HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.) Re-Accredited with A++ Grade by NAAC (3rd Cycle) Uthamapalayam - 625 533.



DEPARTMENT OF ZOOLOGY

MASTER OF SCIENCE - ZOOLOGY

PART IV-SYLLABUS

Choice Based Credit System – CBCS

(As per TANSCHE)

With

Outcome Based Education (OBE)

(Academic Year 2023 - 2025)

Semester - II

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part – IV	23PZYSE21	Poultry Farming	4	25	75	100	2

Semester - III

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part – IV	23PZYSE31	Dairy Farming	4	25	75	100	2
	23PZYIS31	Internship / Industrial Activity	-	-	-	-	2

Semester - IV

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part – IV	23PZYSE41	Animal Behaviour	4	25	75	100	2

			S	S	Marks			
Course Code	Course Title	Category	Credit	Hour	CIAE	TEE	Total	
23PZYSE21	POULTRY FARMING	SEC	2	4	25	75	100	

Pre-requisite	•							
Students sh	ould be aware of economic and cultural importance of Poultry	v farming.						
	Learning Objectives							
L1	Students should know basic concepts in Vermiculture.							
UNIT	Contents		No. of Hours					
I	General introduction to poultry farming - Definition of F Past and present scenario of poultry industry in India - Prin poultry housing - Poultry houses - Systems of poultry farmi	Poultry - ciples of ng	12					
II	Management of chicks - growers and layers - Manage Broilers Preparation of project report for banking and ins	ment of surance.	12					
III	Poultry feed management-Principles of feeding, requirements for different stages of layers and broilers formulation and Methods of feeding.	Nutrient 5 - Feed	12					
IV	Poultry diseases-viral, bacterial, fungal and parasitic (tw symptoms, control and management; Vaccination program	o each); ne.	12					
v	Selection, care and handling of hatching eggs - Egg testing. Methods of hatching Brooding and rearing Sexing of chicks Farm and Water Hygiene - Recycling of poultry waste.							
Total								
Course Outcomes Knowl								
CO	On completion of this course, students will							
1	To understand the various practices in Poultry farming.	K1,K2	,K3,K4,K5					
2	To know the needs for Poultry farming and the status of India in global market.	K1,K2	,K3,K4,K5					
3	To be able to apply the techniques and practices needed or Poultry farming.	K1,K2,K	3,K4,K5,K6					
4	To know the difficulties in Poultry farming and be able to propose plans against it.	K1,K2,K	3,K4,K5,K6					
5	Acquire the knowledge about the different methods of hatching.	K1,K2,K	3,K4,K5,K6					
	Textbooks							
1.	Sreenivasaiah., P. V., 2015. Textbook of Poultry Science. Print Publications, New Delhi 2.	1st Edition	on. Write &					
2.	Jull A. Morley, 2007. Successful Poultry Management. 2nd E New Delhi"	dition. Bio	otech Books,					
3.	Hurd M. Louis, 2003. Modern Poultry Farming. 1st Editio Distributing Company, Lucknow."	n. Interna	itional Book					
4.	Life and General Insurance Management"							
	Reference Books							
1.	Ismail, S.A., 1997. Vermitechnology, The biology of Longman. India.	earthwor	rms, Orient					

2.	http://www.asci-india.com/BooksPDF/Small%20Poultry%20Farmer.pdf
3.	https://nsdcindia.org/sites/default/files/MC_AGR-Q4306_Small-poultry- farmerpdf
4.	http://ecoursesonline.iasri.res.in/course/view.php?id=335
5.	https://swayam.gov.in/nd2_nou19_ag09/preview

Mapping with Programme Outcomes:

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	P010
CO 1	3	3	3	3	3	2	3	2	3	2
CO 2	3	3	3	3	3	3	3	2	2	3
CO 3	3	3	3	2	3	2	2	3	3	3
CO 4	3	3	2	2	3	2	2	3	3	2
CO 5	3	2	3	3	3	2	3	2	2	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
C01	3	3	3	3	3
C02	3	3	3	3	3
CO3	3	3	3	3	3
CO4	3	3	3	3	3
C05	3	3	3	3	3

Strong-3 Medium-2 Low-1

			S	5	Marks		
Course Code	Course Title	Category	Credit	Hours	CIAE	TEE	Total
23PZYSE31	DAIRY FARMING	SEC	2	4	25	75	100

	Learning Objectives								
L1	Students should be aware of economic and cultural importance	of Dairy f	arming.						
L2	Students should know basic concepts in Vermiculture								
UNIT	Contents		No. of Hours						
Ι	Introduction to Dairy Farming-Advantages of dairying- Classific breeds of Cattle-Indigenous and exotic breeds- Selection of dair Breeding-artificial insemination-Dairy cattle management- Anatomy.	ation of y cattle. General	12						
II	I Construction of Model Dairy House - Types of Housing - Different Managemental Parameters - Winter Management - Summer Management								
III	Feedstuffs available for livestock- Roughages -Concentrates - Energy rich concentrates -Protein rich concentrates - Mineral Supplements - Vitamin Supplements -Feed additives - Feeding management - Calves Feeding - Feeding of adults - Feeding of pregnant dairy animals - Feeding pregnant heifer.								
IV	Milk-Composition of milk-milk spoilage-pasteurization - Role of milk and milk products in human nutrition – Dairying as a source of additional income and employment.								
V	, Contagious disease - Common Bacterial - Protozoal - Helminth and Viral Diseases - Parasitic Infestation - Vaccination - Biosecurity.								
	Total		60						
	Course Outcomes	Knowle	edge Level						
CO	Un completion of this course, students will								
1	know the needs for Dairy farming and the status of India in global market.	K1,K2,	K3,K4,K5						
2	To be able to apply the techniques and practices needed for Dairy farming.	K1,K2,	K3,K4,K5						
3	To know the difficulties in Dairy farming and be able to propose plans against it.	K1,K2,K	3,K4,K5,K6						
4	Evaluate breeding methods, reproductive management, and disease control strategies for improving herd productivity.	K1,K2,K	3,K4,K5,K6						
5	Analyze the principles of scientific dairy management, including housing, feeding, milking techniques, and health K1,K2,K3,F care practices.								
	Textbooks								
1.	15. James. N. Marner, 1975. Principles of dairy processing, wi New Delhi.	ley easte	ern limited,						
2.	Baradach, JE. Ryther. JH. and, MC larney WO., 1972. Aquacultu Husbandry of Freshwater and Marine Organisms. WileyInterSci	ire. Thefa ence, Nev	arming and vYork.						
	Reference Books								

1.	The Veterinary Books for Dairy Farmers by Roger W. Blowey.
2.	Hand Book of Dairy Farming by Board Eiri.
3.	Handbook of animal husbandry TATA, S.N ed., ICAR 1990
1	Prabakaran, R. 1998. Commercial Chicken production. Published by P. Saranya,
4.	Chennai.
5.	Hafez, E. S. E., 1962. Reproduction in Farm Animals, Lea & amp; Fabiger Publisher
	Web Resources
1	https://agritech.tnau.ac.in/farm_enterprises/Farm%20enterprises_%
1.	20Dairy%20unit.html
2	https://www.google.co.in/search?tbo=p&tbm=bks&q=inauthor:%22Tata,
Ζ.	,+S.N.,+ed%22

Mapping with Programme Outcomes:

CO /PO		PO 1	PO 2	PO 3	PO 4	PO 5	P0 6	PO 7	PO 8	PO 9	P010
CO 1		2	3	1	1	3	3	2	3	1	2
CO 2		2	3	3	3	2	3	2	1	3	3
CO 3		2	3	3	3	3	3	3	3	3	2
CO 4		2	3	3	3	2	2	1	1	2	2
CO 5		3	3	3	2	3	2	3	1	3	3
Charlen and D	ЪÆ-	. J' 1		I 1							

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PS01	PSO2	PSO3	PSO4	PSO5
C01	2	3	1	1	3
C02	2	3	3	3	2
CO3	2	3	3	3	3
CO4	2	3	3	3	2
C05	3	3	3	2	3
Strong 2 Madium 2	Low 1				

Strong-3 Medium-2 Low-1

			S	Credits Hours	Marks		
Course Code	Course Title	Category	Credit		CIAE	TEE	Total
23PZYSE41	ANIMAL BEHAVIOUR	SEC	2	4	25	75	100

Learning Objectives						
L1	Students should understand basic concepts in Animal behaviour.					
L2	Students should be aware of ecology and the animals	in their	respective			
	environment					
UNIT	Contents	No. of Hours				
I	and Polygenic inheritance of behaviour, Heritability of behaviour, Natural selection and behaviour, Frequency distribution of phenotypes, Darwinian fitness, Evolution of adaptive strategies.					
II	Sexual selection, Altruism, Sexual strategy and social organisation, Animal perception, Neural control of behaviour, Sensory processes and perception, Visual adaptations to unfavourable environments.					
III	Coordination and Orientation, Homeostasis and Behaviour, Physiology and Behaviour in changing environments, Animal Learning, Conditioning and Learning, Biological aspects of learning, Cognitive aspects of learning.					
IV	Instinct and learning, Displacement activities, Ritualization and Communication, Decision making behaviour in Animals, Complex behaviour of hobey bees, Evolutionary optimality, Mechanism of Decision making. The mentality of Animals: Languages and mental representation, non-verbal communication in human, mental images,Intelligence, tool use and culture, Animal awareness and Emotion.					
V	 Organization of circadian system in multicellularanimals; Concept of central and peripheral clock system; Circadian pacemaker system in invertebrates with particular reference to Drosophila; Photoreception and photo- transduction; Molecular bases of seasonality; The relevance of biological clocks for human welfare - Clock function (dysfunction); Human health and diseases - Chronopharmacology, chrono medicine, chronotherapy. 					
	Total					
	Course Outcomes Knowle					
1	On completion of this course, students will Recall and record genetic basis and evolutionary history of behaviour. K1,K2					
2	Analyse and identify innate, learned and cognitive behaviour and differentiate between various mating systems.K1,K2					
3	Classify movement and migration behaviours and explain environmental influence upon behaviour. K1,K2,K					
4	Explore neural, hormonal, and genetic mechanisms K1,K2,K underlying animal behaviour.					
5	Examine the role of learning, cognition, and communication in	K1,K2,K	3,K4,K5,K6			

	shaping adaptive behaviour across different species.						
Textbooks							
1	Michael D. Breed and Janice Moore, 2012. Animal Behaviour, Academic Press, USA,						
1.	359pp.						
2	Aubrey Manning and Martin Stamp Dawkins, 2012. An Introduction to Animal						
۷.	Behaviour, 6th Edition, Cambridge University Press, UK. 458pp.						
2	Davis E.Davis, 1970. Integral Animal Behaviour, Mac Millan Company,London,						
5.	118pp.						
1.	Jay, C. Dunlap, Jennifer, J. Loros, Patricia J. De Coursey (ed). 2004. Chronobiology						
т.	Biological time Keeping, Sinauer Associates Inc, Publishers, Sunderland,MA						
Reference Books							
1	David McFarland, 1985. Animal Behaviour, Longman Scientific & Technical,						
1.	UK.576pp.						
2	Harjindra Singh, 1990. A Text Book of Animal Behaviour, Anomol Publication,						
2.	293pp.						
3	HoshangS.Gundevia and Hare Goving Singh, 1996. Animal Behaviour, S.Chand &Co,						
з.	280pp.						
4.	J. P 2010, Fundamentals of Animal Behaviour, Atlantic, 587pp						
5.	Shukla, J. P 2010, Fundamentals of Animal Behaviour, Atlantic, 587pp.						
6.	Vinod Kumar, 2002. Biological Rhythms. Narosa Publishing House, Delhi.						

Mapping with Programme Outcomes:

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	P010
CO 1	3	3	2	2	1	1	2	2	1	1
CO 2	3	2	1	1	3	1	2	2	1	2
CO 3	2	1	2	1	3	3	2	3	2	3
CO 4	3	3	3	3	2	3	1	1	1	2
CO 5	3	1	1	1	2	1	1	3	2	3

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
C01	3	3	2	2	1
CO2	3	2	1	1	3
CO3	2	1	2	1	3
CO4	3	3	3	3	2
C05	3	1	1	1	2
Strong 2 Madium 2	Louy 1				

Strong-3 Medium-2 Low-1