POULTRY SCIENCE
SYLLABUS FOR B.Sc.

CHOICE BASED CREDIT SYSTEM (CBCS)

To be commenced from the Academic year 2025-26

KAKATIYA UNIVERSITY
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TELANGANA STATE

KAKATIYA UNIVERSITY

CREDIT DISTRIBUTION FOR THE COURSE

Annexure-I (Credits)

Proposed CBCS Structure from 2025-2026 for Undergraduate Course

Courses		Papers	Total Credits	Credits for each paper/ Semester					
				B.Sc					
				I	II	III	IV	V	VI
Core Courses (DSC)	Major-1	6	30	5	5	5	5	5	5
	Major-2	6	30	5	5	5	5	5	5
	Minor-1	4	20	5	5	5	5	---	----
MIL/AEC (First language)	English	4	20	5	5	5	5	---	----
Second Language (Telugu, Hindi, Urdu etc.,)		4	20	5	5	5	5	---	----
Multi Disciplinary Course	MDC-1	1	4	---	----	---	----	4	----
SEC 1,2		2	4	---	----	---	----	2	2
SEC 3,4		2	4	---	----	---	----	2	2
Value added course (VAC)	VAC 1,2	2	6	---	----	---	----	3	3
Internships	Internship/Project	1	4	---	----	---	----	---	4
Total Credits in each semester		----	142	25	25	25	25	21	21
Total Credits in UG		---	142						

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CURRICULUM FOR POULTRY SCIENCE FOR B.Sc. (UG) 2025-26

Code	Semester	Course Title (Theory and Practical)	HPW	Number of Credits	Total Credits	Max. Marks		
						I.A	End Exam	Total
1st Year	I Sem	Paper-1: Introduction to Poultry Science (Theory)	4	4	5	20	80	100
		Introduction to Poultry Science (Practical)	2	1		-	25	25
	II Sem	Paper-II: Anatomy and Physiology of Chicken (Theory)	4	4	5	20	80	100
		Anatomy and Physiology of Chicken (Practical)	2	1		-	25	25
2nd Year	III Sem	Paper-III: Poultry Nutrition and Biochemistry (Theory)	4	4	5	20	80	100
		Poultry Nutrition and Biochemistry (Practical)	2	1		-	25	25
	IV Sem	Paper-IV: Poultry Diseases and Pharmacology (Theory)	4	4	5	20	80	100
		Poultry Diseases and Pharmacology (Practical)	2	1		-	25	25
3rd Year	V Sem	Paper-V: Breeder and Hatchery Management (Theory)	4	4	5	20	80	100
		Breeder and Hatchery Management (Practical)	2	1			25	25
		MDC-1: Computational Biology and Bioinformatics	4	4	4	20	80	100
		SEC-1: Broiler Management	2	2	2	10	40	50
		SEC-2: Layer Management	2	2	2	10	40	50
		VAC-1: Applied Data Science in Poultry Production	3	3	3	15	60	75
	VI Sem	Paper-VI: Poultry Products and Technology (Theory)	4	4	5	20	80	100
		Public Poultry Products and Technology (Practical)	2	1		-	25	25
		SEC-3: Poultry Entrepreneurship	2	2	2	10	40	50
		SEC-4: Poultry Waste Management	2	2	2	10	40	50
		VAC-2: Smart Farming Technologies in Poultry	3	3	3	15	60	75
		Internship / Project	4	4	4	20	80	100
		TOTAL	**58**	**52**	**52**	**230**	**1070**	**1300**

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Sl.No	Paper	Credits
1	Major - 1	30
2	Major -2	30
3	Minor - 1	20
4	AEC (Ability Enhancement Course) - English	20
5	Second Language	20
6	MDC (Multi-Disciplinary Course) - 1	4
7	SEC (Skill Enhancement Course) – 1,2,3,4	8
8	VAC (Value Added Course) -1,2	6
9	Project	4
	TOTAL	**142**

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(With effect from 2025-26)
I – SEMESTER
Paper – I (Theory)
INTRODUCTION TO POULTRY SCIENCE

Max. Marks: 80

UNIT-I: Indian Poultry Industry

1.1 Definition of Poultry, Importance of Poultry Farming, and Poultry development in India.
1.2 Present status and future prospectus of poultry Industry
1.3 Origin of the chicken and Classification of Poultry based on Genetic utility
1.4 Classification of chicken as per international standards.

UNIT – II : Scientific Poultry keeping

2.1 Modern breeds of chicken – varieties used for modern breeding.
2.2 Present day egg production lines
2.3 Present day meat production lines
2.4 The Mini breeds dwarfism in mini- Leghorns.

UNIT- III : Diversified Poultry

3.1 Ducks and Geese – Introduction - Advantages – Classification – Duck rearing systems
3.2 Quails – Origin and Domestication – Advantages of Quail farming.
3.3 Guinea fowls – Guinea fowl farming in India – Importance of Guinea fowl production – Verities
3.4 Turkeys – Turkeys farming in India – Varieties

UNIT – IV : Ratite Birds (Emu and Ostrich) and Desi Chickens

4.1 Ratites – Classification – Economical Aspects
4.2 Emu based commercial Products and Ostrich products, yields and their uses.
4.3 Desi – Chicken – Introduction – Indigenous Breeds and Economical aspects of desi chicken
4.4 Improved Varieties in India – Giriraja – Vanaraja – Gramapriya – Gramasree – Gramalakshmi - Nandanam Chicken – 1 , Nandanam Chicken – 2, Namakkal Desi Chicken – CARI Nirbeek (Aseel cross) , Hitcari (Naked Neck Cross), Swarnadhara – Girirani – Krishbro – Kalinga brown

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I – SEMESTER
Paper – I (Practical)
INTRODUCTION TO POULTRY SCIENCE

Paper – I **PRACTICALS** **Max. Marks: 50**

1. External Anatomy of Chicken and Nomenclature
2. Comb Pattern in chicken
3. Integumentary system in chicken
4. Demonstration of Breeds of chicken
5. Demonstration of Breeds of Ducks and Geese
6. Demonstration of Breeds of Turkeys
7. Demonstration of Breeds of Quails
8. Demonstration of Breeds of Turkeys
9. Demonstration of Breeds of Guinea Fowls
10. Demonstration of Breeds of Ratite Birds
11. Demonstration of Breeds of Desi chicken

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II – SEMESTER
Paper – II (Theory)
ANATOMY AND PHYSIOLOGY OF CHICKEN

Max. Marks: 80

UNIT-I: Digestive and Skeleton system of chicken

1.1 Macroscopic structure of Digestive System of Chicken and their Accessory Glands
1.2 Microscopic structure of Alimentary canal of Chicken
1.3 Mechanism of Digestion – Physical and Chemical digestion of chicken. Factors affecting the rate of Digestion in Chicken
1.4 Skeleton system of fowl

UNIT - II : Reproductive system of chicken

2.1 Macroscopic structure of Female Reproductive system
2.2 Formation of Egg in Fowl
2.3 Factors influencing the ovulation. Pre-ovipopsition and Post- oviposition
2.4 Macroscopic structure of Male Reproductive system and composition of semen

UNIT – III: Respiratory system, Vascular system and Excretory System

3.1 Macroscopic structure of Respiratory system of Chicken
3.2 Mechanism of Respiration – Inspiratory and Expiratory muscles – Disposal of Carbon Dioxide Outside and inside the body. Factors influencing the rate of Respiration in fowl.
3.3 Vascular system – Structure of the Heart – Composition of Blood – Name of Arteries supplying the Blood to all parts of the body . Difference between Arteries and Veins.
3.4 Excretory system of chicken

UNIT – IV: Exocrine and Endocrine system and Embryology

4.1 Exocrine system of Fowl – Classification – Glands – Difference between Enzymes and Hormones
4.2 Name the Endocrine Glands in Chicken and name of hormones of each gland and its functions
4.3 Embryology of chicken: Fertilization – Zygote formation – Cleavage – Blastulation – Gastrulation – Extra embryonic membranes in chicken
4.4 Development of Embryo during 24 , 48, 72 and 96 hours. Developmental changes during 21 days of Incubation.

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(With effect from 2025-26)
II – SEMESTER
Paper – II (Practical)
ANATOMY AND PHYSIOLOGY OF CHICKEN

Paper – II **PRACTICALS** **Max. Marks: 50**

1. Dissection of Live Bird:
   a) Demonstration of Digestive system
   b) Demonstration of Reproductive system of Male
   c) Demonstration of Reproductive system of Female
   d) Demonstration of Respiratory system
   e) Demonstration of Urinary system
   f) Demonstration of Heart
   g) Demonstration of Endoskeleton system

2. Slides :
   a) T.S. of Intestine
   b) T.S. of Liver
   c) T.S. of Pancreas
   d) T.S. of Ovary
   e) T.S. of Testis
   f) 24 hours chick embryo
   g) 48 hours chick embryo
   h) 72 hours chick embryo
   i) 96 hours chick embryo

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III – SEMESTER
Paper – III (Theory)
POULTRY NUTRITION AND BIOCHEMISTRY

Max. Marks: 80

UNIT – I : BIOCHEMISTRY OF PROTEINS

1.1 Poultry nutrition definition – Importance – Objectives - principles of Poultry Feeding – Systems of feeding
1.2 Protein Definition. Classification – Composition of typical protein – Biological significance – classification based upon source (Plant and Animal)
1.3 Protein quality – Evaluation measures of protein quality – crude protein estimation of feed samples – Biological vale and its limitations – net protein value – protein efficiency ratio – chemical score method.
1.4 Amino Acids: Definition – properties – classification – essential and non essential amino acids – critical amino acids – synthetic amino acids commonly used in poultry
1.5 The factors influencing the protein requirement of poultry – calorie protein ratio – effect of low and high protein in poultry rations – calculation of daily protein requirements for chicks, growers, laying phase –I and Laying phase – II

UNIT – II : BIOCHEMISTRY OF CARBOHYDRATES AND LIPIDS

2.1 Carbohydrates definition- classification - Various terms used for energy – gross energy – Digestible energy – Metabolized Energy – production energy – feed stuffs Production energy ares like millets , brans etc.
2.2 Calculation of daily energy requirement of poultry in terms of M.E – Advantages and disadvantages of M.E. and Production Energy.
2.3 Energy from Carbohydrate Metabolism – crude fiber definition – and its role in poultry nutrition.
2.4 FATS: definition – classification – importance of fats in poultry ration – Energy from fat metabolism – Essential fatty acids – source – Functions – Requirements – Fats used as energy source in poultry Nutrition – Tallow – Lard – etc.

UNIT- III : VITAMINS AND MINERALS

3.1 Vitamins definition – Importance – Classification based on solubility
3.2 Vitamin sources – Vitamin supplements
3.3 Minerals – Definition – Importance – Classification based upon requirement
3.4 Critical Minerals – Major minerals – Chemical chalets – Sources – Functions – Deficiency symptoms – Common Mineral supplements.

UNIT – IV : FEED ADDITIVES AND FEED FORMULATION

4.1 Feed Additives Definition – Classification – Antibiotics – Anti-oxidants – Coccidiostats etc. And their role in poultry nutrition – Feed supplements generally used as feed additives.
4.2 selection of good quality feed ingredients keeping in view of the Nutritive value – Cost – Availability – storage etc.
4.3 Feed formulation for Chicks, Growers, Layers, Broilers and Breeders
4.4 Grinding – Mixing of feed – Objectives and Principles. Hammer mill, mixture, pellet mill-types, principle of working, comparison of different types, premix preparations quality control of raw materials. Feed mill operation.

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(With effect from 2025-26)
III – SEMESTER
Paper – III (Practical)
POULTRY NUTRITION AND BIOCHEMISTRY

Paper – III **PRACTICALS** **Max. Marks: 50**

1. Brief an account on Nutrients required in poultry feed Proteins, Carbohydrates, Lipids, Vitamins and Minerals
2. Name of feed ingredients and their nutritive value in terms of C.P. % and M.E. in K.Cal/kg of feed and levels used in poultry feed
   a) Animal source [6] b) Plant source[12] c) Synthetic source
3. Mineral Mixture:
   - Source and level of calcium
   - Source and level of Phosphorous
4. Estimation of Calcium requirement for Layers and Broilers
5. Estimation of Protein requirement for Layers and Broilers
6. Estimation of M.E. requirement of Hen
   - By Basal Energy
   - By Net Energy
   - BY Direct formula
7. Requirement of C.P., M.E., % of Crude fiber, Linoleic Acid, Vitamins, Minerals in Poultry Feed for Chicks, Growers, Layers , Broilers and Breeders
8. Estimation of Protein in a given sample of feed by Kjeldal flask method
9. **Preparation of Feed:**
   - Selection of ingredients
   - Feed formulations
   - Grinding
   - Mixing
   - Packing and storage
10. Prepare the feed for chicks, Layers, Broilers, with the following feed ingredients
    - Protein concentrate and Maize
    - 3 ingredients of Protein source
    - 3 ingredients of Energy source
    - 1 ingredient of mineral
    - 1 feed additive

*** *** Based upon the**

A) Pearsons square formula (Concentrate and Maize)
B) Preparing two types of mixture (Energy and Protein mix) with 6 ingredients by Simultaneous equation method

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IV – SEMESTER
Paper – IV (Theory)
POULTRY DISEASES AND PHARMACOLOGY

Max. Marks: 80

UNIT – I : DISEASES AND ITS CLASSIFICATION

1.1 Glossary : Necrosis – Gangrene – Atrophy – Inflammation – Nephritis – Hepatic Opharitis – Encephalitis – Pneumonia – Salphengitis Rhinitis – Enteritis - Stomatitis – Peritonitis – Ascitis – Peticheal – Hemorrhages – Exudate – Biopsy – Autopsy – Morbidity – Tumor – Course of Diseases
1.2 Introduction and history of Microbiology
1.3 Diseases definition – Etiology of diseases – General classification
1.4 Prevention and control of contagious diseases

UNIT- II : VIRAL, BACTERIAL and PROTOZOAL DISEASES :

2.1 VIRUS – Introduction to viruses: Classification of Viruses - General properties, Replication, Cultivation and Purification of viruses. Cell-Virus interactions. Viral genetics. Interferon, Preventive measures of Viral Diseases
2.2 Raniketh Disease , Infectious Bursal Disease and Avian Encephalitis, Infectious Bronchitis and Infectious Laryngo Treacheatis, Mareks disease, Fowl Pox, Avian Influenza, ALC, IBH and Chicken Infectious Anemia
2.3 BACTERIA-. Morphology, structure, growth and nutrition of bacteria.Classification and nomenclature of bacteria. Sources and transmission of infection. Pathogenicity, virulence and infection. Classification –Infectious Coryza –CRD –Fowl Cholera – Pullorum – Botulism,
Infectious synovitis, Fowl Typhoid, Necrotic Enteritis, Colibacillosis, Spirochetosis, and staphylococosis
2.4 PROTOZOAL DISEASE: Coccidiosis – Histomoniases

UNIT – III : OTHER DISEASES :

3.1 FUNGI : Introduction, morphology, growth, nutrition, Reproduction in fungi, Classification, Mycotoxins – Classification - Aspergillosis – Thrush – Treatment and Prevention
3.2 Parasitic Diseases – Importance Ecto-parasites – Lice – Ticks – Mites – Endo Parasites –and Side effects on Poultry – Drugs used to eliminate Endo parasites.
3.3 Deficiency Diseases: Rickets – Nutritional Roup – Nutritional Encephalomalacia – Curled Toe Paralysis – Perosis.
3.4 Miscellaneous disorders: – Cannibalism – Crop bound – Egg bound – Bumble foot Prolapsed of the Uterus.

UNIT – IV : PHARMACOLOGY

4.1 Glossary of pharmacology viz. Indian pharmacopoeia, British pharmacopoeia, meteorology
4.2 Weights and measures; their symbol used during prescription. Description of the Roman Words used in the prescriptions.
4.3 Classification of Drugs – Route of Drugs - Administration – Length of Drug Treatment
4.4 FDA Approval guidelines for all Antibiotics

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(With effect from 2025-26)
IV – SEMESTER
Paper – IV (Practical)
POULTRY DISEASES AND PHARMACOLOGY

Paper – IV **PRACTICALS** **Max. Marks: 50**

I. Sterilization
II. Staining methods
III. Antibiotics Sensitivity Test
IV. MPN Test
V. Feacal sample examination
VI. Blood examination
VII. Isolation of Organisms
VIII. Serological tests
IX. Draw a table including Disease name, Casual Agent, Incubation period and its Important Lesions of the following Diseases
   1. BACTERIAL DISEASES
   2. VIRAL DISEASES
   3. PROTOZOAL DISEASES
   4. OTHER DISEASES
   5. Important Round Worms in Poultry
   6. Important Tape Worms in Poultry

X. Poultry Necropsy (Post Mortem)
XI. Commecially available Antibiotics – Anti Helminthics – Growth Promoters – Water Sanitizers – Feed Additives

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V – SEMESTER
Paper – V (Theory)
BREEDER AND HATCHERY MANAGEMENT

Max. Marks: 80

UNIT – I : BREEDER FLOCK MANAGEMENT

1.1 Principles of Poultry Breeding – Inheritance of qualitative and quantitative traits Methods and types of breeding –1, 2, 3, 4 Line cross breeding – Mating - Pen mating – Flock Mating – Stud Mating.
1.2 Selection: Aids to selection - Mass selection – Family selection – Reciprocal selection – Recurrent selection – Upgrading
1.3 Layer and broiler breeder flock management housing& space requirements. Different stage of management during life cycle
1.4 Light management during growing and laying period

UNIT – II : FEEDING MANAGEMENT IN BREEDERS :

2.1 Feed restriction, separate male feeding.
2.2 Nutrient requirement of layer and broiler breeders of different age groups.
2.3 Healthcare: vaccination of breeder flock; difference between vaccination schedule of broilers and commercial birds.
2.4 Common diseases of breeders (Infectious and metabolic disorders) - prevention.

UNIT – III : ARTIFICIAL INSEMINATION

3.1 Artificial insemination.
3.2 Fertility disorder- etiology, diagnosis and corrective measures.
3.3 Selection and culling of breeder flocks.
3.4 Economic parameters on returns from breeders- for example saleable chick/hen/production cycle etc.

UNIT – IV : HATCHERY MANAGEMENT:

4.1 Management principles of incubation.
4.2 Factors affecting fertility and hatchability.
4.3 Selection, care and incubation of hatching eggs. Fumigation - sanitation and hatchery hygiene.
4.4 Disposal of hatchery waste; Sexing, grading, packing and dispatch of day old chicks. Economics of hatchery business; Trouble shooting hatch failure: importance of hatchery records, break even analysis of unhatched eggs. Bio-security in the hatchery.

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V – SEMESTER
Paper – V (Practical)
BREEDER AND HATCHERY MANAGEMENT

PRACTICAL **Max. Marks: 50**

1. Male Reproductive system.
2. Female reproductive system
3. Artificial insemination.
4. Selection of breeder flock.
5. Working of hatchery Incubation requirement; incubators working, care.
6. Hatchery layout and equipments.
7. Handing of eggs prior and during incubation.
8. Candling.
9. Fumigation.
10. Project reports of setting up a hatchery.
11. Hatchery records and maintenance.

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V – SEMESTER
Paper – VI (Multi-Disciplinary Course-MDC-1)

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

Max. Marks: 80

UNIT – I: Introduction To Computational Biology And Bioinformatics

1.1 Definitions and Scope of Computational Biology and Bioinformatics
1.2 Applications in Life Sciences and Poultry Science
1.3 Basic Concepts in Molecular Biology: DNA, RNA, Proteins
1.4 Introduction to Central Dogma and Gene Expression

UNIT – II: Biological Databases And Data Retrieval

2.1 Types of Biological Databases – Primary, Secondary, Composite
2.2 NCBI, EMBL, DDBJ, UniProt – Structure and Use
2.3 Sequence Data Retrieval – Using GenBank and FASTA formats
2.4 BLAST: Basic Local Alignment Search Tool – Concept and Applications

UNIT – III: Sequence Alignment And Phylogenetics

3.1 Pairwise Sequence Alignment – Global and Local
3.2 Multiple Sequence Alignment – Introduction and Tools (e.g., CLUSTALW)
3.3 Scoring Matrices – PAM and BLOSUM
3.4 Basics of Phylogenetic Tree Construction and Applications

UNIT – IV: Applications In Poultry And Biotechnology

4.1 Use of Bioinformatics in Poultry Genetics and Breeding
4.2 Protein Structure Prediction – Primary to Tertiary
4.3 Molecular Docking and Vaccine Design – Introduction
4.4 Future Perspectives: AI and Machine Learning in Poultry Bioinformatics

References

1. Lesk, Arthur M. *Introduction to Bioinformatics*. 5th ed., Oxford University Press, 2019.
2. Mount, David W. *Bioinformatics: Sequence and Genome Analysis*. 2nd ed., Cold Spring Harbor Laboratory Press, 2004.
3. Baxevanis, Andreas D., and B. F. Francis Ouellette. *Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins*. 3rd ed., Wiley-Interscience, 2005.
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POULTRY SCIENCE SYLLABUS FOR B.Sc. UNDER CBCS
(With effect from 2025-26)
V – SEMESTER
Paper – VII (SEC-1)

BROILER MANAGEMENT

Max. Marks: 40

UNIT – I : POULTRY HOUSING AND INCUBATION

1.1 Poultry Housing – Poultry house equipment –Principles of Housing – Biological needs of Poultry Housing
1.2 Poultry housing construction – Location – General Layout – Floor – Walls – Roof etc.
1.3 Incubation – Natural and Artificial Incubation – Requirement of Incubation – Selection – Handling and Care of Hatching eggs , Types of incubators – Incubation periods of various species - Incubation problems and their remedies.
1.4 Fertility and Hatchability – Factors affecting Fertility and Hatchability.

UNIT – II : BROILER FARM EQUIPMENT AND BROODING

2.1 Broiler Farm equipment – Brooders – Feeders – Waterers - chick guard, sprayer, flame gun, vaccination kit and medication equipment, foggers and sprinklers, water pump and pipe line, weighing scale, crate, ventilation equipment, cleaning equipment, Disinfectants
2.2 Systems of rearing – All in All out system – Multiple Batch system
2.3 Brooding and rearing of chicks – Brooding system
2.4 Requirements during Brooding – Types of Brooders – Practical aspects of Management

UNITN – III : BROILER MANAGEMENT

3.1 Floor space allowances – Water Management and Sanitation – Feeding systems
3.2 Vaccination programme – Lighting Management
3.3 Summer Management of Broilers
3.4 Litter Management of Broilers

UNIT – IV : BROILER PERFORMANCE INDICES AND FARM RECORDS

4.1 Broiler performance Indices
4.2 Broiler Farm Records
4.3 Common Diseases in Broilers
4.4 Management factors in disease prevention

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V – SEMESTER
Paper – VIII (SEC-2)

LAYER MANAGEMENT

Max. Marks: 40

UNIT – I : LAYER FARM LAY-OUT AND SYSTEMS OF LAYER FARMING

1.1 Farm Lay-out – Construction of Poultry House – Types of Roofs and Roofing Materials
1.2 Chick House – Grower House – Layer House
1.3 Systems of Layer Farming
1.4 Cage System – Different types of Cages

UNIT – II : CHICK MANAGEMENT

2.1 Chick management – arrangement of brooder guards – Different heat sources
2.2 Brooder space, watering space and feeding space requirement for chicks.
2.3. Nutrient requirement for chicks – Feeding management of chicks – Vaccination Programme
2.4 Debeaking – Precautions to be taken before , during and after debeaking – Advantages

UNIT – III : GROWER MANAGEMENT

3.1 Grower management – floor space requirement for growers in deep litter and cage system
3.2 Watering space and feeding space requirement for growers - nutrient requirement for growers
3.3 Quantitative and qualitative feed restriction for growers.
3.4 Deworming : Definition – Objectives – Methods – Common Drugs used for Deworming of Round worms and Tape worms.

UNIT – IV : LAYER MANAGEMENT

4.1 Management of layers – space requirement for layers in deep litter and cage system - watering space and feeding space requirement for layers - nutrient requirement for layers – phase feeding during different stages of production -
4.2 Winter and summer management of layers
4.3 Moulting in layers – Purpose – Types of Recycling Programs – Methods
4.4 Common diseases of layers –Nutritional deficiency diseases – postmortem procedure for layers Culling of layers – dead bird disposal - Record keeping

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V – SEMESTER
Paper – IX (Value Added Course-VAC-1)

APPLIED DATA SCIENCE IN POULTRY PRODUCTION

Max. Marks: 40

UNIT – I: Introduction To Data Science And Its Role In Poultry

1.1 Basics of Data Science – Definition, Importance, Applications
1.2 Types of Data – Structured, Unstructured, Time-Series
1.3 Importance of Data Collection in Poultry Farms
1.4 Overview of Data-Driven Decision Making in Poultry

UNIT – II: Data Collection And Management In Poultry Farms

2.1 Sources of Poultry Data – Feed, Growth, Health, Mortality
2.2 Tools for Data Recording – Mobile Apps, Sensors, Excel Sheets
2.3 Data Cleaning and Organizing Techniques
2.4 Basics of Database Management (Introduction to MS Excel/Google Sheets)

UNIT – III: Data Analysis Techniques

3.1 Descriptive Statistics – Mean, Median, Mode, Standard Deviation
3.2 Data Visualization – Charts, Graphs using Excel or Google Sheets
3.3 Trend Analysis – Growth, Feed Conversion Ratio, Mortality Trends
3.4 Introduction to Correlation and Simple Prediction (e.g., Body Weight vs. Feed Intake)

UNIT – IV: Applications Of Data Science In Poultry Production

4.1 Monitoring Broiler and Layer Performance using Data
4.2 Early Disease Detection through Data Patterns
4.3 Optimizing Feed and Resource Use using Analysis
4.4 Introduction to Smart Dashboards and Reporting Tools

References

1. Chakraborty, S. & Mehrotra, K. (2021). *Introduction to Data Science*. Universities Press, India
2. Gillespie, J. R. (2002). *Animal Science* (6th Edition). Delmar Cengage Learning
3. Vasant, P. (Ed.) (2021). *Data Science Applications in Agriculture and Poultry*. Springer
4. Microsoft Excel Tutorials – Official Microsoft Support. https://support.microsoft.com/excel

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VI – SEMESTER
Paper – X (Theory)

POULTRY PRODUCTS AND TECHNOLOGY

Max. Marks: 80

UNIT – I : PRODUCTION OF CLEAN EGGS

1.1 Reasons for dirty eggs – Remedies
1.2 Objectives and Principles and methods of Preservation of Shell Eggs
1.3 Physical And Chemical Composition of Chicken Egg – Factors affecting the composition of Egg
1.4 Estimation of External and Internal Quality of Chicken Egg – Factors affecting the quality of Eggs

UNIT – II : MANUFACTUREING OF EGG PRODUCTS

2.1 Physical and Chemical changes in the stored Egg – Self life duration
2.2 Functional Properties of Egg
2.3 Egg Products – Egg Powder – Liquid Eggs – Restaurant Products.
2.4 Industrial use of Eggs and Egg Products

UNIT – III : GRADING OF POULTRY MEAT

3.1 Grade – I, Grade – II
3.2 What are the abnormalities in Processed Broiler Meat
3.3 Preservation of Meat
3.4 Methods of cooking of Eggs

UNIT –IV : QUALITY OF EGG AND SANITATION

1.1 The Nutritive value of Eggs after cooking
4.2 Nutritive value of Egg – Other advantages of Egg – Per capita of egg in Telangana, In India and Developed countries
1.2 Selection of types of Detergents and Sanitizers for controlling Egg Quality and Poultry Products
1.3 Sources of contamination of Eggs and its Products and prevention methods.

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VI – SEMESTER
Paper – X (Practical)

POULTRY PRODUCTS AND TECHNOLOGY

PRACTICAL

Max. Marks : 50

1. Marketing of Eggs in Telangana
2. Estimation of External Quality of Chicken Egg
3. Estimation of Internal Quality of Chicken
4. Processing of Broilers
5. Estimation of Percentage of Losses in Processing of Broilers
6. Preparation of Gibblets.

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VI – SEMESTER
Paper – XI (SEC-3)

POULTRY ENTREPRENEURSHIP

Max. Marks: 40

UNIT – I : MARKETING OF EGGS

1.1 Egg Marketing - Types – Organized and Unorganized Marketing
1.2 Marketing Activities – Collection – Cleaning and Washing – Candling – Grading – Oiling – Package (Materials, Pulp Trays, Plastic Trays, Egg cartoons and other packing materials)– Types of Packing – Manual and Machinery packing – Mode of Transportation – Methods of Marketing – Agencies involved(NECC) : Wholesale Merchants – Retailers – Co-operative societies Private byes – shop Agency – Village buyers – Auction of Eggs.
1.3 Major Problems in Egg Marketing
1.4 Factors Influencing the Marketing cost.

UNIT – II : POULTRY ENTERPRIZES

2.1 Factors involving to produce Eggs in Layer Farms and Other Products of Egg(Shell Utility: as a feed, Fertilizer, Decoration)
2.2 Different methods of cooking of Eggs
2.3 Marketing Channels
2.4 Farmer share in Egg Marketing

UNIT – III : POULTRY INSURANCE AND FINANCIAL MANAGEMENT

3.1 Subsidiaries by the Government for the Promotion of Egg Marketing
3.2 Technical Support sponsored by the Government for Marketing of Eggs
3.3 Technical Support sponsored by the Government for Marketing of Meat
3.4 The Government contribution for the construction of Egg storage

UNIT – IV : POULTRY ECONOMICS

1.4 Value of Broken Eggs during transportation
4.1 Value of the Dead Birds (Broilers) during transportation
1.5 Precautions to prevent mortality of Birds during transportation
1.6 Prevention methods for Egg Breakage during the transportation

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VI – SEMESTER
Paper – XII (SEC-4)

POULTRY WASTE MANAGEMENT

Max. Marks: 40

UNIT – I: POULTRY LITTER

1.1 Poultry Litter – Bedding Material
1.2 Importance of Poultry Farm Pollution
1.3 Value of Poultry Manure
1.4 Factors Affecting Litter Quality

UNIT – II: POULTRY LITTER MANAGEMENT AND PRACTICES

2.1 Moisture Management Methods
2.2 Litter Re-utilization Methods
2.3 Litter Amendments
2.4 Acidifiers and Other Amendments

UNIT – III: DISPOSAL AND USES

3.1 Methods of Disposal of Faecal Material
3.2 Types of Uses of Faecal Materials
3.3 Environmental Advantages Due to Use of Poultry Litter
3.4 Risks and Safety Measures in Litter Handling

UNIT – IV: SUSTAINABLE POULTRY WASTE UTILIZATION

4.1 Composting of Poultry Waste
4.2 Biogas Generation from Poultry Waste
4.3 Role of Poultry Waste in Organic Farming
4.4 Legal and Environmental Regulations in Waste Management

REFERENCE BOOKS

1. Mack O. north or Donald D. Bell, 1990. Commercial Chicken Production Manual (Fouth edition) . Van Nostrand Reinhold – New York.
2. Curtis, S.E. 1983. Environmental Management in Animal Agriculture. Lowa state University Press, Ames, IA.
3. Moreng, R.W. and J.S.Avens, Poultry Science and Production. Reston Publishing Co., Reston, VA.
4. P.C. Panda, 1995. Egg and Poultry Technology. Vikas Publishing House.
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VI – SEMESTER
Paper – XIII (Value Added Course- VAC-2)

SMART FARMING TECHNOLOGIES IN POULTRY

Max. Marks: 40

UNIT – I: INTRODUCTION TO SMART FARMING IN POULTRY

1.1 Concept and Importance of Smart Poultry Farming
1.2 Benefits of Technology in Poultry Production
1.3 Overview of Modern Poultry Farm Layout
1.4 Types of Smart Poultry Farms (Broiler, Layer, Breeder)

UNIT – II: AUTOMATION IN POULTRY FARMING

2.1 Automatic Feeding Systems
2.2 Watering Systems and Drinkers
2.3 Climate Control – Heating, Cooling and Ventilation
2.4 Egg Collection and Manure Removal Systems

UNIT – III: DIGITAL TOOLS AND SENSORS

3.1 Role of Sensors in Poultry Monitoring
3.2 Use of Mobile Apps and Software for Farm Management
3.3 Smart Weighing and Health Monitoring Devices
3.4 Data Collection and Record Keeping using IoT

UNIT – IV: EMERGING TECHNOLOGIES AND SUSTAINABILITY

4.1 Artificial Intelligence and Machine Learning in Poultry
4.2 Use of Drones in Poultry Farm Surveillance
4.3 Biosecurity Measures Using Technology
4.4 Sustainable and Eco-Friendly Smart Farming Practices

Suggested references:

1. **Banerjee, G. C.** *A Textbook of Animal Husbandry*. Oxford & IBH Publishing Co. Pvt. Ltd.
2. **Ravindran, V., & Blair, R.** *Nutrition and Feeding of Poultry*. CABI Publishing
3. **Singh, R. A.** *Poultry Production*. Kalyani Publishers
4. **FAO (Food and Agriculture Organization).** *Smart Farming Technologies for Smallholder Farmers*. FAO Reports and Technical Papers

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Annexure – I (Credits)
Proposed CBCS Structure from 2025-26 for Under Graduate Courses

Courses		Papers	Total Credits	Credits for each paper / Semester						Credits for each paper / Semester						Credits for each paper / Semester					
				BA						B.Com.						B.Sc.					
				I	II	III	IV	V	VI	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Core Courses DSC	Major-1	6	30	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Major -2	6	30	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Minor-1	4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
MIL/AEC (First Language)	English	4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
Second Language (Telugu, Hindi, Urdu, etc.)		4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
Multi-Disciplinary Course	MDC 1	1	4	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4	-
Sec 1, 2		2	4					2	2					2	2					2	2
Sec 3, 4		2	4					2	2					2	2					2	2
Value added course (VAC)	VAC 1, 2	2	6	-	-	-	-	3	3	-	-	-	-	3	3	-	-	-	-	3	3
Internships	Internship / Project	1	4	-	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4
Total Credits in each semester			142	25	25	25	25	21	21	25	25	25	25	21	21	25	25	25	25	21	21
Total Credits in UG				142						142						142					
Credits under Non-CGPA (Community engagement and service)		NSS /NCC /sports / Extra curricular	6	Upto 6 (2 in each year)						Upto 6 (2 in each year)						Upto 6 (2 in each year)					
		IKS	4	Upto 4 (2 in each, after I & II years)						Upto 4 (2 in each, after I & II years)						Upto 4 (2 in each, after I & II years)					