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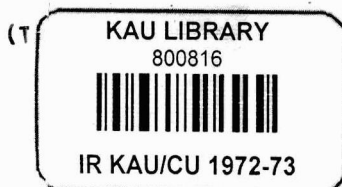
Kerala Agricultural University

MANNUTHY 680651

FACULTY OF VETERINARY & ANIMAL SCIENCES



Curricula and Course Catalogue for the B. V. Sc. Degree Course



EFFECTIVE FROM THE ACADEMIC YEAR
1972-73.

(Approved by Academic Committee on June 6, 1973)

1971
2025



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1972-73

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Basis for Catalogue Numbers:-

I B. V. Sc. Courses:	Nos. 101 — 199
II B. V. Sc. Courses:	Nos. 201 — 299
III B. V. Sc. Courses:	Nos. 301 — 399
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**CURRICULAM FOR B. V. Sc.
DEGREE COURSE
(TRIMESTER - WISE)**

FIRST B. V. Sc.

TRIMESTER-1

Course No.	Title of the course	Theory	Pract.	Total	Pre-requisite
Anat-101	Anatomy-1	2	2	4	
Anat-102	Anatomy-II	3	1	4	
APM-101	Animal Production & Management-I (General)	1	1	2	
Bioch-101	Biochemistry-1	3	1	4	
BG-101	Genetics-1	2	1	3	
Stat-101	Statistics-1	1	0	1	
Total credits		12	6	18	

TRIMESTER-2

Anat-103	Anatomy-III	8	1	4	Anat-101
Anat-104	Anatomy-IV	2	2	4	
APM-102	Animal Production & Management-II (General)	1	1	2	
APM-103	Animal Production & Management-III (Goat) [@]	2	1	3	APM-101
Bioch-102	Biochemistry-II	2	1	3	
Sta.102	Statistics-II	1	1	2	Stat. 101
Total credits		11	7	18	

[@] The course in APM 103 (Goats) will include farm training.

TRIMESTER-3

Anat-105	Anatomy-V	2	2	4	Anat 104
Anat-106	Anatomy-VI	2	0	2	
Anat-107	Anatomy-VII				
	(Topographic Anatomy)	0	1	1	Anat-103
APM-104	Animal Production & Management-IV				
	(Equine) *	1	1	2	APM 101
Bioch-103	Biochemistry-III	3	1	4	Bioch. 101&102
BG-102	Genetics-II	2	1	3	Stat. 102
Stat-103	Statistics-III	1	1	2	Stat-102
	Total credits	<u>11</u>	<u>7</u>	<u>18</u>	
Total credit for 1st year		34	20	54	

Note:- * Facilities for horse riding (equitation) whenever offered may be availed of by those who are interested in undergoing equitation training prescribed for the purpose. Proficiency in horse riding will be recognised by the issue of a certificate.

SECOND B. V. Sc.

TRIMESTER-1

Phy. 201	Physiology-I	3	1	4	Anat. 103 Bioch. 103
Nutr. 201	Animal Nutrition-I*	3	1	4	Bioch 103
Mb. 201	Microbiology-I	3	1	4	Anat. 104
BG. 203	Breeding*	2	1	3	BG. 101&102
APM. 205	Animal Production & Management-V				
	(Dairy Cattle)▪	2	1	3	APM 101
	Total	<u>13</u>	<u>5</u>	<u>18</u>	

TRIMESTER-2

Phy. 202	Physiology-II	3	1	4	Anat. 102 Phy. 201
Nutr 202	Animal Nutrition-II*	3	1	4	Nutr. 201
Mb. 202	Microbiology-II	3	1	4	Mb 201
APM. 206	Animal Production & Management-IV (Swine)*	2	1	3	APM 101
LPT 201	Milk Production & Processing*	2	1	3	APM 205
Total		13	5	18	

TRIMESTER-3

Phy. 203	Physiology-III	3	1	4	Anat. 105 Phy. 202
Nutr. 203	Animal Nutrition-III*	3	1	4	Nutr. 202
Mb. 203	Microbiology-III	2	1	3	Mb 202
Mb. 204	Microbiology-IV	2	1	3	Mb 201
Ext. 201	Extension-I (Livestock Marketing & Economics)	1	0	1	
LPT. 202	Dairy Products*	2	1	3	LPT. 201
Total		13	5	18	
Total credits for II year		39	15	54	

*Note:- The courses in Animal Nutrition, Breeding Animal Production and Management will include Farm Training.

THIRD B. V. SC.

TRIMESTER -1

Path. 301	Pathology-I	3	1	4	Anat. 105 Phy. 202 & 203
Para. 301	Parasitology-I	2	1	3	Mb. 201
Para. 302	Parasitology-II	2	1	3	Mb. 201
Ph. 301	Pharmacology-I	2	1	3	Phy. 203
Ph. 302	Pharmacology-II	1	0	3	Anat. 107 APM. 101
Clin. 301	Clinics-I	0	1	1	
Total		12	6	18	

TRIMESTER-2

Path. 302	Pathology-II	3	1	4	Path. 301
Para. 303	Parasitology-III	2	1	3	Para. 301
Para. 304	Parasitology-IV	1	1	2	Para. 301
Ph. 303	Pharmacology-III	2	1	3	Ph. 301
Ph. 304	Pharmacology-IV	1	0	1	Ph. 101
Ext. 302	Extension-II (General Psychology, Rural Sociology & Extension)	2	2	4	Ext. 201
Clin. 302	Clinics-II	0	1	1	
	Total	11	7	18	

TRIMESTER-3

Path. 303	Pathology-III	3	1	4	Phat. 301
Para. 305	Parasitology-V	1	1	2	Para 301
Para. 306	Parasitology-VI	1	1	2	Para 301
Ph. 305	Pharmacology-V	2	0	2	Ph. 301
Ph. 306	Pharmacology-VI	1	1	2	Ph. 301 to 304
Path. 304	Clinical Path. & Necropsy	1	1	2	Path 302 & 303
APM 307	Animal Production & Management-VII (Poultry)	2	1	3	APM 101
Clin. 303	Clinics-III	0	1	1	
	Total	11	7	18	
Total credits for III year		34	20	54	

FINAL B. V. Sc.

TRIMESTER-1

LPT. 403	Milk Hygiene	2	1	3	LPT 202
Sg. 401	Surgery-I	3	1	4	Anat. 103 Path. 301 & 303 Ph. 303
VM. 401	Therapeutics-II	2	1	3	VM-301
VM 402	Preventive Medicine-I	1	0	1	Para. 301
VM 403	Preventive Medicine-II	1	1	2	Para. 302, 303, 304
OG. 401	Obstetrics & Gynaecology-I	3	1	4	Anat. 102, Phy. 203
Clin 401	Clinics-IV	0	1	1	
	Total	12	6	18	

TRIMSTER-2

LPT. 404	Meat & Meat Products	2	1	3	Mb. 204 & Path. 302
Sg. 402	Surgery-II	3	1	4	Sg. 401
VM. 404	Veterinary Pub. Health-I	2	1	3	Mb. 203, 204 Path. 304, V M. 403
VM. 405	Preventive Medicine-III	1	0	1	Mb. 201
VM. 406	Preventive Medicine-IV	1	1	2	Mb 202
OG. 402	Obstetrics & Gynaecology-II	3	1	4	OG. 401
Clin 401	Clinics-V	0	1	1	
	Total	12	6	18	

TRIMESTER-3

Sg. 403	Surgery-III	4	0	4	Sg. 401
Sg. 404	Surgery-IV (Operative Surgery)	0	1	1	Anat 107 Sg. 401
VM 407	Therapeutics-III	2	1	3	VM. 301, Path. 304
VM. 408	Vety. Pub. Health-II	2	0	2	VM. 404
VM. 409	Preventive Medicine-V	1	0	1	Mb. 202
VM. 410	Preventive Medicine-IV	2	1	3	Mb. 204
OG. 403	Obstetrics & Gynaecology-III	1	1	20	G. 401 & Sg. 401
OG. 404	Artificial Insemination	1	1	2	Anat. 102
<u>Total</u>		<u>13</u>	<u>5</u>	<u>18</u>	
Total for Final B. V. Sc.		37	17	54	

SUMMARY (TRIMESTER WISE)

	Trimester-1	Trimester-2	Trimester-3	Total
First B. V. Sc.	18	18	18	54
Second B. V. Sc.	18	18	18	54
Third B. V. Sc.	18	18	18	54
Final B. V. Sc.	18	18	18	54
Grand total of credits for B. V. Sc. Course:				216

CURRICULAM FOR B. V. Sc. (SUBJECT-WISE)

The curriculum is based on the following arrangement of credits:

i. Animal Science	84 credits
ii. Veterinary subjects	132 "
Total	216 credits

Since many of the subjects listed under the two groups are overlapping, nearly 50% of the credits of one group may be added to the other for determining the actual credits for each group.

The subject-wise details are furnished below:

(i) ANIMAL SCIENCE SUBJECTS

Theory. Pract. Total

(a) ANIMAL PRODUCTION & MANAGEMENT

APM 101	Animal Production & Management - I (General)	1	1	2
APM 102	do II (General)	1	1	2
APM 103	do III (Equine Management & Equitation)	1	1	2
APM 104	do IV (Goat)	2	1	3
APM 205	do V (Swine)	2	1	3
APM 206	do VI (Dairy cattle)	2	1	3
APM 307	do VII (Poultry)	2	1	3
	Total	11	7	18

(b) ANIMAL NUTRITION

Nutr. 201	Animal Nutrition - I	3	1	4
Nutr. 202	Animal Nutrition - II	3	1	4
Nutr. 203	Animal Nutrition-III	3	1	4
	Total	9	3	12

(c) BREEDING & GENETICS

BG. 101	Animal Genetics - I	2	1	3
BG 102	Animal Genetics - II	2	1	3
BG. 203	Breeding	2	1	3
	Total	6	3	9

(b) ARTIFICIAL INSEMINATION

OG. 404 Artificial Insemination	1	1	2
Total	1	1	2

(e) LIVESTOCK PRODUCTS TECHNOLOGY

LPT 201 Milk Production & Processing	2	1	3
LPT 202 Dairy Products	2	1	3
LPT 403 Milk Hygiene	2	1	3
LPT 404 Meat & Meat Products	2	1	3
Total	8	4	12

(f) BIOCHEMISTRY

Bioch 101 Biochemistry-I	2	1	3
Bioch 102 do II	2	1	3
Bioch 103 do III	2	1	3
Total	6	3	9

(g) PHYSIOLOGY

Phy 201 Physiology-I	3	1	4
Phy 202 do II	3	1	4
Phy 203 do III	3	1	4
Total	9	3	12

(h) STATISTICS

Stat. 101 Statistics-I	1	0	1
Stat. 102 do II	1	1	2
Stat. 103 do III	1	1	2
Total	3	2	5

(i) EXTENSION

Ext. 201 Extension-I (Livestock Marketing and Economics)	1	0	1
Ext. 302 do II (General Psychology, Rural Sociology & Extension)	2	2	4
Total	3	2	5

Total for Animal Science subjects 84

(ii) VETERINARY SUBJECTS

(a) ANATOMY

Anat. 101	Aantomy-I	2	2	4
Anat. 102	do II	3	2	5
Anat. 103	do III	3	1	4
Anat. 104	do IV	2	2	4
Anat. 105	do V	3	2	5
Anat. 106	do VI	2	0	2
Anat. 107	do VII			
	(Topographic Anatomy)	0	1	1
	Total	15	10	25

(b) PATHOLOGY

Path. 301	Pathology-I	3	1	4
Path. 302	do II	3	1	4
Path. 303	do III	3	1	4
Path. 304	Clinical Pathology & Necropsy	1	1	2
	Total	10	4	14

(c) MICROBIOLOGY

Mb. 201	Microbiology-I	3	1	4
Mb. 202	do II	3	1	4
Mb. 203	do III	2	1	3
Mb. 204	do IV	2	1	3
	Total	10	4	14

(d) PHARMACOLOGY

Ph. 301	Pharmacology-I	2	1	3
Ph. 302	do II	1	0	1
Ph. 303	do III	2	1	3
ph. 304	do IV	1	0	1
Ph. 305	do V	2	0	2
Ph. 306	do VI	1	1	2
	Total	9	3	12

(e) PARASITOLOGY

Par. 301	Parasitology-I	2	1	3
Par. 302	do II	2	1	3
Par. 303	do III	2	1	3

Par. 304	do	IV	1	1	2	
Par. 305	do	V	1	1	2	
Par. 306	do	VI	1	1	2	
				<hr/>		
			Total	9	6	15
				<hr/>		

(f) VETERINARY MEDICINE

VM. 402	Preventive Medicine-I		1	0	1	
VM. 403	do	II	1	1	2	
VM. 405	do	III	1	0	1	
VM. 406	do	IV	1	1	2	
VM. 409	do	V	1	0	1	
VM. 410	do	VI	2	1	3	
VM. 404	Vety. Public Health-I		2	1	3	
VM. 408	do	II	2	0	2	
VM. 301	Therapeutics-I		2	1	3	
VM. 401	do	II	2	1	3	
VM. 407	do	III	2	1	3	
				<hr/>		
			Total	17	7	24
				<hr/>		

g) OBSTETRICS & GYNAECOLOGY

OG: 401	Obstetrics & Gynaecology-I		3	1	4	
OG. 402	do	II	3	1	4	
OG. 403	do	III	1	1	2	
				<hr/>		
			Total	7	3	10
				<hr/>		

(h) SURGERY

Sg. 401	Surgery-I					
Sg. 402	do	II	3	1	4	
Sg. 403	do	III	4	0	4	
Sg. 404	do	IV	0	1	1	
				<hr/>		
			Total	10	3	13
				<hr/>		

(i) CLINICS

Clin. 301	Clinics-I		0	1	1	
Clin. 302	do	II	0	1	1	
Clin. 303	do	III	0	1	1	
Clin. 401	do	IV	0	1	1	
Clin. 402	do	V	0	1	1	
				<hr/>		
			Total	0	5	5
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Total for Veterinary Subjects: 132

Grand total: 84 + 132 = 216 credits

**DESCRIPTION OF COURSES
PRESCRIBED FOR
B. V. Sc. DEGREE COURSE
AND SYLLABI FOR THE COURSES**

(1) COURSES IN ANATOMY

Anat. 101	ANATOMY-I	Credits: 2 + 2 Trimester: I
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Osteology: introduction (classification of domestic animals and descriptive terms) - skelton - physical properties and chemical composition of bones - description of bones in the body - outlines of the sinuses of the skull.

Arthrology: Classification of joints - fibrous joints - cartilagenous joints - synovial joints - description of joints in the body.

Practical: identification of skelton of domestic animals - identification and study of bones and joints.

- Anat. 102	ANATOMY II	Credits: 3 + 1 Trimester: I
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Splanchnology: description of digestive, respiratory, urinary and genital systems.

Aesthesiology: eye, eyelids, conjunctiva - lacrimal apparatus periorbita - ocular muscles - eye - ball and the tunics - chambers of eye - refractive media of the eye - ball.

Ear - external ear - auricular muscles - middle ear - eustachian tube - internal ear - osseous labrinth

Appendages of the skin, hoof, corium of the foot.

Practical: study of the viscera, eye and ear.

Anat. 103	ANATOMY-III	Credits: 3 + 1 Trimester: II Pre-requisite: Anat. 101
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Myology: detailed description of all muscles of the forelimb hind

limb, throax and abdomen - names of muscles of head, neck and tail.

Angiology. pericardium - heart - pulmonary artery - systemic arteries - aorta - course and distribution of vessels entering and leaving the heart - pulmonary veins - anterior vena cava - jugular veins - posterior vena cava - sinuses of duramater - portal vein - veins of udder - lymphatic system - thoracic duct - right lymphatic duct - superficial lymph glands in the body.

Neurology: meninges - brain - spinal cord - cranial nerves - spinal nerves - detailed description of nerve supply to fore and hind limbs - autonomous nervous system.

Practical: dissection of limbs of ox - demonstration of the structures of head, neck, throax, abdomen and tail.

Anat. 104

ANATOMY-V

Credits: 2 + 2

Trimester: II

General Histology: animal cell - structure and phenomenon of cell - epithelium - surface epithelium - glandular epithelium - sensory epithelium - connective tissue - embryonic connective tissue - reticular tissue - loose and dense connective tissue - adipose tissue - cartilage - bone-muscular tissue - nervous tissue - blood.

Practical: teasing of tissues and their identification - study of sections of bone and cartilage - study of blood film.

Anat. 105

ANATOMY-V

Credits: 2 + 2

Pre-requisite:

Anat. 104

Special histology:

Circulatory system: blood vessels - lymphoid organs - lymph node - haemal node - tonsil - spleen.

Digestive system: salivary glands - tongue - stomach - intestines - pancreas - liver - gall - bladder - respiratory system - trachea - lungs.

Urinary system: kidney - ureter - urinary bladder.

Male genital system: testis - epididymis - vas deferens - accessory genital organs.

Female genital system: ovary - oviduct - uterus - mammary gland.

Nervous system: cerebrum - cerebellum - spinal cord.

Endocrine system: thyroid - parathyroid - thymus - adrenal pituitary

Skin - organs of special sense - eye - ear - organ of smell and taste.

Practical: study of various organs - staining and identification.

Anat. 106

ANATOMY-VI

Credit: 2 + 0

Trimester: III

Embryology: structure and maturation of male and female germ cells - fertilisation - germ layers - formation of placenta - foetal circulation - forms of placenta in animals - organogeny of mammal in general.

Anat. 107

ANATOMY-VII

Credit: 0 + 1

Trimester: III

Pre-requisite:

Anat: 103

Topographic anatomy: special anatomical features of areas involved in diagnostic and surgical procedures.

Note:- In all the courses in Anatomy, the α will be taken as the type with a comparative study of horse, dog, goat, pig and fowl.

(2) COURSES IN ANIMAL NUTRITION

Nutr 201	ANIMAL NUTRITION-I	Credits: 3 + 1 Trimester: I Pre-requisite: Bioch: 103
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General Nutrition: A brief survey of the origin and development of Nutritional science . Basis of nutrition-Physico-chemical basis of life processes - functioning of animal organism - physiological and biochemical aspects - inter-relationship between human and animal nutrition. Animal body and its food - difference in composition and distribution of elements - water, carbohydrates, lipids, proteins and minerals - properties, functions, metabolism, sources and requirements. Vitamins - history, nomenclature, chemical properties, physiological functions, sources and requirements. Nutritional disorders and deficiencies syndromes and corrective measures-effects of excessive intakes anti-metabolites.

Practical: preparation of samples for analysis - estimation of moisture, ash, calcium, phosphorus and vitamin C in food stuffs - demonstration of methods for the determination of protein, fat and crude fibre. Farm practices.

Nutr 202	ANIMAL NUTRITION-II	Credits: 3 + 1 Trimester: II Pre requisite: Nutr 201
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Common feeds and fodders - chemical composition and nutritive values - cereal grains - leguminous seeds and their by products - feeds of animal origin - chemical composition and nutritive values - Pasture - Important exotic and indigenous grasses - cultivated fodders - conservation of fodder - hay, silage and dried grass - straw - defects - corrective measures. Toxic and scarcity feeds. Preparation and storage of food stuff.

Experimental designs and statistical treatment of results - feeding trials - advantages and limitations - group and individual feeding - controlled and *ad libitum* feeding - slaughter experiments.

Determination of digestibility - governing factors - digestible crude protein, total digestible nutrients and nutritive ratio - balance of energy-measures of food energy - fasting catabolism - basal metabolism - starch equivalent - net energy values.

Practical: examination of starch granules for detection of adulteration of food stuffs - identification of common feeds and fodders - demonstration of techniques employed in digestion trials and balance experiments - detection of hydrocyanic acid in feed stuffs. Farm practices.

Nutr 203

ANIMAL NUTRITION-III

Credits: 3 + 1

Trimester: III

Pre requisite:

Nutr: 202

Feed additives - antibiotics, hormones, enzymes, tranquilizers, drugs.

Nutritive requirements - growth, pregnancy and lactation - work and meat - pork, egg and wool production.

Feeding standards - applications in feeding operations - limitations.

Feeding of animals - cattle, buffaloes, horses, pigs, poultry, sheep, goats, dogs, elephants, zoo animals and sick animals. Technics employed in Nutrition Research.

Practical: computation of rations for different categories of animals. Assessment of nutritional status of animals. Farm practices.

(3) COURSES IN ANIMAL PRODUCTION AND MANAGEMENT

ANIMAL PRODUCTION AND MANAGEMENT - I

APM. 101	(General)	Credits: 1 + 1 Trimester: I
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Introduction to Animal Husbandry: Breeds of Indian Livestock - identification of animals - definition of common technical terms relating to livestock - signs of health - vices - dentition - ageing - grooming - clothing - span of life - maturity.

General care and management of animals.

Bullocks: exercise and conditioning - care after work - shoeing of bullocks - prevention of injuries and galls.

Dogs: breeds of dogs - housing - care and management of dogs - judging at dog shows.

Elephants: care and management:

Transportation - gestation period - preparing animals for shows - destruction of animals

General principles of livestock production - economic importance of livestock in Indian farm economics.

Practical: points of animals - handling and controlling - recording of temperature, pulse and respiration - recording of girth, height and weight - formula for calculation of weight - administration of medicines - preparing animals for shows - dipping.

ANIMAL PRODUCTION & MANAGEMENT-II

APM. 102	(General)	Credits: 1 + 1 Trimester: II
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Sources of water - necessity - requirements - watering of animals - impurities - hardness - purification - storage - distribution.

General principles of building construction - materials used - selection of site - environmental effect - sanitary fittings - drainage - farm yard manure disposal.

Principles of ventilation and lighting - impurities in the air, their effects, methods of ventilation.

Practical: Examination of water for impurities and hardness - testing water sources around the farm - identification of materials and various sanitary fittings - manure pit specification - testing the efficiency of ventilation by various methods.

ANIMAL PRODUCTION & MANAGEMENT - III

APM. 103

(Goat)

Credits: 2 + 1

Trimester: II

Pre-requisite:

APM: 101

Economic importance of goats in India with special reference to Kerala - general care of animals - housing - grooming - management of sick animals, pregnant animals - care at kidding - care of growing stock - care at breeding - milking - exercise - prevention of injuries - vices - breeds of goats - adaptability - breeding of feeding.

Practical: Handling of goats - restraints used - herd management - maintenance of records - dehorning - protection from diseases - milking - artificial breeding - feeding of kids - judging.

ANIMAL PRODUCTION AND MANAGEMENT - IV

APM. 104

(Equine)

Credits: 1 + 1

Trimester: III

Pre-requisite:

APM: 101

Color, breed, age, identification marks of horses and mules - Conformation, feeding and watering, grooming, daily routine; care and management of in-foal mare, foal, weaning, rearing young horses, care of stallion, training of horses, management and transport - walking, trotting by leading - handling and restraint - examination for soundness - examination prior to saddling - saddle and saddlery, parts of saddle, maintenance, repair and upkeep - saddling and leading out from the stable - mounting and dismounting - aids used in riding - races, walking, trotting

cantering, galloping, right turn, left turn, turn about and halt - group exercises parades and horse shows - care and management of foot - shoes and shoeing - special type of shoes, farriery - minor injuries to foot and limb - feeding, watering and housing of equines.

Practical: Points of horses, handling and restraint - examination for soundness - grooming, watering and feeding - exercising - shoeing and farriery.

ANIMAL PRODUCTION AND MANAGEMENT-V

APM. 205	(Dairy cattle)	Credits: 2 + 1
		Trimester: I
		Pre-requisite:
		APM. 101

Importance of dairy farming and milk production. Establishment of dairy farm - objectives - part time, seasonal and commercial dairying - site, land, water, transport, climatic conditions prevalence of communicable diseases in the area etc.

Important breeds of cattle and buffaloes - selection of breed - selection of individual animals - judging of cattle. Farm operations - daily, monthly and seasonal activities - milking operation, milking the heifers - milking disorders - milking mechanics.

Housing requirements of dairy animals - lay out and constructional details of cattle shed and ancillary structures in the farm. Effect of climatic conditions on production - climatic adaptations of cattle.

Care and management of dairy cattle - young stock - pregnant stock, milking cows, dry stock - breeding bulls. Nursing of sick animals.

Artificial breeding of dairy animals - techniques - organisations - records - signs of heat in dairy cows - Record keeping in dairy business - kinds of records - inventory - determination of cost - determination of income - forms needed for keeping records - records of milk and butter fat production - economics of milk production - land - labour - machinery - livestock.

Practicals: Identification of breeds of dairy animals. Judging of various classes of dairy animals. Maintenance of pedigree sheets of animals. Artificial insemination equipments and study of records, pertaining to artificial breeding. Milking of animals for efficient production. Study of records of dairy business maintained in the Farm. Farm practices.

ANIMAL PRODUCTION AND MANAGEMENT - VI

APM. 206 (Swine Management) Credits: 2 + 1
Trimester II
Pre-requisite:
APM. 101

Swine production - present status in India. Selection of breeding and feeding stock - Meat type hogs - breeding systems - factors in selecting a breed - breeds classification - important breeds of hogs in India - foreign breeds. Selection of individual boars and gilts - feeder pigs.

Management of breeding herd - feeding and care during breeding season - multiple farrowing - feeding and care during gestation.

Housing of different classes of swine - pig houses - layout of a pig farm.

Feeding and management of market hogs - care and management of farrowing time - management during suckling period - prestarters and creep rations - preweaning management - feeding and management from weaning to market.

Prevention of disease and parasite control.

Practicals: Handling of pigs - restranints used. Marking for identification - study of different systems of rearing pigs - preparation of pigs to various market weights - study of records in the farm relating to management. Protection from diseases - visit to bacon factory and pig farms. Farm practices.

ANIMAL PRODUCTION & MANAGEMENT - VII

APM. 307

(Poultry)

Credits: 2 + 1

Trimester: III

Prerequisites:

APM 101.

Poultry Industry - distribution of poultry - poultry development - general situation in India.

Incubation - natural and artificial - types of incubators - factors influencing hatchability - selection and care of hatching eggs - hatchery management - Brooding - natural and artificial brooding - brooding equipments - brooding and rearing principles - different systems and rearing.

Management practices - use of artificial light - systems of management of commercial flock - problems of flock management.

Practical: Acquiring skill in poultry practices and management, through demonstration and student participation. Farm practices.

(4) COURSES IN BIOCHEMISTRY

Bioch. 101 BIOCHEMISTRY - I Credits: 3 + 1
 Trimester: I

Diffusion - osmosis - osmotic pressure - its importance in biological system.

pH - methodes of determination - acids, bases and buffers - buffer action. Collodial state - donnan equilibrium. Elementary knowledge of viscosity, adsorption and surface tension.

Chemistry, classification and properties of carbohydrates, fatty acids, lipids, aminoaclds and proteins - Nucleic acids.

Practical: Determination of pH using indicators.

Tests for proteins, carbohydrates and fats - estimation of glucose, Maltose, sucrose. Estimation of lactose in milk.

Bioch. 102 BIOCHEMISTRY - II Credits: 2 + 1
 Trimester: II

Enzymes: their properties - classification.

Digestive enzymes and their mode of action - absorption.

Blood and other body fluids: General characteristics - composition plasma protiens - coagulation of blood - haemoglobin and its chemistry. Role of blood In transportation of oxygen and carbon-dioxide in respiration - buffer systems in blood and their mode of action - acid base balance.

Composition of lymph - Cerebrospinal fluid and synovial fluid.

Minerals; role of calcium, phosphorus, magnesium, sodium, potassium, chlorine, sulphur, iron, copper, cobat, manganese, iodine and zinc in the body - their source - deficiency.

Vitamins: classification, chemistry - metabolism - deficiency.

Hormones: chemistry, function - hormonal imbalance.

Practical: Action of digestive enzymes - tests for bile salts and bile pigments.

Determination of free and total acidity - total chlorides and mineral chlorides in gastric contents.

Blood: medico-legal tests for blood - preparation of haemin crystals.

Estimation of total proteins in the plasma and urea, creatinine, glucose, phosphorus and haemoglobin in blood.

Bioch. 103

BIOCHEMISTRY - III

Credits: 3 + 1

Trimester: III

Pre-requisite;

Bioch: 101 & 102

Energy metabolism: heat of combustion of foods - direct and indirect calorimetry - respiratory quotient - B. M. R.

Biological oxidation and reduction - enzymes in biological oxidation - dehydrogenases and oxidases - the respiratory chain (elementary knowledge only).

Intermediary metabolism of carbohydrates, lipids and proteins regulation of blood glucose level - biological value of proteins.

Urine: composition of urine in domestic animals - urine in health and disease - chemistry and formation of urea, uric acid, creatin, creatinine, hippuric acid, allantoin.

Practical: Examination of urine for normal and pathological constituents. Examination of urea, acidity and ammonia, creatinine, glucose, albumin, inorganic sulphates, inorganic phosphates and chlorides in urine.

(5) COURSES IN BREEDING AND GENETICS

BG. 101

GENETICS - I

Credits: 2 + 1

Trimester: I

Genetics: history and development - factor and character concept - variation - inheritance of acquired characters - quantitative inheritance.

Physical basis of heredity - cell and cell division - chromosome and gene - evidence for the individuality of the chromosome number in different species.

Mendelian Principles: Mendel methods and materials - dominance - segregation and independent assortment of genes - hybridization - Mendelian ratio - extension and modifications of Mendelian principles - incomplete dominance - interaction of genes - epistasis - lethal genes - multiple alleles - linkage - crossing over - linear arrangements of genes - mapping of chromosomes - sex linked, sex-influenced and sex-limited inheritance - quantitative inheritance - multiple gene hypotheses - nature of genes effecting quantitative characters - heterosis.

Chromosomal Aberration: monoploidy and tetraploidy - deletion, duplication, translocation and inversion - detection of chromosomal aberration in the salivary gland chromosome - heredity and environment phenocopy - twins.

Practical: Killing, fixing and preserving material - cytological studies - preparation of some important stains and smear preparations for studying the cell divisions, mitosis and meiosis - use of camera lucida, stage and ocular micrometers.

BG, 102

GENETICS - II

Credits 2 + 1

Trimester: III

Pre-requisite:

Stat: 102

Mutation - detection of recessive lethal mutation in sex chromosomes and autosomes - artificial induction of gene mutation and chromosomal aberration.

Population genetics gene frequency - forces which alter the

frequency mutation, selection, random drift and migration - Hardy - Weinberg Law - derivation of Hardy-Weinberg Formula - mutation and evolution.

Sex determination: chromosome theory - theory of genetic balance - environmental influence on sex determination in bees, birds and mammals - free martin - inter sex - gynandromorph - parthenogenesis - sex ratio - control of sex.

Nature of gene - physical structure of genetic material - cytooptical studies of D. N. A. - structure of D N A Replication - DNA in heredity - origin of new genes through duplication.

Practical: Study of salivary gland - chromosomes - variation in chromosome number and chromosomal aberrations - induction of polyploidy - microphotography - experiments with *Drosophila* - monohybrid and dihybrid crosses - autosomal and sex - linkage.

Chromosome mapping using the point cross - Induction of mutations by X-rays and other mutagenes and their detection.

BG 203.

BREEDING

Credits: 2+1

Trimester: 1

Pre-requisite:

BG. 101&102

History - variation - its significance to animal breeder - selection of animals for breeding - types function - basis for selection - selection by individuals - selection by family - selection by progeny testing - methods of selection - random, independent culling level - total score method - selection of animals for different purposes - inheritance of acquired characters.

Systems of breeding - inbreeding - outbreeding - heterosis and its genetic interpretation - interspecies cross - establishment of new breeds - coefficient of inbreeding - coefficient of relationship.

Breeding for disease resistance - breeding of livestock in unfavourable climates - blood groups and their significance in breeding - breeding policies - programmes and policies in India for cattle, buffaloes, goats, sheep, swine and poultry - registration of animals.

Practical: Identification of breeds of cattle, buffaloes, sheep, goat, swine and poultry - calculation of genetic progress - standardization of production traits.

Calculation of coefficient of relationship and inbreeding - calculation of heritability estimates - use of various sire indices.

Judging of livestock and poultry shows. Farm practices.

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(6) COURSES IN EXTENSION

EXTENSION - I

(Livestock Marketing and Economics)

Ext. 201.

Credits: 1 + 0

Trimester: II

Pre-requisite:

Extension Education - Definition, objective, scope, principle and philosophy. Early extension movements in India - Community Development and National Extension service in India. Functions and coordinating agencies.

Extension organisation in other countries - duties and responsibilities of extension workers.

Livestock marketing:

Elements of marketing - functions of a market - types of markets, demand and supply functions, marketing, costs and margins, handling, grading. Storage and transportation of livestock products, co-operatives and co-operative marketing - its role in marketing livestock products - market intelligence.

Economics

Definition, nature and scope of economics - Importance of the study of economics. Fundamental concepts of economics - goods, utility, value, price, wealth. Classification of wealth - income, wealth and welfare. Consumption and its importance. Human wants and their characteristics - necessities, comforts and luxuries. Standard of living Law of diminishing utility. Consumers' surplus Demand, elasticity of demand. Supply, Production and their significance Law of diminishing returns.

Labour - Malthusian theory of population modern theory of population, efficiency of labour. Organisation - forms of business organization. Exchange - nature and necessity of exchange, markets, their evolution and classification. Money - evolution of money, functions of money, kinds of money Distribution - meaning of distribution. Rent - Richardian theory of rent Quasi rent. Wage - methods of payment of wages, nominal wage and real wage. Interest, Profit - gross profit and pure profit.

Practical

The practical includes library work and seminars, group discussion on current economic problems in India.

EXTENSION - II

(General Psychology, Rural Sociology and Extension)

Ext. 302

Credits: 2 + 2

Trimester: II

Pre-requisites

Ext: 201

(a) General Psychology:

Psychology as a science - development of psychology, different psychological systems. Heredity and environment. Growth and maturation. Learning - its definition, laws and theories. Motivation and adjustment - different types of motives. Personality - theories and factors affecting personality.

(b) Rural Sociology:

Sociology as a science - development of sociology, social life, society and functions, rural and urban society - social, economic and religious institutions. Social process. Culture - its definition and meaning, material and non-material culture - factors affecting culture - cultural change. Social structure; Social stratification; Social control; Social change - definition and factors of social change. Conduct of social surveys and seminars.

(c) Communication in Extension Education:

Communication - objectives, indications process and problems.

Tools and techniques in extension education, their classification, choice and use.

Methods of approach to farmers - individual, group and mass contact - advantages and disadvantages.

Teaching aids - audiovisual aids, their preparations, handling and usage.

Planning, presenting and evaluating visuals.

(d) Communication workshop:

Audiovisual methods in teaching - preparation of teaching aids - dramatisation - discussions - demonstration and tours.

Rural communications: planning, preparing and presentation of talk.

Evaluation of audiovisuals and oral communication.

Seminar: method demonstration, group discussions and field extension programmes.

Essentials of educational process: Extension educational process - principles of teaching and learning, motivation, techniques of conducting a class.

Diffusion and adoption of innovations. Factors influencing adoption, adoptive categories, communication in adoption process.

Essentials of adult psychology - factors influencing adult learning.

Evaluation - objectives, types and uses, steps in evaluation, role of evaluation, in extension education.

Programme planning: Planning and preparing programmes - short term and long term plans. Five year plans of India. Programme building and programme execution. Planning objectives village and block development programmes. Objectives and implementation, follow-up of programmes.

Preparing production programmes. Collection of data and preparation of programme on selected topics - programme evaluation.

Fundamentals of Rural sociology: Society, definition, traditional and modern societies, social factors influencing adoption of innovation. Social change nature and type, factors influencing social change - village institutions, schools, panchayat and co-operatives - their role in extension education - rural and urban society.

Youth clubs - 4H clubs and women organisations - their organisation and role in extension education - farm and home - their relationship and influence on adoption of improved practices - leadership - identification and training of village leaders.

(7) COURSES IN LIVESTOCK PRODUCTS TECHNOLOGY

LPT. 201 MILK PRODUCTION & PROCESSING

Credits: 2 + 1

Tremester: II

Pre-requisite:

APM. 205

Milk secretion - growth and development of mammary gland. Hormonal inter-relationship in lactation - physiological and biochemical aspects of lactation - physiology and mechanics of milking - colostrum.

Milk - composition - physical and chemical properties - variations in the chemical composition - factors modifying the quality and quantity of milk - bacteria in relation to milk - clean milk production.

Milk and metals - cleaning and sterilisation of dairy equipments.

Common dairy processes - straining - filtration - clarification - pasteurisation - vacreation - homogenisation - irradiation - sterilization - emulsification - reconstituted milk - soft curd milk - toned milk.

Grading of milk - milk standards - adulteration of milk - nutritive value of milk.

Distribution of milk - milk marketing - co-operative dairying.

Practicals: Sampling of milk for various analyses - reservation of samples.

Qualitative analysis of milk for major constituents. Determination of specific gravity of milk specific gravity bottle - lactometer.

Estimation of fat in milk - Gerber's method - Babcock method.

Estimation of total solids and solids not fat in milk - drying method - rapid commercial method - milk scale. Titratable acidity

in milk - automatic acidimeter. Estimation of ash in milk. Determination of lactose in milk. Estimation of protein in milk - formal titration - Hart casein tube. Detection of preservatives in milk - Detection of adulteration of milk - added water - removal of fat. Cryoscope and determination of freezing point of milk. Tests for heated milk - measurement of the size of the fat globule in milk. Detection of added colouring matter in milk. Tests for keeping quality of milk. Farm practices.

LPT. 202

DAIRY PRODUCTS

Credits: 2+1

Trimester: III

Pre-requisite:

LPT. 201

Cream - methods of separation - kinds of cream - factors affecting the percentage of fat in cream and fat losses in skim milk - defects in cream - care and operation of cream separators.

Cultures used in dairy industry - butter - village and factory methods of making butter - theories of churning - fat losses in butter milk - grading and scoring of butter - evenrun in butter - butter deterioration - Agmark standards.

Ghee - methods of separation - spoilage - butter fat constants - adulteration of butter and ghee - qualitative tests for rancidity - Agmark standards.

Gheese - types - composition - factors that change the resulting cheese from milk - procedure for making cheddar and cottage cheese - chemical and physical changes in cheese ripening.

Concentrated milk products - evaporated milk - condensed milk - milk powder - desirable properties, used, preparation and defects.

Ice cream - classification - ingredients - calculation of mix-steps in manufacture evenrun - defects.

Fermented milk drinks - skim milk - butter milk - whey. Indigenous milk products.

Practicals: Estimation of fat in cream - Gerber's method - Babcock's method - Determination of total solids in cream. Titrable acidity in cream - serum acidity in cream. Preparation of samples of butter for analysis - analysis of butter for moisture, fat, salt and curd. Use of butter moisture balance - Colour reactions for rancidity and added oils in butter. Refractive index of ghee. Determination of fat in skim milk and butter milk. Preparation of good quality butter, curd, cream, ghee, Kaṇḍ, channa and ice cream. Farm practices.

LPT. 403.

MILK HYGIENE

Credits: 2 + 1

Trimester: I

Pre-requisite

LPT. 202

Dairy Microbiology - importance - biological properties of micro-organisms found in milk and milk products - bacterial samples - bacterial counts - standard plate count - direct microscopic count - dye reduction tests - specific types of micro-organisms - thermophilic - thermophilic - psychrophilic - coliform - acid producing - gas forming - proteolytic - lipolytic - organisms associated with mastitis, tuberculosis and brucellosis - milk borne diseases.

Microbiology in the farm - contamination from the cow - cow as a source of pathogens - bacteriological problems of market milk and dairy products - Growth and longevity of pathogens in dairy products - pollution and contamination of milk and milk products. Control of various organisms - normal and specific fermentation in milk - selection and handling of milk - hygiene and sanitation of dairy plant - milk and dairy products as vehicles of infection of intoxication - Investigations and reporting of milk borne diseases - prevention of diseases transmitted through milk and milk products.

Milk control on reception - distribution of bacteria in bottled milk - bacterial growth in pasteurised milk - supervision of market milk supplies.

Health control of dairy workers - reporting of diseases - action needed in illness.

Milk hygiene practices in India - milk hygiene administration and legislation.

Practical: Inspection of dairy farms and plants - score card for dairy farms - Inspection of cows - score card for milk - methods of collection and preservation of samples of milk and dairy products for analysis - platform tests for milk - quantitative tests for total bacteria - Tests for specific types of micro organisms - qualitative tests for mastitis, brucellosis, tuberculosis, tests for udder infection - determination of efficiency of pasteurization - methods of determining the sterility of dairy equipments and containers. Farm practices.

LPT. 404	MEAT AND MEAT PRODUCTS	Credits: 2 + 1
		Trimester: II
		Pre-requisite
		Mb. 204
		Path. 302

Food animals - elements of meat hygiene - abatoirs - design and management.

Antemortem inspection - humane slaughter and dressing of carcasses of food animals.

Post-mortem inspection - judgement of carcasses under different conditions.

Meat borne diseases - physical characteristics of meat and principal organs - fraudulent substitution and detection - deteriorative changes in meat.

Preparation of meat and meat products - materials added to meat.

Meat grading - bacteriology of meat.

By products of meat industry.

Killing, dressing and inspection of poultry - inspection of egg - preservation of egg and its products.

Fish and fish products.

Practicals: Study visits to slaughter houses - demonstration of slaughter and dressing of food animals - identification and judgment of various carcasses - Identification of lesions and judgment.

(8) COURSES IN MICROBIOLOGY

Mb. 201	MICROBIOLOGY-1	Credits: 3 + 1 Trimester: I Pre-requisite Anat: 104
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General Bacteriology: Introduction and history, definition and divisions of bacteriology. Stains and staining practices.

Bacteria: distribution, morphology, cultivation, colonial characters, variation, biology, physiology and nutritional requirements.

Sterilization of equipments and media.

Mechanism of infection, virulence, pathogenicity, resistance and susceptibility.

Koch's postulates - atria of infection.

Association of bacteria, drug resistance, antimicrobial agents, phenol coefficient.

Practical: Use of microscope and other equipments. Sterilization of equipments. Preparation of common media. Preparation of common stains and staining methods. Cultivation of organisms and study of colonial morphology.
Mycology:

General characters of fungi, isolation and identification methods. Principal characters and pathogenicity of following fungi: aspergillus, sporotrichum, dermatophytes, cryptococcus, candida, rhinosporidium, mucor and rhizopus.

Practical: Preparation of common media, isolation, and identification of common fungal organisms, cultivation and staining of fungal organisms.

Mb. 202.	MICROBIOLOGY - II	Credits: 3+1 Trimester: II Pre-requisites Mb- 201
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Systematic Bacteriology.

Classification and nomenclature of bacteria. Characters,

pathogenicity and diagnosis of bacteria under the following genera:

Pseudomonas, *Vibrio*, *Escherichia*, *Aerobacter*, *Proteus*, *Salmonella*, *Pasteurella*, *Bordetella*, *Brucella*, *Haemophilus*, *Actinobacillus*, *Malleomyces*, *Moraxella*, *Sphonophorus*, *Micrococcus*, *Staphylococcus*, *Streptococcus*, *Corynebacterium*, *Listeria*, *Erysipelothrix*, *Bacillus*, *Clostridium*, *Mycobacterium*, *Actinomyces*, *Borrelia*, *Leptospira*, *Mycoplasma* and *Bacteriophage*.

Practical: Study of morphological cultural and biochemical characters of different bacteria - different methods of staining; collection, preservation and despatch of material for laboratory examination.

Mb. 203.	MICROBIOLOGY - III	Credits: 2 + 1 Trimester: III Pre-requisite: Mb. 202
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Immunology: Immunity, principles of immunity - theories and types.

Antigen, antibodies and their reactions.

Toxin, toxoid, antitoxin; preparation of vaccine and antiserum

Serological reactions - different types, allergy, classification.

Methods of immunisation against common diseases.

Practical: Agglutination and precipitation tests: Preparation of vaccine and sera.

Mb. 204	MICROBIOLOGY - IV	Credits: 2 + 1 Trimester: III Pre-requisite Mb. 201
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Virology: General characters of virus, cultivation of virus, classification.

Principle characters, pathogenicity and diagnosis of the following viruses.

Rinderpest, foot and mouth, rabies, distemper, swine fever, Ranikhet, Pox, Infectious laryngotracheitis, avian leukosis complex, South African Horse sickness.

Practical: Cultivation of virus in embryonated eggs. Haemagglutination and haemagglutination inhibition tests. Methods of study of virus.

(9) COURSES IN OBSTETRICS AND GYNAECOLOGY

OBSTETRICS & GYNAECOLOGY - I

OG. 401.

Credits: 3 + 1

Trimester: I

Pre-requisite:

Anat: 102

Phy. 203

Physiology of reproduction in Farm animals - Anatomical variations of reproductive system in males - sexual physiology - semen - production and characteristics - coitus - ejaculation - spermatazoa - morphology and physiology - evaluation of semen.

Anatomical variations of the reproductive systems in female animals - sexual physiology - reproductive hormones - oestrus behaviour - patterns of oestrous cycle - ovulation - Fertilization - nidation - development of foetus and foetal membranes - pregnancy - Gestation period - Diagnosis of pregnancy - clinical biological - Twin & multiple pregnancy - care and management of pregnant animals.

Anomalies of fecundation - superfoetation, extrauterine pregnancy - foetal monstrosities - mammification and maceration of foetus.

Practical: Examination of genital organs obtained from slaughter house and on living animals, examination of section of normal reproductive organs. Clinical diagnosis of pregnancy at various stages. Exercise on farm animals - semen evaluation.

OBSTETRICS & GYNAECOLOGY - II

OG. 402

Credits: 3 + 1

Trimester: II

Pre-requisite:

OG. 401

Pathology of reproduction in Farm animals - infertility in males - causes - reduced sex desire - genetic, hormonal and environmental - inability to copulate - genetic and traumatic - inability to fertilize - genetic - gonadal hypoplasia, cryptorchid-

dism etc. Testicular degeneration - diseases of epididymus and accessory sex glands - Investigation of males for breeding fitness Infertility in females - causes - congenital and hereditary - ovarian hypoplasia freemartinism - whiteheifer disease - predis - positives to endocrine disturbances - cystic ovarian degeneration sub-oestrus, disturbances in ovulation and nidation, anestrus - infectious and inflammatory conditions of sexual organs - met - ritis, endometritis, pyometra, salpingitis etc. coital infections - nutritional and managemental - under feeding, over feeding, faulty, feed composition - repeaters - Pathology of gestation.

Abortion - infectious, traumatic and mycotic - Antepartum accidents - prolapse of vagina, rupture of prepubic tendon, Hys - terocele - rupture of uterus - haemorrhage - metabolic disorders during gestation.

Practicals: Clinical examination of animals for infertility and reproductiv disorders - Examination of specimens at slaughter house - identification of specimen and sections of genital organs. 20 case reports from clinic.

OBSTETRICS & GYNAECOLOGY - III

OG. 103

Credits: 1 + 1
Trimester: III
Pre-requisite:
OG. 401 &
Sg. 401

Normal parturition - signs of approaching parturition - management at parturition - stages of parturition - care of new - born and dam - postpartum accidents - retention of placenta - prolapse of uterus - postparturient metabolic disorders and diseases.

Obstetric anatomy - normal presentation. position and pos - ture - Dystokia - causes - maternal and foetal - general handling of dystocia - epidural anaesthesia - obstetrical operations - nutation, forced traction, embryotomy, caesarian section - hy - sterectomy.

Practical:

a) Obstetrics - Attending cases of normal parturition of farm animals - Diagnosis correction and extraction of foetus and embryotomy - exercise in phantom as well as in actual cases - caesarian section and hysterectomy in experimental animals - 20 case reports from clinics.

OG. 404 ARTIFICIAL INSEMINATION Credits: 1+1
Trimester: III
Pre-requisite
Anat. 102

Short historical review - advantages and disadvantages - care and management of studs - equipments for A. I. work collection and handling of semen - dilution, preservation and transport of semen - insemination techniques - deep freezing of semen - room temperature preservation of semen - organization of A. I. centre - importance of sexual health control - ova transplantation - advantage and disadvantage - techniques.

Practical:

Collection and routine examination of semen dilution, storage and transport of semen - techniques of A. I. - maintenance of records.

(10) COURSES IN PARASITOLOGY

Para. 301	PARASITOLOGY - I	Credits: 2 + 1 Trimester: I Pre-requisite: Mb. 201
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Introduction to Veterinary Parasitology and Laboratory procedures. Types of animal associations - types of parasites - types of hosts - Parasitic adaptation - Effect of parasitism - pathogenesis - mode of spread of parasitic infection - immunology in relation to parasitic diseases - general aspects of control and prevention against parasites - nomenclature and taxonomy.

General morphology and pattern of life cycle of plathyhelminthes, nematodes, arthropods and protozoa.

Para. 302	PARASITOLOGY - II	Credits: 2 + 1 Trimester: I Pre-requisites: Mb. 201
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Trematodes and cestodes of veterinary importance. Taxonomy and salient morphological features of the following parasites with brief accounts of their life cycle, pathogenesis, symptoms and lesions of diseases caused by them, treatment and control.

Trematoda: *Fasciola gigantica*, *F. hepatica* - *Dicrocoelium dendriticum*, *Paragonimus westernmanni*, *Prosthogonimus indicus*, *Paramphistomum cervi*, *P. explanatum*, *Cotylophoron cotylophorum*, *Fischoederius elongatus*, *F. cobboldi*, *Gastrodiscus secundus*, *Schistosoma spindalis*, *S. nasalis*, *S. indicum*, *S. suis*, *Ornithobilharzia turkestanicum*.

Cestoda: *Anoplocephala perfoliata*, *Moniezia expansa*, *M. benedeni*, *Avittellina Lahorea*, *Davainea proglottina*, *Raillietina tetragona*, *R. ehcinobothrida*, *Dipylidium caninum*, *Hymenolepis carioca*, *Taenia solium*, *T. saginata*, *T. hydatigena*, *T. multiceps*, *Echinococcus granulosus*, *Diphyllobothrium latum*.

Para. 303.

PARASITOLOGY - III

Credits: 2+1

Trimester: II

Pre-requisites

Para 301

Nematodes of Veterinary importance. Taxonomy and salient morphological features of the following parasites with brief accounts of their life cycle, Pathogenesis, symptoms and lesions of diseases caused by them, treatment and control.

Ascaris vitulorum, *A. equorum*, *A. lumbricoides*, *Toxocara canis*, *Toxascaris leonina galli*, *Heterakis gallinae*, *Oxyuris equi*, *Trichinella spiralis*, *Trichuris ovis*, *Strongylus vulgaris*, *Oesophagostomum columbianum*, *O. radiatum*, *Syngamus trachea*, *Ancylostoma caninum*, *A. braziliense*, *Bunostomum phlebotomum*, *B. trigonocephalum*, *Trichostrongylus colubriformis*, *Haemonchus contortus*, *Mecistocirrus digitalis*, *Dictyocaulus filaria*, *D. viviparus*, *Metastrongylus apri*, *Spirocerca lupi*, *Habronema muscae*, *H. megastoma*, *H. microstoma*, *Gnathostoma spinigerum*, *Dirofilaria immitis* *Setaria cervi*, *S. equina*.

Para. 304

PARASITOLOGY - IV

Credits: 1+1

Trimester: II

Pre-requisite:

Para 301

Entomology - insects affecting livestock. Taxonomy and salient morphological features of the following insects with brief accounts of their life cycle, pathogenesis, symptoms and lesions of the diseases caused by them, treatment and control.

Anopheles stephensi, *Culex fatigans*, *Aedes aegypti*, *Phlebotomus argentipes*, *Simulium indicum*, *Tabanus striatus*, *Haematopota pluvialis*, *Chrysops dispar*, *Musca domestica*, *Stomoxys calcitrans*, *Lyperosia exigua*, *Glossina palpalis*, *Oestrus ovis*, *Gastrophilus Intestinalis*, *Hypoderma lineatum*, *Calliphora*, *Lucilia*, *Chrysomia*, *Sarcophaga*, *Hippobosca maculata*, *Meophagus ovinus*, *Pseudolynchia maura*, *Cimex rotundatus*, *Haemotopinus eurytarnus*, *H. tuberculatus*, *Linognathus vituli*, *Menopon gallinae*, *Lipeurus caponis*, *Trichodectes canis*, *Ctenocephalides canis*, *C. felis*, *Echidnophaga gallinacea*.

Para. 305	PARASITOLOGY - V	Credits: 1 + 1 Trimester: III Pre-requisites: Para: 301
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Acarine parasites of veterinary importance: Taxonomy and salient morphological features of the following acarine parasites with brief accounts of their life cycle, Pathogenesis symptoms and lesions of diseases caused by them, treatment and control.

Argus persicus, *Boophilus annulatus*, *Rhipicepalus sanguineus*, *Haemaphysalis bispinosa*, *Amblyomma*, *Hyalomma*, *Sarcoptes*, *Psoroptes*, *Chorioptes*, *Cnemidocopes gallianæ*, *C. mutans*, *Otodectes*, *Otodectes cynotis*, *Demodex*, *Dermanyssus*, *Linguatula serrata* - Pentastomida.

Para. 305	PARASITOLOGY - IV	Credits: 1 + 1 Trimester: III Pre-requisites Para. 301
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Taxonomy and salient morphological features of the following parasites with brief accounts of the life cycle, pathogenesis, symptoms and lesions of diseases caused by them, treatment and control.

Entamoeba histolytica, *E. coli*, *Leishmania donovani*, *L. tropica*, *Trypanosoma evansi*, *T. equiperdum*, *T. theileri*, *T. vivax*, *T. congolense*, *T. brucei*, *T. cruzi*, *Trichomonas foetus*, *Histomonas meleagridis*, *Eimeria tenelia*, *E. necatrix*, *E. acervulina*, *E. zurnii*, *E. faurei*, *E. arloingi*, *E. debleicki*, *Isospora felis*, *I. rivolta*, *I. bigemina*, *Plasmodium gallinaceum*, *P. bubalis*, *Haemoproteus columbae*, *Leucocytozoon caulleryi*, *Babesia bigemina*, *B. bovis*, *B. cabballi*, *Nuttalia equi*, *B. motasi*, *B. ovis*, *B. cannis*, *B. gibsoni*, *B. trautmanni*, *Aegyptinella pullorum*. *Theileria annulata*, *T. mutans*, *Hepatozoon canis*, *Balantidium coli*, *Sarcocyst*, *Anaplasma*.

(11) COURSES IN PATHOLOGY

Path. 301	PATHOLOGY - I	Credits: 3 + 1 Trimester: I Pre-requisites: Anat: 105 Phy. 202&203
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History of Pathology - Divisions of Pathology - cause of disease - Degenerations and infiltration - disturbance in metabolism - Inflammation - Repair - Regeneration - Necrosis - Gangrene - Postmortem changes - Disturbance in growth - Disturbances in circulation - Infarction - Oedema - Thrombosis - Embolism - Pathological pigmentation - Calcification - Radiation injury.

Practical: Autopsy - collection of materials - examination of prepared slides to study various types of pathological changes.

Path. 302.	PATHOLOGY - II	Credits: 3 + 1 Trimester: II Pre-requisite: Path. 301
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Systemic pathology - diseases of Cardiovascular, haemopoietic, respiratory, digestive, urogenital, endocrine, nervous, musculoskeletal systems and the integuments.

Practical: Study of lesions of various organs in fresh and museum specimens. Histopathological studies of pathological changes in these systems from prepared slides.

Path. 303	PATHOLOGY - III	Credits: 3 + 1 Trimester: III Pre-requisite: Path: 301
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Neoplasms - causes, classification. Behaviour of tumor cells. types of tumors - common epithelial and connective tissue tumors in bovines, canines and equines. Leucosis and Marek's diseases in birds - Pathology of common Vitamin and Mineral

deficiencies - Pathology of common poultry diseases - pathogenesis and pathology of common specific diseases encountered in India in Bovines, canines and sheep and goats.

Practical: Study of gross lesions by attending autopsy and seeing preserved specimens - study of different types of tumours with the help of prepared slides.

CLINICAL PATHOLOGY & NECROPSY

Path. 304

Credits: 1 + 1
Trimester: III
Pre-requisite:
Path. 302 &
303.

Necropsy importance - general principles, necropsy procedures for different animals. Proper methods of collection, preservation and despatch of morbid material to laboratory for diagnosis. Laboratory examination of blood, urine, faecal sample and skin scrapings.

Practical: Post-mortem examination of different species of animals. Collection, preservation and despatch of morbid material, - laboratory examination of blood, urine and faecal.

(12) COURSES IN PHARMACOLOGY

Ph. 301	PHARMACOLOGY - I	Credits: 2 + 1 Trimester: I Pre-requisite: Phy. 203
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Introduction - source of drugs - general pharmacology.

Response of skin and mucous membrane to drugs.

Drugs acting on respiratory system, gastro intestinal tract, endocrine system.

Corticosteroids, thyroid and antithyroid drugs.

Practicals: Pharmacy, prescription - incompatibility - different types of pharmaceutical preparations, methods of administration of drugs, weights measures and symbols - prescription writing.

Ph. 302	PHARMACOLOGY - II	Credits: 1 Trimester: I Pre-requisite: Phy: 203
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Drugs acting on circulation, antianemic drugs, coagulants, anti coagulants, vasoconstrictors, vasodilators.

Muscle relaxants.

Ph. 303	PHARMACOLOGY - III	Credits: 2 + 1 Trimester: II Pre-requisite: Ph. 301
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Drugs acting on C. N. S. - stimulants, depressants, analgesics, anticonvulsants. Tranquilizers.

Antiparasitics - internal and external

Practicals: Dispensing of powder, ointment, pills, emulsions, injections, mixtures etc. Identification of common drugs. Demonstration of drug action.

Ph. 304	PHARMACOLOGY - IV	Credits: 1 + 0 Trimester: II Pre-requisite Ph: 301
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Drugs acting on autonomic nervous system – Gangleonic, blocking agents.

Histamines and antihistaminics.

Ph 305	PHARMACOLOGY - V	Credits: 2 + 0 Trimester: II Pre-requisite; Ph, 301
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Systemic anti infective drugs.

Antineoplastic drugs.

Drugs acting on reproductive system, tissue metabolism

Drugs influencing fluid balance - diuretics and antidiuretics

Plasma volume expanders, electrolyte therapy, acid base balance, parenteral nutrition.

Vitamins, minerals, anabolic stimulants.

Ph. 306	PHARMACOLOGY - VI	Credits: 1 + 1 Trimester III Pre-requisite Ph. 301 to 304
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Toxicology: Introduction, classification and mechanism of action.

Antidotal measures.

Inorganic poison, alkaloids, pesticides and rodenticides.

Poisonous plants - Snake venom.

Doping. Radioactive materials.

Practical: **Demonstration of toxicity of drugs on animals.**

Identification and habitat of poisonous plants. Antidotal techniques in alkaloidal poisoning.

(13) COURSES IN PHYSIOLOGY

Phys 201	PHYSIOLOGY - I	Credits: 3+1 Trimester: II Pre-requisite: Anat, 103 Bioch, 103
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Nervous system: Physiological properties of nerve - transmission of nerve impulses - receptors and sensation.

Spinal cord: fibre tracts - reflex action - function of brain stem, basal ganglia, cerebellum. Posture and equilibrium - vestibular apparatus, cerebral cortex and higher functions - conditioned responses - sleep.

Autonomic nervous system, Special senses: Structure of the eye-vision - structure of the ear - hearing. Smell and taste.

Blood and body fluids: blood - composition, properties and functions - origin, functions and fate of blood corpuscles - coagulation - anaemias - blood groups. Blood volume - body water balance. Formation, composition, circulation and functions of lymph - lymph glands. Spleen - reticuloendothelial system. Cerebro spinal and synovial fluids.

Practical: Blood - determination of specific gravity, viscosity, coagulation time, bleeding time, sedimentation rate and haematocrit value - Fragility test, blood groups. Enumeration of R B C and WBC - differential count. Estimation of haemoglobin (all experiments to be done with mammalian and avian blood).

Phys. 202	PHYSIOLOGY - II	Credits: 3+1 Trimester: I Pre-requisite: Anat. 102 Phy. 201
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Heart: cardiac muscle, its properties - cause of heart beat

Cardiac cycle-electrical changes during heart beat. Electrocardiography - heart sounds. Cardiac output and its regulation - metabolism of heart muscle. Nervous chemical regulation. Car-

diac reflexes - heart rate in animals. Factors influencing heart rate - cardiac arrhythmias.

Circulation - systemic, coronary and pulmonary circulation - blood velocity - blood pressure - determination of blood pressure. Hypertension - pulse - Haemorrhage and shock - vasomotor mechanisms.

Respiration: Inspiration and expiration - respiratory movements - intraPulmonic and intrathoratic pressure pneumothorax - transport and exchange of gases - regulation of respiration in birds

Temperature regulation: body temperature and its regulation.

Reactions of animals to changes in environmental temperature - fever.

Practical: Recording of frog's heart beat - effect of temperature on heart beat - all or - none law. Staircase phenomenon - refractory period - effect of stimulating vagus. Demonstration of the action of ions, adrenaline and acetyl choline on perfused frog's heart.

Demonstrations: Recording heart beat and blood aressure in the dog - effect of stimulating vagus Effect of drugs on perfused mammalian heart. Haemorrhage and transfusion. Determination of blood pressure using Sphygmomanometer. Recording respiration - the effect of stimulating vagus on respiration.

Phys. 203

PHYSIOLOGY - III

Credits: 3+1

Trimester: III

Pre requisite:

Anat: 105

Phy. 202

Digestive system: Glands associated with digestive system and mechanisms of their secretion Properties and actions of digestive juices - movements of the alimentary tract and their regulation and absorption. Digestion in the ruminant stomach - digestion in chicken.

Kidney: mechanism of urine formation - micturition - renal regulation of acid base balance.

Skin: Structure and functions - sweat.

Muscle physiology: Types of muscle - structure and basic properties - muscular contraction - chemical changes during muscular contraction - chemical changes during muscular contraction - fatigue - mortis.

Endocrinology: Endocrine glands - hormones and their functions - endocrine disorders - inter-relationship of endocrine organs.

Reproduction: Female and male generative organs. Oestrous cycle - ovogenesis - ovulation - follicular development. Fertilization - pregnancy - embryo and its nutrition - Secretion of milk - control of lactation. Semen - secretion and composition. Hormones in reproduction.

Practical: Gastrocnemius muscle sciatic nerve preparation - simple muscle curve - effect of temperature and strength of stimulus - summation and superposition - tetanus fatigue - load and after load.

Recording of intestinal motility - salivary secretion.

(14) COURSES IN STATISTICS

Note:- While covering the courses in statistics, the following aspects of mathematics necessary for understanding the subject will also be dealt with.

Mathematics:

Laws of integral exponents - Addition and multiplication of polynomials - Division of a polynomial by another - Factorisation of a quadratic. Solution of quadratic equations - solution of simultaneous equations - Definition of logarithms - Laws of logarithms - computations with common logarithms - Binomial expansion for a positive integral exponent - Sum of binomial coefficients - Geometric series.

Distance between points - Area of a triangle - Equation of a straight line - angle between two straight lines - Differentiation - simple applications increasing and decreasing functions - Maxima and minima of functions of a single variable - Integration of simple functions.

Stat. 101

STATISTICS - I

Credits: 1+0

Trimester: I

Elementary concepts: sources of data - collection, compilation and tabulation of data - measurable variables and attributes - discrete and continuous variables - frequency distribution principles governing their formation - representation of data by graphs, charts diagrams - measures of central tendency and dispersion, their computation, meaning and uses - coefficient of dispersions and their uses - scatter diagram, correlation and regression - computation of correlation coefficient and regression lines and continuous variables - frequency distribution principles governing their formation - representation of data by graphs, charts and diagrams - measures of central tendency and dispersion, their computation, meaning and uses - coefficient of dispersion and their uses - scatter diagram, correlation and regression - computation of correlation coefficient and regression lines and their meaning and interpretation - bank correlation and its meaning.

Stat. 102.	STATISTICS - II	Credits: 1 + 1
		Trimester: II
		Pre-requisite:
		Stat: 101

Statistical inference: elementary problems in permutation and combination - priori and apriori concepts of probability and elementary laws of addition and multiplication - sampling from an infinite population and the sampling error - binomial and normal population, normal populations and their properties - statistical hypothesis and the logic of inference - illustrations based on binomial and normal populations - Chi-square and the tests of homogeneity, independence and goodness of fit - students' for one or two sample cases - Cochran and Cox test for comparing the means - F - test for comparing variances and means.

Stat. 103	STATISTICS - III	Credits 1 + 1
		Trimester: III
		Pre-requisite:
		Stat. 102

Design and sampling: (a) Need for designing experiments - analysis of variance of one and two-way classifications-linear model and assumptions - principles of experimentation - completely randomised and randomised block designs, their lay out and analysis - simple cross-over designs (b) Unit and population - sampling unit and frame - sampling versus complete enumeration - simple random sampling - stratified sampling - cluster, multi - stage and systematic sampling procedures - livestock statistics.

(15) COURSES IN SURGERY

Sg 401	SURGERY - I	Credit: 3 + 1 Trimester: I Pre-requisite: Anat. 103 Path. 301 Ph. 303
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Introduction: Objects of surgery - tenets of Halstead.

Inflammation: Abscess - Gangrene - Necrosis - Ulcer - Sinus - Fistula - Bier's hyperamia.

Wounds: Classification - healing - treatment - complications - dog bite, snake bite, insect bite, etc.

Control of haemorrhage - haemorrhagic shock - crush syndrome - dehydration.

Burns and scalds - chemical burns - frost - bite - sun stroke - electric shock - lighting stroke:

Tumors and Cysts - sitfast - bedsore - saddle gall - yoke gall - boils - acne - furunculosis - fissured heels.

Neurectomy: Indications and complications.

Paralysis: Etiology - classification - general symptoms - diagnosis - treatment of paralysis of trigeminal, facial, suprascapular, radial, sciatic, obturator, crural (femoral) and perineal nerves.

Phlebitis - Jugular phlebitis.

Fractures and Dislocations: Symptoms - diagnosis - treatment.

Concussions and sprain of joints - Arthritis - Anchylosis.

Other General Surgical Conditions.

Anaesthesia: Classification - local anaesthesia - regional anaesthesia and epidural anaesthesia - narcosis and preanaesthesia - general anaesthesia (volatile and non-volatile.)

Antisepsis - asepsis - sterilization - pre-operative care.

Sutures and ligatures - suture materials - suture patterns.

Counter-irritation - cauterisation (firing) - Blistering - massage,

E R R A T A

(Vide printed curriculum B.V.Sc.Degree)

<u>Page No.</u>	<u>Line</u>	<u>Correction to be made</u>
"Contents"	1	Spelling of the word curriculum.
1	1	Spelling of the word Curriculum.
1	15	Figure 8 being Theory credits for Anat.103 to be corrected as 3.
3	25	The total credit for Ph.302 will be 1 instead of 3. The pre-requisite for Ph.302 will be Phy.203.
3	25 & 26	The following course should be listed between the courses Ph.302 and Clin.301:- VM.301. Therapeutics-I, 2-1-3 The pre-requisite for which is already printed.
4	11	The pre-requisite for the course Path.303 is Path.301. The spelling mistake in the print to be corrected accordingly.
5	18	The course No.Clin.401 to be corrected as Clin.402.
7	1	Spelling of the word curriculum.
7	21	Against the course APM.205, the word 'Swine' should be substituted by the words 'Dairy Cattle'.
7	22	Against the course APM.206 the words 'Dairy Cattle' should be substituted by the word 'Swine'.

Infra-red and ultra-violet rays as therapeutic agents.

Electro diagnosis - electro-therapy - clinical radiography and fluoroscopy - anaesthesia.

Practicals: Surface anatomy - common surgical instruments. Minor surgical techniques.

Sg. 402.

SURGERY - II

Credit: 3 + 1

Trimester : II

Pre-requisite:

Sg: 401

Regional surgical conditions, with special reference to the following:

Frontal and maxillary sinuses in cattle and horses (empyema) Horns of cattle.

Haematoma of the ear and chronic otorrhoea in dogs.

Empyema of the guttural pouches.

Conjunctivitis - Keratitis - Ulceration of the cornea - Opacity of cornea - Luxation of the lens - Cataract - hydrophthalmos - Glaucom.

Moon blindness in horses - Entropion - Ectropion - Ptosis - Trichiasis - Districhiasis -

Ranula - correction of conditions due to the irregular wear of teeth in cattle and horses - Dental tartar in canine - Alveolar periostitis - Dental fistula and pus in the antrum in dog.

Roaring in horses.

Choking - Traumatic reticulitis - Abomasal torsion and displacement - Abomasal obstruction - Abomasal ulcers.

Telescoping of bowels - Volvulus - Intestinal obstruction - Prolapse of rectum and anus - Anal adenitis.

Hernia - Umbilical, inguinal, diaphragmatic, ventral and perineal hernias - Gut tie in bullocks.

Urethral and cystic calculi - castration.

Teat fistula - stricture of the teat.

Practical: Sterilization of instruments. Preparing for Surgery. Pre-operative and post-operative care. Fluid therapy. Blood transfusion.

Sg. 403. SURGERY - III Credit: 4+0
Trimester: III
Pre-requisite:
Sg. 401

Lameness - splint - soreshin - Ring bone - Pyramidal disease - Bobba bone (cab horse disease) - Racing Joint - Rarefying osteitis of os pedis - Navicular disease - Side bones - Quittor - Corns - Sandcrak - Seedy toe - Keratoma - Laminitis - Canker - Thrush - Coronitis - Evulsion of hoof - section of suspensory ligaments and flexor tendons - Rupture of suspensory ligaments (Broken down) Hamstringing - Tendinitis (sprain of flexor tendons and suspensory ligaments) - Sessamoiditis - Knuckling Shivering - String halt - Gonitis - Curb Spavin.

Foul in the foot in the cattle - Foot rot in sheep - Inflammation of the biflex canal in sheep - Inter-digital cyst in dogs - Fracture of penis in dogs - Bumble-foot in birds.

Surgical conditions of burasae - Poll evil - Fistulous withers - Bursitis intertubercularis - Capped knee - Capped elbow - Capped hock - surgical conditions of the synovial sheaths - Open wounds - Purulent synovitis - Acute synovitis - Infectious synovitis - Chronic synovitis - Wind galls - Thoroughpin.

Intervertebral disc protrusions - Fracture of vertebral column in horses ('broken back').

Bursatee - Kumri - Thrombosis of posterior aorta (iliac thrombosis.)

Identity certificate - Health certificate.

Sg. 404. SURGERY-IV Credit: 0+1
Trimester: III
Pre-requisite
Anat. 107,
Sg. 401

Practical: Operative Surgery: Practice of common surgical operations in cattle, dog, and fowl with comparative study of the horse.

(16) COURSES IN VETERINARY MEDICINE

VM. 301

THERAPEUTICS - I

Credits: 3

Trimester I

Pre-requisite

Anat 107,

APM. 101

Case taking - symptomatology - diagnosis and prognosis.
Principle and methods of Physical and Clinical diagnosis.

Examination of patient - Respiration, pulse and temperature.
General systemic states.

Special diagnostic procedures.

General and specific therapeutic measures - nursing, care
and management of sick animals.

Practical: Handling of clinical cases and case recording -
- Technique of diagnosis. Physical and clinical methods of diag-
nosis. Practice of administration of therapeutic measures adop-
ted in the treatment of animals - Maintenance of clinical records.

VM. 401

THERAPEUTICS - II

Credits: 2 + 1

Trimester: I

Pre-requisite:

VM. 301

Diseases of digestive system, respiratory system, circula-
tory system, nervous and urinary system.

Practical: General clinical laboratory procedures - General
equipments. Collection and despatch of specimens to clinical
laboratory - staining methods - Examination of urine, faeces,
skin scrapings, blood, milk and toxicological materials - Main-
tenance of clinical records.

VM. 402.

PREVENTIVE MEDICINE - I

Credits: 1 + 0

Trimester: I

Pre-requisite:

Para. 301

General - types of diseases, specific, spodic, infectious,
contagious, epizootic, panzootic - septicaemia, bacteraemia,
pyaemia, toxemia.

Modes of spread and general principles of epizootology.

Importance of intermediate hosts, vectors, carriers and reservoir hosts in relation to animal disease and their control.

General principles of immunity, prevention, control and prophylaxis.

VM. 403	PREVENTIVE MEDICINE II	Credits: 1 + 1 Trimester: I Pre-requisite Para. 302, 303, 304
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Parasitic diseases - fascioliasis, amphistomiasis, schistosomiasis, taeniasis, ascariasis, ascaridiasis, oesophagostomiasis, haemonchosis, syngamosis, ancylostomiasis, verminous pneumonia, spirocercosis, myiasis, infestations with lice, flea and ticks, mange.

Trichomoniasis, surra, coccidiosis, babesiosis, theileriasis, and anaplasmosis.

Practical: Identification of parasites, causing infectious diseases and diagnosis relating to parasitic diseases - Collection and preservation and staining of parasites.

VM. 404.	VETERINARY PUBLIC HEALTH	Credits: 2 + 1 Trimester: II Pre-requisites Mb. 203 & 204, Par. 304 VM. 403
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General - control of animal diseases in relation to public health.

Zoonotic diseases: Definitions and reporting of Zoonotic diseases - Etiology, Epidemiology, Diagnosis, prevention and control of the following zoonotic diseases:

Salmonellosis - T. B. of animal origin - Anthrax - Brucellosis
Melioidosis - Disteriosis - Psittacosis and Ornithosis - Rabies
and Hydrophobia - Arthropod-born encephalitis - Animal influ-
enza in relation to human infection - Orphan virus infections -
Pox - Q-Fever - Dermatomycosis and systemic mycotic disea-
ses of Zoonotic importance - Larval tapeworm in relation to
human infection - Diphylo bothrium infection - Dracontiasis -
Trichinellosis - Cutaneous and visceral larva migrans - Amoebi-
sis - Leishmaniasis - Toxoplasmosis - Leptospirosis.

Water - examination of water.

Disposal of sewage.

Practical: Laboratory diagnosis of important zoonotic disea-
ses.

Investigation into the prevalence of zoonotic diseases in the
area. Examination of water.

VM. 405 PREVENTIVE MEDICINE - III Credits: 1+0
Trimester: II
Pre-requisite:
Mb. 201

Mycotic diseases - actinomycosis, actinobacill, aspergillo-
sis, ringworm, favus, rhinosporidiosis, epizootic lymphangitis.

VM 406 PREVENTIVE MEDICINE - IV Credits: 1+1
Trimester: III
Pre-requisite:
Mb. 202

Bacterial diseases - anthrax, pasteurellosis, black quarter,
enterotoxaemia, tetanus, mastitis, neonatal diseases of calves,
avian salmonellosis, brucellosis, vibriosis, tuberculosis, johnes
disease, glanders, swine erysipelas.

Practical: demonstrations of the use of vaccines, sera and
other diagnostic agents. Clinical and histopathological diagnosis
of bacterial diseases.

