

**DIPLOMA IN BROILER BREEDER
PRODUCTION AND MANAGEMENT**

Curriculum & Scheme of Examination

Academic Year 2016-2017 onwards

BHARATHIAR UNIVERSITY
COIMBATORE-641 046

CENTRE FOR COLLABORATION OF INDUSTRY AND INSTITUTION (CCII)
DIPLOMA IN BROILER BREEDER PRODUCTION AND MANAGEMENT
(For the CCII candidates admitted from the Academic Year 2016-2017 onwards)

Sl. No.	Name of the Course	Total Marks
SEMESTER I		
1	Growth of Poultry Industry	100
2	Chicken Basic Anatomy and Physiology	100
3	Breeder Flock Health and Biosecurity	100
4	Breeder Housing and Environment	100
5	Management of Breeder Replacement Stock	100
6	Practical I	100
SEMESTER II		
7	Breeder Flock and Hatchery Management	100
8	Breeder Layer Management	100
9	Breeder Nutrition and Feed Mill Technology	100
10	Breeder Diseases	100
11	Breeder Economics and Marketing	100
12	Practical II	100
13	In-Plant Training (3 months in Industry)	100
TOTAL		1300

SEMESTER - I

1 – GROWTH OF POULTRY INDUSTRY

Total Marks: 100

Total Hours: 60

Objective:

*To understand the poultry industry based on the past, present and emphasis of future growth.
To study the statistical data and various functions involved in poultry industry.*

UNIT-I

(12 HRS)

Introduction – Definition of Poultry – Broiler, Layer and Breeder – Common terms related to Poultry – Development of Poultry industry in India. Past and Present Scenario of Poultry Industry – Domestication of Poultry. Role of government/ private agencies in Poultry development

UNIT-II

(12 HRS)

Genetic Classification of Chicken and other species of Poultry- Layers, Broiler, and other class of Poultry – Hybrids available and its merit and demerits- American, English, Mediterranean, Asiatic, Indian breeds, dual purpose breeds and non-descript birds.

UNIT-III

(12 HRS)

Importance of Broiler and Layer production under Indian scenario - Poultry population and other Poultry related statistics, per capita meat and egg availability in India -different regions and States and in World.

UNIT-IV

(12 HRS)

System of rearing- range- semi intensive- intensive rearing, advantages and disadvantages. Introduction to rearing of Turkeys, Ducks, Japanese Quails, Guinea fowls and Geese for meat and egg production.

UNIT-V

(12 HRS)

Regional influences, Structure of poultry industry – breeder farm, hatcheries, commercial farms, feed mills and processing industry. Backyard to industrial farming of poultry, future perspective and constraints of Indian poultry industry.

Text Book

1. Sreenivasaiyah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.

References

1. Singh, R. A., 2011. Poultry Production. 3rd Edition. Kalyani Publishers, New Delhi.
2. Jull A. Morley, 2007. Successful Poultry Management. 2nd Edition. Biotech Books, New Delhi.
3. Hurd M. Louis, 2003. Modern Poultry Farming. 1st Edition. International Book Distributing Company, Lucknow.

SEMESTER - I

2 – CHICKEN BASIC ANATOMY AND PHYSIOLOGY

Total Marks: 100

Total Hours: 60

Objectives:

To study the internal and external body parts of chicken for understanding the various functions. To examine birds for handling, selection, culling, judging and diagnosis of disease.

UNIT-I

(12 HRS)

Introduction to Anatomy and Physiology. Integumentary parts of chicken - Feather patterns - feather tracts - feather sexing of day old chicks. Comb and its different types. Role of skin, scales, nails, plumage and beak. Physiological standards in poultry.

UNIT-II

(12 HRS)

Respiratory system-anatomical structures-nasal cavity, larynx, syrinx, trachea, bronchi, lungs, air sacs- and its function, inhalation and exhalation process. Circulatory system-structure, functions of heart, types of blood vessels and components of blood.

UNIT-III

(12 HRS)

Skeletal system-different types of bones-pneumatic, medullary, cervical, thoracic, fused, wing and limb bones. Excretory system-Role of kidney, ureter and cloaca.

UNIT-IV

(12 HRS)

Digestive system-anatomical structure and its functions – mouth, oesophagus, crop, proventriculus, gizzard, small intestine, liver, pancreas, caeca, colon, cloaca. Reproductive system-male and female reproductive system, structure and its function, Egg structure, formation and its composition.

UNIT-V

(12 HRS)

Nervous system - Endocrine system - Protein and steroid hormones-role of hypophysis, neurohypophysis, adrenal glands, pancreas, testis, ovary and pineal gland. Immune system- definition, different organ and its functions - bone marrow, bursa of Fabricius, thymus, harderian gland, spleen, Peyer's patches and gut associated lymphoid tissues (GALT).

Text Books

1. Sathapathy S., Singh M. K., and Joshi S. K., 2015. A Handbook on Anatomy & Physiology of Domestic Animals and Birds. Sathish Serial Publishing House, New Delhi, India.
2. Ensminger. M. E., 2015. Poultry Science. 3rd Edition. International Book Distribution Co., Lucknow, India.

References

1. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
2. Singh, R. A., 2011. Poultry Production. 3rd Edition. Kalyani Publishers, New Delhi.

SEMESTER I

3 – BREEDER FLOCK HEALTH AND BIOSECURITY

Total Marks: 100

Total Hours: 60

Objectives:

To make the student aware about the process and principle involved in the biosecurity aspects of poultry to have ethical rules and regulations and methods to maintain flock health.

UNIT I (12 HRS)

Vaccination principles, Broiler breeder vaccination schedule - type, methods, pre and post vaccination care, vaccination failure. Immunity.

UNIT II (12 HRS)

Medication - types of administration – general principles and precautions of medication through water and feed.

UNIT III (12 HRS)

Signs of disease – Measures to prevent disease outbreak – fly and rodent control – general farm hygiene – sanitation procedures – quarantine, isolation, shed cleaning and disinfection procedures.

UNIT IV (12 HRS)

Litter, carcass and hatchery waste disposal. water sanitation – sanitizers, disinfection - types of disinfectants, mode of action, recommended procedure, precaution and handling.

UNIT V (12 HRS)

Biosecurity – Proactive measures to minimize entry of infection vs agents, farm premises – farm fencing – disinfectant, pits, personnel management and restriction of movement – conceptual (isolation), structural and operational (sanitation) biosecurity in poultry farms.

Text Book

1. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
2. Nesheim C., and Austic E., 1972. Poultry Production.

References

1. Sreenivasaiiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Thyagarajan. D., 2011. Diseases of Poultry. 1st Edition. Satish Serial Publishing House, New Delhi, India.
3. Narahari D., and Kumararaj R., 2008. Handbook of applied Broiler Production. 1st Edition. Poultry Punch Publication (I) Pvt. Ltd., New Delhi.

SEMESTER - I

4 – BREEDER HOUSING, EQUIPMENT AND ENVIRONMENT

Total Marks: 100

Total Hours: 75

Objective:

To make the students aware about the basic concepts of poultry houses, their construction, materials for construction, equipments required for rearing and various automation techniques used in industry.

UNIT-I

(15 HRS)

System of rearing-backyard system, semi-intensive system, intensive system-cage, deep litter and slat system, floor space, watering and feeding space requirements for different age groups under different rearing conditions.

UNIT-II

(15 HRS)

Selection of site and location of poultry farm – importance of poultry housing and equipment. Principles of housing – location of poultry houses – basic principles of construction of poultry houses.

UNIT-III

(15 HRS)

Types of houses: environmentally controlled houses and open sided houses– deep litter, slat system, wire floor, cage houses and raised platform cage houses. Cages –types of cages –flat deck, Californian cages, “A” type cages, tier cages and furnished cages.

UNIT-IV

(15 HRS)

Fundamentals of ventilation-ventilation system – tunnel ventilation, duct ventilation and windowless house. Types of roof and materials used. Insulating materials for poultry houses- R-Value. Poultry farm equipments – brooding, feeding and watering equipments, nest boxes filler flats, vaccinators, dubbing, debeaking, and other equipments.

UNIT-V

(15 HRS)

Introduction – concept of automation in poultry industry –applications of automation in poultry industry. Automatic climate control system –automatic feeders and drinkers. Automation egg and manure collection system – automation in egg and meat processing plant.

Textbook

1. Sreenivasaiyah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Jull A. Morley, 2007. Successful Poultry Management. 2nd Edition. Biotech Books, New Delhi.
3. Singh, R. A., 2011. Poultry Production. 3rd Edition. Kalyani Publishers, New Delhi.

References

1. Hurd M. Louis, 2003. Modern Poultry Farming. 1st Edition. International Book Distributing Company, Lucknow.
2. Jadhav N. V., and Siddique M. F., 2007. Handbook of Poultry Production and Management. 2nd Edition. Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi.

SEMESTER I

5 – MANAGEMENT OF BREEDER REPLACEMENT STOCK

Total Marks: 100

Total Hours: 75

Objectives:

To make the student understand about the basic management skills and practices involved in Breeder farms.

UNIT I

(15 HRS)

Size and structure of breeding industry – Commercial strains of broiler and layer, breeder – production standards.

UNIT II

(15 HRS)

Layout and location of breeder farm - housing and equipment – important economic traits of broiler and layer, preparation house to receive chick, brooding chick management, breeder grower management, floor space, water space, feeder space, litter materials management

UNIT III

(15 HRS)

Selection of breeder flock – pre-laying and laying management of breeder flocks - broiler chicks grower and layers in cages, slat, slat cum deep litter and deep litter houses – breeder male and female management. Pre-peak, peak and post-peak laying period management.

UNIT IV

(15 HRS)

Special care of breeder flock – semen collection-artificial insemination; water sanitation – watering of breeders, seasonal management of breeder flocks – summer, winter and monsoon.

UNIT V

(15 HRS)

Grading and culling – lighting management – factors influencing fertility, hatchability and quality of chicks. Vaccination and medication schedule. Birds lifting and weighment.

Text Book

1. Leeson. S., and Summers J. D., 2001. Broiler Breeder Production. 1st Edition. International Book Distributing Company, Lucknow.
2. Youn Michael, 2013. Encyclopedia of Broiler Breeder Production: Production, Feeding and Management Techniques. Vol. 1, 2 & 3. Anmol Publications Pvt. Ltd., New Delhi.

References

1. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
2. Sreenivasaiyah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
3. Rajini Asha R., 2011. Simply....Poultry Science. 1st Edition. Alfa Publications, New Delhi.

SEMESTER - I

PRACTICAL – I

Total Marks: 100

Objectives:

To understand the growth of broiler breeder industry and their management.

1. Broiler breeder shed designs, layout and area calculation
2. Broiler breeder equipments, feeder and drinker system
3. Housing for breeder growing – deep litter, cage, slat floors
4. Water sample collection-pH and hardness measurement
5. Practical examination of dead birds – digestive, respiratory, circulatory and immune system.
6. Practical examination of dead birds – skeletal, excretory, male and female reproductive system
7. Biosecurity measures - Foot dip, vehicle, human spray and disinfectants (Demo)
8. Breeder shed cleaning procedure – fumigation, floor, side wall, roof, pipeline, drinker and feeder cleaning and flame gun operation (Demo)
9. Vaccination & medication – route and dosage calculations
10. Day old chicks weighment, chick placement and chick comfort
11. CV% calculation, debeaking and dubbing
12. Grading and weak bird management

13. Weekly body weight monitoring, lighting and male management
14. Feeder and drinker management in age wise, water sanitation
15. Semen collection and artificial insemination

SEMESTER II

6 – BREEDER FLOCK AND HATCHERY MANAGEMENT

Total Marks: 100

Total Hours: 60

Objectives:

To make the student study about the various types of incubation methods, conditions and equipments required at the breeder farm and hatcheries and develop skills for working as well as managing at different levels of hatchery for providing good hatchability.

UNIT-I

(12 HRS)

Layout, design and location of hatchery; Methods of incubation; Physical requirements of incubation – collection, selection, cleaning and sanitation of eggs. Storage of hatching eggs – incubation methods – single and multistage incubators. Development of chick embryo.

UNIT-II

(12 HRS)

Hatchery operations – setting, candling, transfer, hatching, pedigree hatching, chicks pull out, grading, packing and chick dispatch – In-ovo and in-hatch vaccinations and medications.

UNIT-III

(12 HRS)

Incubation principles and physical factors required for incubating eggs – temperature, humidity, gaseous environment, position and turning of eggs.

UNIT-IV

(12 HRS)

Role of computer in modern hatchery operations – quality control. Major cause of eggs failing to hatch – Post hatch break open study.

UNIT-V

(12 HRS)

Analysis of poor hatchability – diagnosis of hatchability problem –Biosecurity measures – hatchery sanitation – fumigation – Waste management.

Textbook

1. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
2. Taylor W. Lewts, 2003. Fertility and Hatchability of Chicken & Turkey Eggs. 1st Edition. International book Distributing Co., Lucknow, India.

References

1. Sreenivasaiyah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Rajini Asha R., 2011. Simply....Poultry Science. 1st Edition. Alfa Publications, New Delhi.
3. Sreenivasaiyah., P. V., 2006. Scientific Poultry Production-A unique encyclopedia. International Book Distributing Co., Lucknow, India.

SEMESTER – II

7: BREEDER LAYER MANAGEMENT

Total Marks: 100

Total Hours: 60

Objectives:

To make the student understand about the fundamental principles involved in Layer Production.

UNIT I

(12 HRS)

Size and structure of broiler breeder industry – commercial strains of broiler breeder, broiler breeder production standards. System of broiler breeder farming – layout of the farm – system of housing – important economic traits of broiler breeder.

UNIT II

(12 HRS)

Broiler breeder farm equipments. Brooder, grower and layer management – All in – all out system – multiple batch system – Pre-laying and laying management – feeding types, layers in cages, slat, slat cum deep litter and deep litter houses, Nest box management – male and female management.

UNIT III

(12 HRS)

Pre-peak, peak and post-peak laying period management, phase feeding, watering – lighting programme – intensity of light, colour, duration. Culling of unproductive birds – moulting – forced moulting – monitoring egg production curve – record keeping – flock uniformity.

UNIT IV

(12 HRS)

Breeder farm operation and routine, Management of breeders for optimal egg production, Breeder farm records. Biosecurity, vaccination and medication schedule.

UNIT V (12 HRS)

Seasonal management of breeder birds – summer, winter and monsoon. Environmentally controlled sheds – design, equipments and productivity.

Text Book

1. Leeson. S., and Summers J. D., 2001. Broiler Breeder Production. 1st Edition. International Book Distributing Company, Lucknow.
2. Youn Michael, 2013. Encyclopedia of Broiler Breeder Production: Production, Feeding and Management Techniques. Vol. 1, 2 & 3. Anmol Publications Pvt. Ltd., New Delhi.

References

1. Sreenivasiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
3. Rajini Asha R., 2011. Simply....Poultry Science. 1st Edition. Alfa Publications, New Delhi.

SEMESTER II

8 –BREEDER NUTRITION AND FEED MILL TECHNOLOGY

Total Marks: 100

Total Hours: 75

Objectives:

To make the student to understand about the basic principles of nutrition and different kinds of feeds and their feeding methods in poultry.

UNIT-I (15 HRS)

Nutrient requirements and feeding for broiler breeder. Classification of feed ingredients- conventional feeds and non-conventional poultry feeds-energy sources, vegetable protein sources, animal protein sources.

UNIT-II (15 HRS)

Feed ingredients, composition, feed storage technique – milling and quality control, processing of feed – types & forms of feeds— mash, pellet & crumble feed preparation and feeding methods. Feeding chicks, growers, layers, broiler and breeders –feeding in different seasons.

UNIT-III (15 HRS)

System of feeding – restricted and controlled feeding – use of additives and non-additives – enzymes, probiotics, prebiotics and antibiotics, herbs, performance enhancers – Utilization of non – conventional feedstuff.

UNIT-IV (15 HRS)

Feed mill design and equipments –feed production methods – grinding, mixing, condition, pelletizing, crumbling, sieving process and premixing methods, feed storage – weighment - transport.

UNIT-V (15 HRS)

Physical and sensory evaluation of feed ingredients – sampling techniques for ingredients and compounded feed – estimation of proximate principles of feed and feed ingredients –commonly

occurring anti nutrients and toxicants in poultry feed ingredients – Mycotoxins and their prevention.

Textbook

1. Ensminger. M. E., 2015. Poultry Science. 3rd Edition. International Book Distribution Co., Lucknow, India.
2. Taneja. V. K. and Trivedi. T. P., 2011. Handbook of Animal Husbandary. 3rd Edition. Indian Council of Agricultural Research (ICAR), Chandu Press, New Delhi.
3. Reddy Ramasubba V., and Bhosale T. Dinesh, 2004. Handbook of Poultry Nutrition. 1st Edition. International Book Distribution Co., Lucknow, India.

References

1. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.
2. Leeson S., & Summers J. D., 2001. Scott's Nutrition of the Chicken. 4th Edition. University Books, Canada

SEMESTER II

9 – BREEDER DISEASES

Total Marks: 100

Total Hours: 75

Objectives:

To make the student aware about the various pathogenic microorganisms affecting the poultry species, their route of entry, symptoms, diagnosis and various prevention and control measures.

UNIT I (15 HRS)

Introduction – definition of disease, classification of breeder diseases – viral, bacterial, fungal and parasitic. Nutritional deficiency diseases.

UNIT II (15 HRS)

Viral Diseases – Etiology, host and transmission, signs, morbidity and mortality, gross lesions, diagnosis, treatment, prevention and control – ND or RD, IBD, IB, ILT, MD, LL, AI, AE, Fowl pox.

UNIT III (15 HRS)

Bacterial diseases – etiology, host and transmission, signs, morbidity and mortality, gross lesions, diagnosis, treatment, prevention and control – Colibacillosis, CRD – Mycoplasmosis, Salmonellosis - Fowl typhoid, Pullorum disease, Fowl Cholera, Infectious Coryza and Omphalitis.

UNIT IV (15 HRS)

Parastic diseases – Ecto and Endo parasites, protozoan infection – Coccidiosis. Fungal disease – Aspergillosis, Mycotoxicosis – types – Aflatoxin.

UNIT V

(15 HRS)

Nutritional deficiency disease. Metabolic diseases – Gout, Ascites. Principles of disease prevention & control – vaccination, medication, disinfection and sanitations.

Text Book

1. Saif., Y. M., *et al.*, 2013. Diseases of Poultry. 12th Edition. Blackwell Publishing, USA.
2. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.

References

1. Sreenivasaiyah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Thyagarajan. D., 2011. Diseases of Poultry. 1st Edition. Satish Serial Publishing House, New Delhi, India.
3. Narahari D., and Kumararaj R., 2008. Handbook of applied Broiler Production. 1st Edition. Poultry Punch Publication (I) Pvt. Ltd., New Delhi.

SEMESTER II

10 – BREEDER ECONOMICS AND MARKETING

Total Marks: 100

Total Hours: 75

Objectives:

To impart the knowledge of various economic principles involved in poultry and the marketing strategies followed along with mathematical and statistical tools used in poultry.

UNIT I

(15 HRS)

Economics of poultry production – analysis of production cost, methods and criteria for cost calculation, broader economic framework for analysis. Marketing – definition and activities, objectives of poultry marketing.

UNIT II

(15 HRS)

Marketing of eggs, organizational structure of egg marketing – NECC, ACIL, NAFED, challenges and suggestions. Marketing of poultry meat, Organizational structure of poultry meat marketing – BROMARK, BCC, NMPPB, Marketing channels for poultry meat, challenges, suggestions and opportunities for marketing of poultry products.

UNIT III

(15 HRS)

Breeder cull bird, hatching eggs and rejected eggs – marketing methods and cost, Income generation to farmer – Selling – poultry manure, used gunny bags.

UNIT IV (15 HRS)

Breeder Farm administration – farm expenditures and maintenance, farm records and register maintenance, Breeder contract farming – business process, cost of infrastructure development – deep litter – slat shed, cage, EC and Battery Cage shed. Customer relationship management.

UNIT V (15 HRS)

Breeder production parameters (visual control system – graph and schedule display), weekly, monthly, yearly and batch wise budget and report preparation.

Text Book

1. Sapkota D., Narahari D., and Mahanta J. D., 2014. Avian (Poultry) Production – A text book. New India Publishing Agency, New Delhi.
2. Rao K. Suresh and Rawat Sanjana, 2013. Economic Importance of Poultry Farming. 1st Edition. Campus Book International, New Delhi.

References

1. Sreenivasiah., P. V., 2015. Textbook of Poultry Science. 1st Edition. Write & Print Publications, New Delhi
2. Bell D. Donald and Weaver D. William Jr., 2007. Commercial Chicken Meat and Egg Production. 5th Edition. Springer India Pvt. Ltd., Noida.

SEMESTER II

PRACTICAL II

Total Marks: 100

Objectives:

To enable the students to understand and have hands on experience in basic techniques involved in broiler breeder management.

1. Farm visit – Breeder layer farm design and layout (Demo)
2. Breeder feeds and feeding practices (Demo)
3. Feed mill visit – design, layout, equipments and feed manufacturing (Demo)
4. Brooding, growing and laying management - selection and culling – identification of laying, non-laying, good and poor layer birds (Demo)
5. Nest box and lighting management
6. Farm visit – Hatching eggs – collection, selection, rejection, grading and disinfection, flame gun operations procedure (Demo)
7. Farm visit – Fumigation, storage and packaging of hatching eggs (Demo)
8. Hatchery visit - design, layout and equipments (Demo)

9. Candling, setting and transfer to hatcher – incubation operations and pull out
10. Day old chick sexing methods, fertile and total hatchability% calculation
11. Post mortem diagnosis and microbiological test
12. Vaccination and medication - deworming and dipping – route and dosage calculation
13. Cost of production/ bird – Brooding, growing and laying period
14. Calculations – Mortality%, Livability%, FCR for eggs, HD%, HE%, HHHE%, HHE%, Egg Mass, chick per parent (CPP)
15. Breeder farm record, register and visual control system – graph and schedule preparation

SEMESTER II

IN-PLANT TRAINING AND VIVA VOCE

Total Marks: 100

DIRECTIONS

- Students are allocated at different sectors of Poultry Industries located at different places of India. They will be assigned under a Farm supervisor in their location and will be doing the practical training work for a period of three months.
- The students should have complete attendance for the period of their in-plant training which will be sent by the Manager or Farm Incharge from their location.
- After three months the students will prepare an in-plant training project report which will be evaluated by the Faculty at the SIPM along with External Examiner.