	
Course code 20PZYC42N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: describe the basic concepts and culture methods of microorganisms [K2].

CO2: apply the knowledge on the microbes for the betterment of society [K3].

CO3: identify the key role of microbes in the health of mankind [K3].

CO4: analyze the impact of microbial action in various fields [K4].

CO5: evaluate the role of microbes to promote productivity [K5].

Course Code 20PZYC42N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	H	H	M	H	L
CO 2	H	-	H	H	H	H	-	H	H	H
CO 3	H	-	H	H	H	H	-	H	H	L
CO 4	H	-	H	H	H	H	-	L	H	H
CO 5	H	-	H	H	-	-	L	-	H	H



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Semester IV Core course -12	MOLECULAR BIOLOGY	Hours/Week: 6 Credits: 6	
Course code 20PZYC43		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: explain the key concepts of structure and functions of genetic molecules. [K2]

CO2: identify the functional mechanisms and molecular pathways by knowing the central dogma of life. [K3]

CO3: analyse the molecular aspects and techniques to lead a healthy life. [K4]

CO4: assess the molecular level alterations with the aid of suitable applications. [K5]

CO5: justify the novel techniques in molecular biology for the betterment of society.
[K5]

Course Code 20PZYC43	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	-	L	L	H	M	-
CO2	H	-	H	M	-	L	H	H	M	-
CO3	H	H	H	M	L	H	L	-	M	-
CO4	H	H	H	H	-	H	H	-	M	L
CO5	H	H	H	H	M	H	M	H	M	H



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Semester IV	SERICULTURE	Hours/Week: 6	
Core Course-13		Credits: 5	
Course code 20PZYC44		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1:explain the key concepts and scope of Sericulture. [K2]

CO2:make use of the acquired knowledge to promote self employment.[K3]

CO3: analyze the features of culturable species and methodology for successful rearing. [K4]

CO4:assess the merits of culture methods to produce disease free layings for the enhancement of productivity and to promote entrepreneurship. [K5]

CO5: Evaluate the better techniques of sericulture to get more profit. [K5]

Course Code 20PZYC44	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	L	-	L	L	H	H	M
CO2	H	-	H	M	-	M	L	H	H	M
CO3	H	-	H	M	L	M	-	H	L	L
CO4	H	-	H	H	M	H	M	H	M	-
CO5	H	-	H	H	L	H	M	H	H	-



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Semester IV	SERICULTURE	Hours/Week: 6	
Core Course-13		Credits: 5	
Course code 20PZYC44N		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1:explain the key concepts and scope of sericulture[K2].

CO2:identify the features of culturable species and methodology for successful rearing.
[K3]

CO3:make use of the acquired knowledge to promote self employment. [K3]

CO4: analyze the merits of culture methods for the enhancement of productivity. [K4]

CO5: assess the rearing methods to and to promote entrepreneurship. [K5]

Course Code 20PZYC44N	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PS O 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	-	H	H	-	H	M	H	H	L
CO 2	H	-	H	H	-	H	H	H	H	M
CO 3	H	-	H	L	L	H	H	H	H	M
CO 4	H	-	H	M	M	M	H	M	H	M
CO5	H	-	H	L	L	-	M	M	H	L



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Semester IV	PROJECT	Hours/Week: 6	
Core Course-14		Credits: 4	
Course Code 20PZYC41PR		Internal 40	External 60

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: Find out the contemporary issues in their chosen field of research. [K3]

CO2: build the protocol of the work with appropriate objectives relevant to the study.
[K3]

CO3: experiment the data using scientific methods. [K3]

CO4: examine the results. [K4]

CO5: interpret the obtained data. [K5]

Course Code 20PZYC41PR	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO 2	PSO 3.a	PSO 3.b	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8
CO1	H	H	H	H	H	H	H	H	H	L
CO2	H	H	H	H	H	H	M	H	H	L
CO3	H	H	H	H	H	H	M	M	H	L
CO4	H	M	H	H	H	H	M	L	H	-
CO5	H	L	H	H	H	H	M	H	H	-



V.V.VANNIAPERUMAL COLLEGE FOR WOMEN

(Belonging to Virudhunagar Hindu Nadars)

An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai

Re-accredited with 'A' Grade (3rd Cycle) by NAAC

VIRUDHUNAGAR - 626 001

Semester IV	PROJECT - RESEARCH METHODOLOGY & ETHICS	Hours/Week: 6	
Core Course-14		Credits: 4	
Course Code 22PZYC41PR		Internal 60	External 40

COURSE OUTCOMES

On completion of the course, the students will be able to

CO1: identify and discuss the role and importance of research in the field of biology. [K3]

CO2: select the appropriate experimental work to find the solutions for research problems [K4]

CO3: analyze the advanced methodologies and recent tools to carry out research. [K4]

CO4: analyze the ethical issues related to scientific research. [K4]

CO5: evaluate and justify the results obtained through experiments. [K5]

Course Code 20PZYC4PRN	PO1		PO2	PO3		PO4	PO5	PO6	PO7	PO8
	PSO 1.a	PSO 1.b	PSO2	PSO 3.a	PSO 3.b	PSO4	PSO5	PSO6	PSO7	PSO 8
CO1	H	H	H	H	H	H	H	H	H	L
CO2	H	H	H	H	H	H	M	H	H	L
CO3	H	H	H	H	H	H	M	M	H	L
CO4	H	M	H	H	H	H	M	L	H	-
CO5	H	L	H	H	H	H	M	H	H	-

