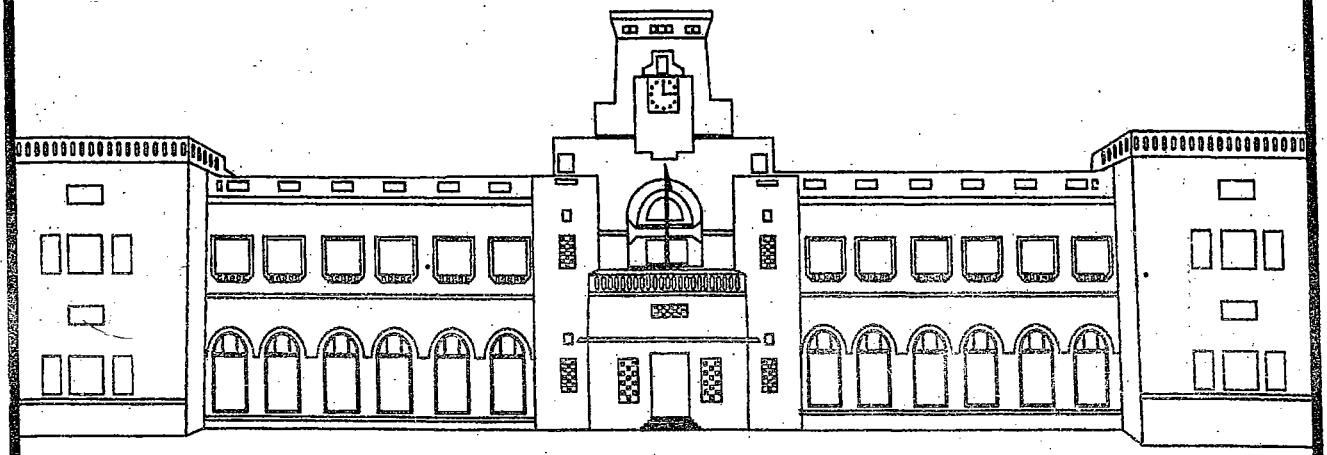
DUVASU

Student's

Hand Book



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College of Veterinary Science & Animal Husbandry

Uttar Pradesh Pandit Deen Dayal Upadhyaya Pasuchikitsa Vigyan Vishwavidyalya
Evam Gau-Anusandhan Sansthan (DUVASU), Mathura

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Message

I am extremely happy to learn that the University is going to publish the Student's Hand-Book" for the student's of B.V.Sc. & A.H. with few amendments. The hand book is prepared to provide general information regarding university and dress code, academic regulations, tour & hostel rules along with the detail syllabus of B.V.Sc. & A.H. programme as per directives of VCI (Veterinary Council of India,New Delhi.

The overwhelming efforts of Dr. M.M.Farooqui and his team mates are laudable.I am confident, that the contributions in this directions would be of immense utility to the student's community.

I congratulate and compliment the whole team for untiring efforts for the publication of Student's Hand-Book.

(A. P. Singh)

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INDEX

Chapter No.	PARTICULARS	PAGE NO.
	Introduction	I-IV
I.	Academic Regulations for the Award of B.V.Sc. & A.H. Degree	1-33
II.	Syllabus and Courses	34-85
III.	Hostel Rules & Regulations	86-97
IV.	Tour Rules, Do's & Don'ts and Medals & Awards	98-103

INTRODUCTION

KNOW ABOUT MATHURA

Mathura is the birth place of Lord Krishna. It is the nucleus of Brij-Bhoomi situated on Delhi and Agra road located at a distance of 145 km South east of Delhi and 58 km. North west of Agra. The land of Brij starts from Kotban near Hodal about 95 km from Delhi and ends at Runakuta which is known especially for its association with the poet Surdas, an ardent Krishna devotee.

Vrindavan, 15 km from Mathura, is another important place of Hindu pilgrimage and famous for its both, old and modern, temples. The name Vrindavan evokes the playfulness and lovable characteristics of Shri Krishna.

KNOW ABOUT THE UNIVERSITY :

Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidhyalaya Evam Go Anusandhan Sanstnan, Mathura came into existence on Oct. 25, 2001, by an act of Govt. of Uttar Pradesh (Act No.27 of 2001).

The erstwhile U.P. College of Veterinary Science and Animal Husbandry was established in Mathura by Govt. of U.P. in 1947. It was the first Veterinary College in Asia to confer the degree in Veterinary Science. Ever since the establishment of this college, it has contributed significantly not only in terms of number of graduates and post graduates of high scholastic order but also quality research of national and international standards. This college has a glorious past and distinction of having its alumni holding high positions in India and abroad as expert veterinary clinicians, academicians, researchers, policy makers, consultants and administrators.

In the year 1975, this college became a constituent college of the newly established C, S. Azad University of Agriculture and Technology, Kanpur. However, keeping in view the requirement of trained and competent manpower in the field of Veterinary Science, Animal Husbandry, Fisheries and other allied disciplines and also to give a fillip to research on different aspects of animal production, Govt. of Uttar Pradesh decided to establish a separate veterinary university. thus Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan vishwavidhyalaya Evam Go Anusandhan Sansthan, Mathura, the fourth Veterinary University in the country came in existance on Oct. 25, 2001. Main campus of the Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan vishwavidhyalaya Evam Go Anusandhan Sansthan, Mathura is spread over a land area of 762.32 acres in Mathura city and about 1400 acres at Madhuri Kund, about 20 km. from the main campus.

OBJECTIVES AND MANDATE OF THE UNIVERSITY :

(i) To impart quality education in Veterinary and Allied Sciences.
(ii) To undertake need-based and basic research in different areas of animal health and production; and
(iii) To provide extension services for disseminating the latest scientific knowledge to the door steps of farmers and livestock owners.

In addition to the college of veterinary science and animal husbandry, the university will be comprises the following colleges in near future in phased manner -

(a) College of Fisheries
(b) College of Biotechnology
(c) College of Livestock Products Technology
(d) College of Animal Industry and Business Management

Among there, the College of Biotechnology has been started from 2010 with PG programme.

Establishment of these Colleges will provide better opportunities to the students of the State of U.P. and other States to seek other professional degrees and also vocational training in different fields of veterinary sciences, animal husbandry, fisheries and animal products technology and animal business management for further enhancing of their career prospects. The cattle Research Institute (Go Anusandhan Sansthan) is a unique feature of this University and first of its kind in the country and provides latest facilities for research on various aspects of cattle, its products and by-products.

COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY :

It is one of the premier veterinary colleges of India and caters to the needs of trained manpower for the State of U.P. and other States by carrying out teaching, research and extension education programmes pertaining to livestock production and health.

A. TEACHING :

The College offers the following programmes of study :

(i) B.V.Sc. & A.H. (5 year degree programme) as per Veterinary Council of India standards,
(ii) M.V.Sc.
(iii) Ph.D.

College has the following well-established departments:

1. Veterinary Anatomy and Histology.
2. Veterinary Physiology
3. Veterinary Biochemistry
4. Veterinary Pharmacology & Toxicology
5. Veterinary Parasitology
6. Veterinary Microbiology
7. Veterinary Pathology
8. Veterinary Public Health
9. Animal Nutrition
10. Animal Genetics and Breeding
11. Livestock Production Management
12. Livestock Products Technology
13. Veterinary Gynaecology & Obstetrics
14. Veterinary Surgery and Radiology
15. Veterinary Clinical Medicine, Ethics and Jurisprudence
16. Veterinary Epidemiology and Preventive Medicine
17. Veterinary and Animal Husbandry Extension Education
18. Teaching Veterinary Clinical Complex
19. Poultry Science

B. RESEARCH :

Research work on certain basic and need based areas of importance in animal health and production are in progress. Certain extra-mural research projects funded by Indian Council of Agricultural Research and Uttar Pradesh Council of Agricultural Research are in progress. During the last one year, laboratory facilities in most of the departments have improved and certain Institutional funded projects are also sanctioned for taking up need-based research in areas of concern to animal health and production.

Multi disciplinary research to improve productivity of animals, disease diagnostics, biotechnological tools and food safety aspects would be the priority areas. Efforts are being made to establish the centres of excellences in various research areas with state of art equipments, facilities and staff.

C. EXTENSION :

The University is rendering extension services for the benefit of farmers and livestock owners by organizing Kisan Melas, Exhibitions, Demonstrations, Kisan Goshthies, Animal Health and Treatment Camps, Mobile Ambulatory Services etc. through Krishi Vigyan Kendra, Mathura, Department of Veterinary & Animal Husbandry Extension and other Departments of the College.

OTHER FACILITIES :

The University has a well-established university library with books on various subjects of veterinary and animal sciences, reference section and wide range of scientific periodicals and journals. A computer cell with several computers having an internet facility is available for students and researchers. The photocopying facility is available with the central library. Apart from the central library, the departmental libraries are also well equipped with subject related books. Besides this the dean students welfare (DSW) looks after the different facilities required for students like hostels, mess, sports and other extracurricular activities, arrangement of educational tours, N.C.C., N.S.S. and cooperative facilities. Students Welfare Division also takes care of disbursing of various scholarships.

KNOW ABOUT YOUR DEGREE :

B.V.Sc. & A.H. means Bachelor of Veterinary Sciences and Animal Husbandry. Duration of this course is five complete academic years including a compulsory internship of six months duration undertaken after successful completion of all the credit hours provided in the syllabus as per the VCI regulations. During the course of study, there shall be practical training in teaching Veterinary hospitals, live stock and poultry farms as well as field training in veterinary institutions in the state of U.P.

CREDIT HOURS :

Credit hours pertain to the weekly unit of work recognized for any particular course as per the course catalogue is issued by the University. A lecture class of one hour duration per week shall be counted as one credit where as practical class of 2 hours duration or working period of 4 hours in clinical veterinary teaching hospital/institution & farms per week shall be counted as one credit hour.

SEMESTER :

Each academic year consist of two semesters. Semester means a period consisting of a minimum of 100 instructional days, excluding examination days. In each semester different courses will be taught by the teachers of respective departments. BVSc & AH degree programme is of five years and consists of following subjects :

Veterinary Anatomy & Histology, Vety. Physiology, Vety. Biochemistry, Vety, Pharmacology & Toxicology, Vety. Parasitology, Vety. Microbiology, Vety. Pathology, Vety. Public Health, Animal Nutrition, Animal breeding & Genetics including Biostatics, Livestock Production Management, Livestock Product Technology, Animal Reproduction, Gynecology & Obstetrics, Vety. Surgery & Radiology, Veterinary Clinical Medicine including Ethics & Jurisprudence, Vety. Epidemiology & Preventive Medicine and Veterinary & Animal Husbandry Extension.

Each subject is divided into courses. Each subject has been given a course no. eg. Veterinary Anatomy - VAN; each course has been given a fixed number. Gross Anatomy (Osteology, Arthrology & Biomechanics - VAN 111).

The first number denotes, academic year, second denotes semester of that particular academic year & third denotes the course number of that particular subject.

EXAMINATION PATTERN :

At the end of first semester of the academic year, the semester end examination will be conducted which will be of two hours duration and after the completion of the second semester of the same year, second semester exam will be conducted. After the second semester examination, a composite annual board examination of that year for three hours duration will be conducted. Each Examination paper will comprise of 60% objective and 40% subjective questions. For passing any course, 50% marks in the examination is compulsory. **If student fails thrice in any year including 1st year, he/she will be dropped from the University and readmission is not permissible under any circumstances.**

DRESS CODE :

Boys : Navy blue trousers, white full sleeve shirt, blue tie and black shoes with white socks.
Girls : White salwar suit, black belly, white socks and blue ribbon.
Full sleeves white laboratory apron upto knee joint length is compulsory to wear during practical classes.
Night Dress : White Kurta and Pyjama
The above dress code is compulsory especially during the University/National functions.

Students should bring the following items at the time of joining course/hostel :

1. Minimum two well stitched dresses as per his/her own requirement.
2. One night dress, under garments as per the requirement
3. Shoes, sleeper - one pair each.
4. Uniform as per the dress code.
5. Bedding for summer and winter season : pillow, bed cover, blanket/quilt, mattress etc.
6. Shaving kit.
7. Towel, soap with soap case, tooth paste, tooth brush, one bucket, one mug, lock with two keys, bulb, torch, candle, anti mosquito device, match box, table lamp etc.
8. Stationary : registers, pen pencil, scale, sketch pen, eraser, calculator etc..

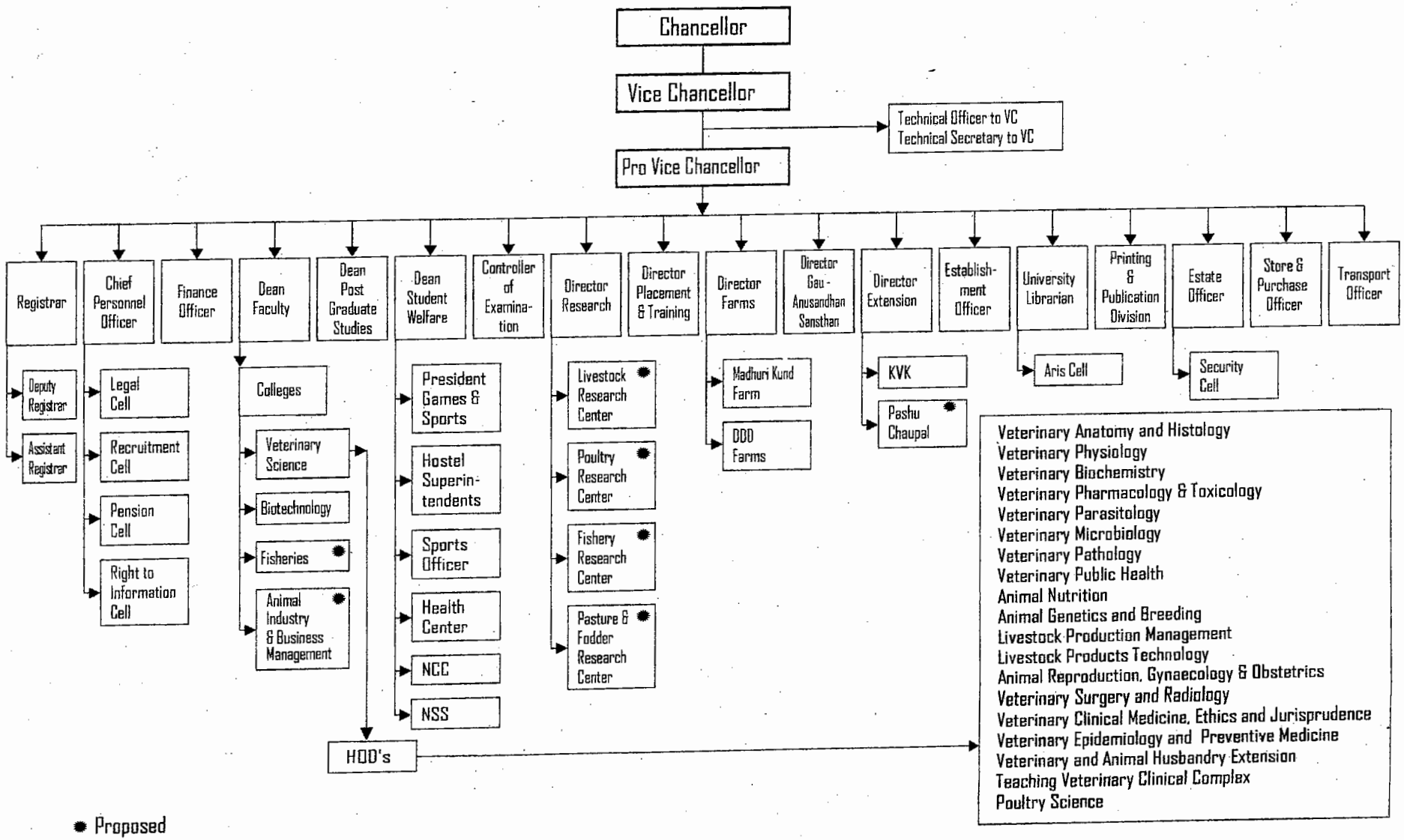
IMPORTANT INSTRUCTIONS

1. Attendance in the class is mandatory. 75% Attendance is compulsory in theory and Practical classes both.
2. If a student/group of students/class remain absent from a scheduled lacture, there will be no concession or mercy for shortage of attendance on any ground including medical grounds.
3. Ragging of junior students is completely prohibited by law. Any student found indulging/ appear to be involved will suffer the punishment under ragging law and hostel rule violation with out providing any opportunity.
4. Summary punishment will be avoided with confirmation to rules and law. Punishment under ragging do not required any procedural inquiry.
5. Damage to the University/Hostel property will be an offence and an offender will be punished as per the hostel rules.
6. Student should observe campus discipline.
7. Any report against than for campus any discipline will come under the purview of violation of university rules.
8. Boycotting of National / University/College functions is punishable as per University rules.

* * * * * * * * * * *

Organizational Structure

Uttar Pradesh Pandit Deen Dayal Upadhyaya Pasuchikitsa Vigyan Vishwavidyalya Evam Gau-Anusandhan Sansthan, Mathura



CHAPTER - I

ACADEMIC REGULATIONS

FOR THE AWARD OF B.V.Sc. & A.H. Degree

ACADEMIC REGULATIONS FOR THE AWARD OF B.V.Sc. & A.H. DEGREE

COLLEGE OF VETERINARY SCIENCE & ANIMAL HUSBANDRY
MATHURA-281 001 [UTTAR PRADESH]

The Academic Regulations for the award of the degree of Bachelor of Veterinary Sciences & Animal Husbandry (B.V.Sc. & A.H.) are primarily based on VETERINARY COUNCIL OF INDIA (MINIMUM STANDARDS OF VETERINARY; EDUCATION DEGREE COURSE - B.V.Sc, & A. H.) REGULATIONS, 2008 [PUBLISHED IN EXTRAORDINARY GAZETTE OF INDIA PART III - SECTION 4].

VETERINARY COUNCIL OF INDIA NOTIFICATION, New Delhi, dated 06.08.2008

F.No. 12-5/2002-VCI.: In exercise of the powers conferred by sub-section (1) of section 22 read with clause (b) of subsection (1) of Section 21 of the Indian Veterinary Council Act, 1984, (52 of 1984) the Veterinary Council of India with the previous approval of the Central Government hereby makes the following regulations in super session of the notification vide G.S.R. 69(E) Dated 07-02-1994.

PART - I

PRELIMINARY

1- Short Title and Commencement :

The Regulations 2008 of the Veterinary Council of India (Minimum Standards of Veterinary Education) - Degree course (B.V.Sc. & A.H.). may be called the Academic Regulations 2009 of Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura and shall come into force from the date of their approval by the Academic Council of the University.

2- Definitions :

In these regulations, unless the context otherwise requires, -

(a) "Act" means the Indian Veterinary Council Act, 1984 (52 of 1984);
(b) "Course" means a teaching unit of a subject to be covered within a semester as prescribed in the syllabus;
(c) "Paper" means course(s) with a same subject code combined for the purpose of Annual Examination in a particular academic year.
(d) "Credit hours" means the weekly unit of work recognized for any particular course as per the course catalogue issued by the University. A lecture class of one hour per week shall be counted as one credit whereas a practical class of two hours duration or a working period of three hours in the Teaching Veterinary Clinical Complex or Institution or Farm per week shall count as one credit;
(e) "Degree course" means the course of study in Veterinary Science, namely Bachelor of Veterinary Sciences and Animal Husbandry (B.V.Sc. & A.H.);
(f) "First Schedule" and "Second Schedule" mean the First Schedule and Second Schedule respectively appended to the Act;
(g) "Guidelines" means the guidelines/instructions issued by the Veterinary Council of India from time to time for uniform implementation of these Regulations;

(h) "Inspector" means the Veterinary Inspector appointed under sub-section (1) of section 19 of the Act;
(i) "President" means the President of the Veterinary Council of India;
(j) "Qualifying examination" means Higher Secondary (10+2) examination or equivalent conducted by a State Board of Education or Central Board of Education.
(k) "Semester" means a period consisting of minimum one hundred instructional days, excluding Annual examination days;
(l) "Secretary" means the Secretary of the Veterinary Council of India appointed under section 11 of the Act;
(m) "Syllabus" and "curriculum" mean the syllabus and curriculum for courses of study as specified by the Veterinary Council of India;
(n) "Teaching experience" means experience of teaching in the subject concerned in a Veterinary College, or Animal Science or Allied subjects Institution, or Veterinary Hospital, or Institution recognized by the Veterinary Council of India;
(o) "Veterinary College" means an institution imparting veterinary education for the award of B.V.Sc.& A.H. degree having the required number of departments/units, infrastructure, man-power and other facilities as laid down in these Regulations under the overall administrative control of the Dean/Principal;
(p) "Veterinary Hospital or Institution" means teaching and non-teaching Veterinary Hospital or Institution relevant to livestock health, production or technology by whatever name called;
(q) "Visitor" means a Visitor appointed under sub-section (1) of section 20 of the Act.

PART - II

COURSE OF STUDY

3. Description :

A degree course of B.V.Sc. & A.H. shall comprise of a course of study consisting of curriculum and syllabus provided in regulations Part V (9) of these regulations spread over five complete academic years including a compulsory internship of six months duration undertaken after successful completion of all credit hours provided in the syllabus.

During the course of study there shall be training in a teaching Veterinary hospital, livestock and poultry farms and field training in Veterinary Institution as part of the course.

4. Duration of Semester or academic year :

(a) First semester in the respective academic year of B.V.Sc. & A.H. classes should commence preferably in July or August every year but not later than 31st October.
(b) The annual examination should be conducted prior to annual vacation for the year.
(c) It is essential that each academic year shall consist of **atleast 200 days** of instruction excluding time spent for examinations.

5. Procedure to be adopted for imparting training in the veterinary hospitals or institutions or farms and internship with suitable adjustments at-

(1) Teaching Veterinary Clinical Complex (TVCC) -

(a) The Teaching Veterinary Clinical Complex shall be a separate unit in every veterinary college under the independent charge of a Faculty Member of the rank of a Professor with specialization in any of the clinical subjects.

(b) Teaching Veterinary Clinical Complex shall be recognized only if it has an average minimum of 500 outdoor cases and 10 indoor cases in a month.

(c) In case the Teaching Veterinary Clinical Complex does not have requisite number of out patient and in-patient cases as prescribed in (b), the city veterinary hospitals of State Government/ nearest veterinary hospitals should be used and developed providing all the infrastructure prescribed for a teaching veterinary clinical complex. The attached teaching veterinary hospitals should have properly built in-door wards, client accommodation, emergency service and the necessary facilities to conduct and demonstrate/ train all medical, surgical and gynaecological cases and separate "in Health" care facilities like artificial insemination, pregnancy diagnosis, health verification tests, prophylaxis etc.

(d) Being a round the clock service there shall be residential accommodation for clinical and hospital staff and suitable accommodation for students on emergency/night duties and cafeteria/canteen for staff, students and clients.

(e) All the concerned staff on duty in the teaching veterinary hospital shall be responsible for the treatments and allied public services and would invariably attend the clinics including emergencies/ night duties and on Sundays/ holidays. The staff as well as students should be properly attired and equipped for the performance of clinical duties.

(f) The teaching institutions shall maximally utilize the animal/patient information observing all the time the principles of animal welfare and ethics, and arrange:

i) The teaching material in the form of clinical cases in sufficient number, variety and species.
ii) Subsidized treatment to encourage larger attendance in teaching veterinary hospitals.
iii) Procure or provide free maintenance to, cases of academic interest or typical cases of teaching value so that students can benefit from them.
iv) In the case of death/ euthanasia detailed necropsy be demonstrated and specimens preserved.

(2) Instructional Livestock Farm Complex (ILFC) -

The Instructional Livestock Farm Complex shall be a separate unit in every veterinary college under the independent charge of a Faculty Member of the rank of a Professor with specialization in any of the production subjects. The farm complex shall be for teaching in rearing of livestock species including poultry with the following facilities :

i) housing, feeding, breeding and management of large and small ruminant units, piggery, poultry and animals of regional interest
ii) record keeping
iii) storage facilities for feed and fodder
iv) production facilities for fodder crops
v) suitable housing for managerial and technical staff

Being a round the clock service there shall be residential accommodation and suitable accommodation for staff and students on duties.

All the concerned staff on duty in the Instructional Livestock Farm Complex shall be responsible for management including emergencies of the animals in the livestock Farm. They shall arrange and supervise the routine managemental practices from time to time and shall maintain records for the same. They shall also be responsible for production activity in each of the units.

PART - III

ADMISSION TO THE B.V.Sc. & A.H. DEGREE COURSE

6. A candidate shall not be admitted to B.V.Sc. & A.H. degree course unless :-

(a) He / she has completed the age of 17 years on or before 31st December of the year of his/ her admission to the 1st B.V.Sc.&A.H. course. Maximum age limit will be 25 years relaxable by 5 years for SC/ST/OBC candidates.

(b) He/ she has passed the qualifying examination as defined under these Regulations with the subjects of Physics, Chemistry, Biology and English as core course and obtained marks as specified under Regulations Part III (7) or an examination equivalent to intermediate Science examination of an Indian University/Board recognized by the Association of Indian Universities taking Physics, Chemistry and Biology including a practical test in each of these subjects and English.

(c) He / She has passed :

(i) the Higher Secondary Examination or the Indian School Certificate Examination equivalent to 10+2 Higher Secondary Examination (after a period of 12 years of study) the last two years of study with Physics, Chemistry, Biology and any other elective subject with English at a level not less than the core course for English as prescribed *by* the National Council for Education Research and Training after the introduction of the 10+2+3 (years) educational structure as recommended by the National Committee on education.

NOTE : Where the Course is not as prescribed for 10+2 education structure of the National Committee, the candidates will have to undergo a period of one year pre-professional training before seeking admission to the Veterinary College / Institution.

OR

(ii) the Intermediate/Pre degree examination in science from a recognized University/Board with Physics, Chemistry and Biology which shall include a practical test in these subjects.

OR

(iii) the pre-professional/pre-medical examination with Physics, Chemistry and Biology, after passing either the higher secondary school examination, or the pre-university or an equivalent examination. The pre-professional examination shall include a practical test in these subjects.

OR

(iv) B.Sc. examination from a recognized University provided that he/she has passed the B.Sc. examination with not less than two of the following subjects: Physics, Chemistry and Biology (Botany/Zoology) and further he / she has passed the earlier qualifying examination with the following subjects viz. Physics, Chemistry, Biology and English,

OR

(v) any other examination which in scope and standard is found to be equivalent to the intermediate science examination of an Indian University/Board recognized by the Association of the Indian Universities, taking Physics, Chemistry and Biology including a practical test in each of these subjects and English.

NOTE : The pre-professional course may be conducted either at Veterinary College or a Science College. However, after the 10+2 course is introduced the integrated courses should be abolished.

SELECTION OF STUDENTS

(1) The selection of students for admission to B.V.Sc. & A.H. Degree Course shall only be on the basis of merit through a competitive entrance examination to achieve a uniform evaluation, as there may be variation among students at qualifying examinations conducted by different agencies.

NOTE : To be eligible for competitive entrance examination, candidate must have passed any of the qualifying examinations as enumerated under the head, "Admission to B.V.Sc. & A.H. Degree Course" at Part III (6) above.

(2) A candidate under General Category for admission to the B.V.Sc. & A.H. degree course must have **passed in each of the subjects of English, Physics, Chemistry and Biology, and obtained 50% marks in aggregate of these subjects, at the qualifying examination.** Admission of students to B.V.Sc.& A.H. degree course shall be made only on the basis of his/her merit in the competitive entrance examination. No other merit/weightage shall be considered for admission to B.V.Sc. & A.H. degree course.

(3) In respect of candidates belonging to the Scheduled Castes/ the Scheduled Tribes or other special category of students as specified by the Government from time to time, marks required for admission shall be 10% less than that prescribed for general category. Where the seats reserved for the Scheduled Caste and the Scheduled Tribes students in any State cannot be filled for want of requisite number of candidates fulfilling the minimum requirement prescribed from that State, then such vacancies shall be filled up on all India basis with students belonging to the Scheduled Castes and Scheduled Tribes getting not less than the minimum prescribed pass percentage.

(4) The students educated abroad seeking admission into veterinary colleges in India, must have passed the subjects of Physics, Chemistry, Biology and English upto the 12th Standard level with 50% marks in the individual subjects.

(5) Sponsored candidates shall have to qualify the admission procedures as laid down for the students under General category.

(6) Admission of candidates to B.V.Sc. & A.H. degree course under bilateral exchange programme shall be regulated by Veterinary Council of India.

(7) 15% of the total number of seats of each veterinary college shall be reserved to be filled on an All India basis through Common Entrance Examination (All India Pre-Veterinary Test) to be conducted by the Veterinary Council of India.

(8) The candidates selected through this examination shall be admitted in various veterinary colleges as per the eligibility criteria prescribed in these regulations only and the last date for reporting of these candidates to the allotted University/Veterinary Institution shall be 31st August of that year irrespective of the closing date of admission of that University/Veterinary Institution for that year, if earlier.

(9) A candidate shall not be allowed admission to B.V.Sc. & A.H. degree course including those admitted under 15% reserved quota of Veterinary Council of India if he/she suffers disabilities in physical fitness as listed below:

a) disability of total body including disability of chest/spine more than 50%,
b) disability of lower limb of more than 50%,
c) disability of upper limb,
d) visually handicapped candidates and those with hearing disability,

f) candidates with progressive diseases like myopathies etc.
g) disabilities which otherwise would interfere in the performance of the duties of a veterinarian.

(10) The disability should be certified by a duly constituted and authorised Medical Board comprising of atleast three specialists out of which two should be of the specialty concerned and the candidate has to present him/her- self before the Medical Board. The last valid disability certificate of the candidate from a Medical Board should not be more than three months old from the date of submitting his/her certificate for disabled candidates.

(11) NRI sponsored candidates shall have to appear in the PVT examination, However, children of NRIs living abroad will not be required to appear in the entrance examination.

TIME OF ADMISSION

Admission to B.V.Sc. & A.H. degree programme shall be made at the commencement of the first semester of each academic year, unless otherwise changed by the Academic Council.

RESERVATION OF SEATS FOR ADMISSION

The reservation policy of the Govt. of U. P. will be followed.

PART - IV

7. ENROLLMENT, REGISTRATION AND CONTINUANCE

1. ADVISEMENT :

(a) Students freshly admitted to B.V.Sc. & A.H. as well as the continuing students shall present themselves in the beginning of each semester on dates notified by the Registrar for advisement and shall be assigned in groups to staff, Advisors/ Course Instructor(s) by the Dean concerned,

(b) The advisor shall help the under-graduate students in planning the programme of their studies. Each advisor shall maintain a close contact with his/ her students and keep him/ her informed of their progress. Problem cases needing special measures shall be brought to the notice of the Dean concerned by the Advisor.

2. REGISTRATION :

Following advisement as prescribed above, registration and enrollment of candidates selected for admission and registration of the continuing students shall be completed on scheduled dates(s) notified earlier by Registrar for each semester.

3. MODE OF REGISTRATION :

Registration shall consist of the following steps ;

(a) At the beginning of each academic semester, a student shall register as per approved academic calendar on prescribed date.

(b) After getting their registration cards signed from the concerned Instructor(s), the students shall deposit the university fees and other dues.

(c) After depositing the fee, the student shall deposit the duly filled in and signed registration cards in the office of the Registrar and Dean.

(d) The Dean may refuse/cancel registration of a student who has indulged in acts of indiscipline or gross misconduct. The Registrar may cancel registration, if allowed by mistake, with the consent of the Dean.

NOTE : No registration will be allowed in absentia except under unavoidable circumstances. Applications of such students with the recommendation of the Advisor and the Dean should be submitted for kind permission of the Vice Chancellor.

4. REGISTRATION OF FRESH STUDENTS :

Registration for the first semester of the year for B.V.Sc &AH of a degree programme is a part of admission procedure and shall be governed by the admission rules. Admission of new students failing to register in the prescribed manner on the assigned date is liable to be cancelled and the seats so fallen vacant shall be offered to the next candidates in the waiting list.

5. REGISTRATION OF CONTINUING STUDENTS :

Registration of the continuing students in the subsequent semester(s) shall be held in a similar way on the date and time notified by the Registrar.

6. FEE DEPOSITION :

The continuing registration will be registered after their fee deposition as allowed by the dean.

7. LATE REGISTRATION :

a) If a student fails to register on the scheduled date notified for the purpose, registration may be allowed by the Dean with late fee of Rs. 50/- per day up to next seven working days. Late fee is not to be exempted under any circumstances. No registration shall be permissible after 7 days of the commencement of classes on any ground, whatsoever may be the reason.
b) No attendance benefit for the late registration shall be allowed. Late registration shall be at the risk and responsibility of the student to maintain the required attendance.

8. SUSPENSION OF REGISTRATION :

The registration of a student may be suspended by the Vice Chancellor on the recommendation of the Dean of the College or Dean of Student's Welfare on the recommendation of the Disciplinary Committee. A student whose registration has been suspended as above will have to vacate the hostel and leave the campus if such a measure is deemed necessary by the University authorities in the interest of academic discipline and peace of the campus.

9. CANCELLATION OF REGISTRATION :

The Vice Chancellor may cancel the registration of any student or group/ batch/ classes of students who indulge in acts of indiscipline, misconduct, violation of the rules and regulations of the University, strikes, absents from class(es) without permission or without any valid reason or in those cases the Vice Chancellor has reasons to believe that their continuance in the University would not be in the best interest of the University.

10. AWARD OF DEGREE AND THE RESIDENTIAL REQUIREMENTS :

For the award of B.V.Sc. & A. H. degree, the minimum residential requirement and the maximum permissible time limit shall be as under:

RESIDENTIAL REQUIREMENT (SEMESTER)

	Minimum	Maximum
B.V.Sc. & A.H. (including 6 months internship)	10	16

The semester washed out on account of withdrawal, dropping by the student of his own, failure to register in time, medical grounds, use of unfair means or dropped for any reason whatsoever described above, shall be counted towards the maximum permissible time limit of 16 Semesters.

11. RE-ADMISSION OF THE STUDENT :

A student, whose semester has been washed out for reasons stated above, shall be eligible to resume his/her studies in the subsequent academic year in the semester in which withdrawal was made and he/ she shall be treated as a continuing student for the purpose of fee payable, provided :

(1) He/she has completed a minimum residential requirement of one semester;.
(2) The total period of withdrawal shall not exceed 4 semesters including the semester in which he/she had withdrawn.

12. ALLOTMENT OF COURSES DURING THE SEMESTER :

Head of the Department shall convene a meeting of all the faculty members of the department for allotment of the courses before the commencement of Semester. Details about the courses along with the names of instructors/teachers being offered during that semester will be communicate to the Dean before the date of registration.

MANUAL OF PRACTICALS :

The teachers while preparing standard manuals for practical, shall take into account the following:

(1) A record(s) / log book maintained by each student as practical records.

(2) Observations and recording of the skill with which each student executes the practical / identifying the specimen at the practical etc. be noted.

(3) Assessment of the comprehensive skill and knowledge of each student through an oral examination (viva-voce) be conducted and recorded.

(4) At least 10 percent marks may be awarded to day-to-day records including record of case sheets etc. Marks allotted for the terminal examinations and day-to-day assessment should be carried to the marks allotted at university examinations, but recorded separately.

(5) The records of such examination shall be made available to the VCI, as and when required and the records of assessment may be retained till six months after the student finishes his / her course of training.

(6) All examinations shall be held on such dates, time and places as the university may determine.

All examinations must be completed so that the results are announced before the on set of the ensuing semester.

(7) Work distribution chart of each teacher should be available with Dean's office for inspection of the council. In each subject Professors and senior teachers must be actively involved in teaching, especially in conducting practical for degree course. The principle behind each practical, the objective of each practicals level of competence expected from the students etc. should be clearly explained to them by Professors/senior teachers.

(8) There will be no supplementary (make up) examinations during the academic session. However, a candidate may be allowed promotion to the next class provided he / she has **failed only in two subjects**. He/she cannot be promoted to next B.V.Sc. & A.H. class unless he / she has cleared the subject in the ensuing session.

PART - V

VETERINARY CURRICULUM
STRUCTURING AND ORGANIZATION OF COURSE CURRICULUM

8 (1) VETERINARY CURRICULUM :

(a) The veterinary curriculum is comprised of six components of study:

(i) Core Courses,
(ii) Tracking Programmes,
(iii) Study Circles,
(iv) Entrepreneurial Training,
(v) Internship, and
(vi) Competence in skills.

(b) The curriculum is meant to provide adequate emphasis on cultivating logical and scientific habits of thought, clarity of expression, independence of judgment, ability to collect information and to correlate them and develop habits of self education.

(c) A judicious balance has been ensured in distribution of course credits in theory and practical and sequence among basic, production, preclinical and clinical subjects including public health and livestock products technology.

(d) The educational process may be placed in a historic background as an evolving process and not merely as an acquisition of large number of disjointed facts without a proper perspective.

(e) Medium of instruction for B.V.Sc. & A.H. degree course shall be English.

(f) Clinical practice shall be organized in small groups of 5-10 students so that each teacher can give personal attention to each student with a view to improve his/her skill and competence in handling of the patients.

(g) Efforts be made to encourage students to participate in group discussions and seminars to enable them to develop personality, character expression and other faculties which are necessary for a veterinary graduate to function either in solo practice or as a team member when he/she begins his/her independent professional career. An appropriate time slot for this activity be provided in the student study time table.

(h) Practical training be imparted to produce a well balanced and all-rounder graduate. Continuing self-education among students for further development in different aspects of veterinary and animal science/technology be encouraged. Tutorials be organized for this activity.

(2) SUBJECTS TO COVERED IN THE B.V.Sc. & A.H. DEGREE COURSE :

1. Veterinary Anatomy
2. Veterinary Physiology and Biochemistry
3. Veterinary Pharmacology and Toxicology
4. Veterinary Parasitology
5. Veterinary Microbiology
6. Veterinary Pathology
7. Veterinary Public Health and Epidemiology
8. Animal Nutrition
9. Animal Genetics and Breeding

10. Livestock Production Management
11. Livestock Products Technology
12. Veterinary Gynaecology and Obstetrics
13. Veterinary Surgery and Radiology
14. Veterinary Medicine
15. Veterinary and Animal Husbandry Extension Education

(3) MIGRATION OR TRANSFER OF STUDENT FROM ONE RECOGNISED VETERINARY COLLEGE OR INSTITUTION TO ANOTHER :

(1) A student studying in a recognized veterinary college may be allowed to migrate/be transferred to another recognized veterinary college under another/same university.

(2) The migration/transfer may be allowed by the university concerned after passing 1st year of B.V.Sc. & A.H. degree course within one month of the start of academic session of 2nd year of the receiving college/university.

(3) Migration/ transfer of a student shall not be allowed during the middle of an academic year.

(4) The number of students migrating/ transferring from one veterinary college to another veterinary college during the period of one academic year will be kept to the maximum limit of 5% of the intake capacity of each of the veterinary colleges in one year.

(5) Cases not covered under such regulations, (1) to (4) may be referred to the Veterinary Council of India for consideration on merits.

(6) An intimation about the admission of migrated/ transferred students into any veterinary college should be sent to the Veterinary Council of India by the respective college/ university.

(4) DROPPING FROM THE UNIVERSITY :

(a) First year B.V.Sc. & A. H. student can seek dropping from the university only after completion of the first semester of that academic session and the dropping will be permissible only on genuine grounds. If a students fails to complete the first semester, he/she will not be eligible to seek re-admission in the subsequent academic session.

(b) If any first year B. V.Sc. & A. H. student fails to attain the OGPA of five out of ten at the end of any academic year, he/she will have to seek re-admission in first year B. V.Sc. & A. H. in the subsequent academic session. However, the student(s) will be dropped from the University for poor academic performance if he/ she fails to attain the OGPA of 5 out of 10 at the end of **third** consecutive academic year also including the dropping of a semester with due permission or absence from the University for any other reason including Medical grounds.

{b) If any student fails to pass all the curriculum requirements as per VCI guidelines including internship within a maximum time limit of 16 semesters, he / she will be dropped from the University without any degree and will not be eligible for any claim or continuance of studies in the University.

PART - VI

SYLLABUS

9. (1). (a) The semester-wise distribution of theory and practical courses comprising of 177 credits (core courses) for B.V.Sc. & A.H. degree course are summarized below :-

Professional Year	Semester	Theory	Practical	Total
First	I	11	7	18
	II	12	8	20
Second	III	12	9	21*
	IV	12	9	21*
Third	V	12	7	19
	VI	13	8	21
Fourth	VII	10	10	20
	VIII	10	8	18**
Fifth	IX	9	10	19
		101	76	177

* 1 credit (0+1) each for two courses on Livestock Farm Practice (non credit) included.
** 1 credit (1+0) for Veterinarian in Society (non credit) included.

(b) In addition to the Core Courses above, a student has to successfully complete the Tracking Programmes, Study Circles, Entrepreneurial Training, Internship and Core Competence in Veterinary skills as has been detailed under Part IV (8) (1) of these regulations for the award of B.V.Sc. & A.H. degree.

(c) Remount Veterinary Corps (RVC) Squadron/ National Cadet Corps (NCC)/ Equestrian/ National Service Scheme (NSS)/ Sports and games shall be non-credit training programmes one of which for a duration of minimum of two Professional Years shall be compulsory for the award of B.V.Sc. & A.H. degree. The performance of the students in these training programmes shall be assessed and graded as 'Satisfactory' or 'Unsatisfactory'. A student has to obtain 'Satisfactory' grading for successful completion of course requirements.

d) **Educational tours :** Educational tours arranged by the College / University shall be compulsory for all the students unless exempted otherwise by the Vice Chancellor under unavoidable circumstances.

NOTE : The Syllabus prescribed in sub-regulation is the minimum instructional syllabus and is illustrative of the course content for teaching different courses at the veterinary colleges in the country for B.V.Sc. & A.H. degree programme. However, there is scope for flexibility of addition of topics/courses in the programme as per need or regional/ institutional demand from time to time. Such changes should be non-violative and commensurate to the basic structure, curriculum and infrastructure prescribed in these regulations.

(2) Tracking Programmes :

These programmes have been developed to allow students to exercise more control over the specific direction of their profession and motivate them for self-learning through virtual classroom, distant learning, internet etc. A student has to compulsorily take any two programmes of two credits each (2x2 = 4 credits) any time (one semester duration each) during second year to fifth year of B.V.Sc. & A.H. Degree Course under the supervision of one faculty member as designated by the Dean/Principal of the College for that programme. Evaluation of the students for this programme shall be done internally on Grade basis (A-Excellent, B-Good, C-Average). In case of unsuccessful candidates, the programme can be carried over to the next semester/ year. List of the Tracking Programmes is given below:

i) Feline Medicine
ii) Cryobiology of Gametes
iii) Neurosciences
iv) Clinical/ Interventional Nutrition
v) Dermatology/Integuement Science
vi) Alternate Veterinary Medicine
vii) Ophthalmology
viii) Anaesthesiology
ix) Small Animal Critical Care
x) Non-Mammalian Medicine
xi) Sports Animal Medicine
xii) Drug designing
xiii) - xv) To be decided by the college/university

These will be Non-Credit courses but shall be mentioned in the Degree Transcript along with the grades obtained.

(3) Study Circles:

Each student of B.V.Sc. & A.H. degree course shall have to enroll himself/herself for atleast two Study Circle activities during the B.V.Sc. & A.H. degree course out of the proposed Study Circles as listed below :

i) Livestock and Livelihood Study Circle
ii) Production Systems Study Circle
iii) Ecosystems and Livestock Study Circle
iv) Equine Study Circle
v) Canine Study Circle
vi) Diagnostic Study Circle
vii) Alternate Animal Use Study Circle
viii) Fun/Sport Animal Study Circle
ix) Law and Veterinary Science Study Circle

The College shall designate an Advisor for each of the above Study Circle activities who shall supervise, guide, monitor and evaluate the activities of the Study Circles. Each enrolled student shall have to present a Seminar on the topics of his/her Study Circle any time during the Semester. The date and time of the Seminar shall be notified inviting participation of all students. The Study Circle shall also put up news, wall papers, drawings, exhibits of their subject in the college. The Dean of the college shall coordinate the activities with the Advisors for each of the above Study Circles. The evaluation of the student for each of the registered Study Circles shall be done by the Advisor who will grade them as A-Excellent, B-Good, C-

Average as per their performance. The same shall be recorded in the Degree Transcript along with the grades obtained. No student shall be allowed to change the Circles during the professional year.

(4) Entrepreneurial Training :

Each student of B.V.Sc. & A.H. degree course shall be required to compulsorily undertake one of the activities of Entrepreneurial Training as listed below. This training is aimed at developing entrepreneurial skill for self employment. The university/college shall provide interest free loans out of a revolving fund (not less than Rs. 3.00 lakhs in a college) to students groups (team of upto five students), technical support and infrastructure for these activities. Inputs, day-to-day work and financial accounting shall be undertaken by the students. The profits/loss, if any, shall be kept/borne by the students. However, in case of loss, the Dean of the college through the Entrepreneurship Committee consisting of four faculty members (atleast one subject matter specialist) may evaluate the reasons of such loss and provide compensation in case it is found that the loss has been inadvertent. Proposed List of 16 Entrepreneurial activities is as follows :

i) Goat Production
ii) Sheep Production
iii) Pig Production
iv) Broiler and Egg Production
v) Pet Production
vi) Dairy Production
vii) Meat Production and Processing
viii) Fish Production
ix) Feed Production-Mineral Mixture
x) Milk Products
xi) Food safety-residue Analysis
xii) Clinical Investigatory laboratory
xiii) Quality Control-Evaluation (Microbial)
xiv) Shoeing and Shoe Manufacture
xv) Production of Diagnostics
xvi) Pharmaceutical Formulations

Besides, the Colleges/Institutions may also offer the facilities for Entrepreneurial Training involving the activities of regional interest

(5) Internship :

(a) As per regulation 3 of Part II of these regulations, every student of B.V.Sc. & A.H. degree course shall be required after passing the fifth annual examination to undergo compulsory rotating internship to the satisfaction of the University for a minimum period of six calendar months so as to be eligible for the award of the degree of B.V.Sc. & A.H. and full registration with the Council.

(b) Compulsory rotating internship shall include a full time training in veterinary and animal husbandry services (including emergencies and night duties, Sundays and holidays). The intern will devote whole time to the training and will not be allowed to accept a whole time or part time appointment paid or otherwise.

(c) Internship shall be undertaken only after completion of all credit requirements of veterinary

curriculum including Tracking Programmes, Study Circles, Entrepreneurial Training and R.V.C. Squadron/N.C.C./ Equestrian/N.S.S./Sports and games as prescribed under these regulations.

(d) The university shall issue a provisional course completion certificate of having passed all the professional examinations and having successfully completed course work.

(e) The State or Union Territory Veterinary Council or Veterinary Council of India will grant provisional registration to the candidate on production of provisional B.V.Sc. & A.H. course completion certificate. The provisional registration will be for a minimum period of six months and maximum of eight months.

(f) After provisional registration with the State or Union Territory Veterinary Council or Veterinary Council of India, the candidate shall register for internship of six calendar months.

(g) Interns will be actively involved in rendering veterinary service under the supervision of an experienced teacher.

(h) They shall assist the teacher in all activities of the units they are posted in.

(i) During the period of internship they shall be provided accommodation/lodging and paid consolidated remuneration in the form of internship allowance as may be decided by the University/ Institution from time to time.

(j) Attendance will be compulsory. The candidate will be entitled for 10 days casual leave. The leave cannot be claimed as a matter of right until and unless the sanctioning authority sanctions it. If an intern willfully absents from the training programme even if for part of a day or during off hours duty (including Sundays/holidays) he/ she may be treated absent for that day. The candidate will be required to undergo training for the additional days in lieu of the absence period and internship allowance will not be paid for these additional days.

(k) The internship programme shall be monitored by a Committee constituted by the Dean under his/her chairmanship including among others the Head of TVCC and Head of ILFC as members. This Committee shall monitor effective implementation of the internship training programme from time to time.

(l) In case of unsatisfactory work/performance and/or shortage of attendance, the period of compulsory rotating internship shall be extended by not more than two months by the appropriate authority. If this period is more than two months, the intern has to re-register afresh for internship programme for entire six calendar months including registration with the State or Union Territory Veterinary Council.

(m) Internship allowance will be paid only for six calendar months. No internship allowance will be paid for the period of absence/unsatisfactory performance/extended period.

(n) The compulsory rotating internship for six calendar months shall be done in teaching and approved Veterinary Polyclinics/Veterinary Hospitals, Veterinary Biological Centres, Technology Centers, Farms and Veterinary Disease Investigation Centers. The internship programme can be undertaken at approved veterinary institutions in India.

(o) The compulsory rotating internship shall be in the following areas:

(i) Clinical training covering veterinary medicine, surgery and radiology, animal reproduction, gynaecology and obstetrics, clinical emergencies, indoor ward care, hospital management record keeping etc. for three months.

(ii) Livestock production and management training, covering farm routines of cattle and

buffalo farms, piggery/rabbitary, sheep and goat farms, and equine/ camel unit etc. for one month.

(iii) Poultry production and management covering layer and broiler production, hatchery and chick management, quail, turkey, duck units etc. as well as fishery or any other recycling unit where feasible, for one month.

(iv) Livestock technology and service covering familiarization in biological product units, disease control campaigns (disease investigation and sample collection and despatch, vaccination, mass testing etc.) in plant training in meat plants, milk plants, etc. training in zoo/ wild life center/ national parks, for one month.

(p) Details of day to day work, posting and duration needs to be worked out by the Veterinary Institution as per its needs and infrastructure facilities.

(q) Where an Intern is posted to a recognized Veterinary hospital for training, a representative of the college and the Incharge of the Veterinary hospital shall regulate the training of such interns.

(r) Every Intern shall render professional veterinary service, skill and knowledge under supervision and guidance of a registered veterinary practitioner working in the approved Veterinary Institution.

(s) Function, responsibilities and duties of Interns:

(i) Participation with clinical faculty in the hospital practice.
(ii) Shares the emergency and night duties on rotation in the larger and small animal hospitals including Sundays & holidays.
(iii) Participation with staff of the place of posting in Veterinary Practice (production or technology).
(iv) The intern responsibilities include hands-on diagnostic and treatment procedures for hospitalized cases under the supervision of the attending veterinarian.
(v) Participation in the tutorial instructional program of the Veterinary College.
(vi) The intern will administer primary care to emergency cases and participate in service such as anaesthesia, radiology, ultrasonography, endoscopy, laboratory and diagnostic procedures. Medicine and Surgery rounds are held periodically allowing the interns to present cases and participate in topic discussion.

(t) The training shall be supplemented by weekly sessions of clinical conference, farm operation and data analysis, preparation of feasibility reports, project report, campaigns/ discussions in, clinical training, farm training and technology and services respectively.

(u) For the purpose of internship all necessary inputs, like accommodation, transport, adequate clinical facilities etc. shall be provided.

(v) The intern shall maintain a log book of day to day work which may be verified & certified by the supervisor under whom he/she works. In addition the interns will prepare a brief project report on the basis of his/ her case study/ case analysis, survey reports etc. This shall be based on his/ her own study during the internship. Such reports can be supervised by more than one teacher, if required. The interns shall present such report in seminar organized for the purpose.

(w) The grading shall be based upon the evaluation of log book, their performance reports from all the minimum prescribed training postings, project report and comprehensive examination in core competence in veterinary skills conducted at the end of the programme by an Evaluation

Committee comprising of the faculty representing the concerned departments appointed by the Dean for this purpose.

(x) Every Intern shall have to submit an Entrepreneurial Project during the Internship Programme.

(6) Comprehensive Examination on Core Competence in Veterinary skills

The interns at the end of internship training programme will be graded as "Satisfactory or Unsatisfactory". The grading shall be based upon the evaluation of work dairy, their satisfactory performance reports from all the training centres and comprehensive examination (written or and Viva-voice) conducted at end of the programme at the College by the following board:

1. Head, Department of Surgery and Radiology
2. Head, Department of Clinical Medicine
3. Head, Department of Epidemiology and Preventive Medicine
4. Head, Department of Gynaecology and Obstetrics
5. Head, Department of Pathology
6. Head, Department of LPM
7. In charge, Department of Veterinary Clinics
8. In charge, Internship Programme
9. Nominee of the Director of Animal Husbandry, U.P., if any.

The competence in veterinary skills examination shall be based on an evaluation of core competence in professional skills as detailed below:

(i) Restraint of cow, sheep, horse, dog and pig. Haltering, snaring, muzzling, tail switch, bandaging of horse for exercise and stable bandaging
(ii) Animal identification, Dentition and ageing of animals
(iii) Housing layout/requirements of livestock and poultry
(iv) Computation of ration of livestock of different breeds and age groups in health and disease
(v) Fodder management and interpretation of feed quality evaluation
(vi) Physical evaluation of livestock health parameters (auscultation, percussion, recording of temperature, pulse, heart rate, respiration rate etc.)
(vii) Recording and interpretation of cardiovascular response
(viii) Testing of milk and milk products for quality, clean milk production
(ix) Carcass quality evaluation (ante-mortem & post-mortem examination)
(x) Specific diagnostic tests for zoonotic diseases
(xi) Sample collection, handling and dispatch of biological materials for laboratory examination
(xii) Staining techniques for routine clinico- pathological examinations
(xiii) Relating post-mortem lesions to major livestock diseases
(xiv) Haematological evaluation (total leukocyte count, differential leukocyte count, haemo-globin, packed cell volume, erythrocyte sedimentation rate etc.) and interpretation
(xv) Tests and their interpretation for haemoprotozoan diseases
(xvi) Body fluids collection, examination and interpretation as an aid to diagnosis
(xvii) Urine evaluation procedures and interpretation as indicators for diagnosis of diseases
(xviii) Fecal examination- procedures and interpretation
(xix) Examination of skin scrapings and interpretation
(xx) Interpretation of blood chemistry profile in diseases
(xxi) Deworming procedures and doses for different species of animals/birds
(xxii) Managing an outbreak of infectious/contagious disease
(xxiii) Approach to diagnosis of a given disease condition

(xxiv) Pre-anesthetic administration and induction, maintenance of general anaesthesia and dealing with anesthetic emergencies
(xxv) Local anaesthetic administration
(xxvi) Nerve blocks- sites, functional application
(xxvii) Suture material, suture pattern and tying knots
(xxviii) Common surgical procedures including dehorning, docking, caessarian section, ovario-hysterectomy, castration, rumenotomy
(xxix) Application of plaster cast/splint for fracture immobilization and other bandaging procedure in large and small animals.
(xxx) Soundness in horses
(xxxi) Rectal examination – palpation of pelvic/abdominal organs in cattle/horses/buffaloes,
(xxxii) Detection of oestrus, artificial insemination, pregnancy diagnosis,
(xxxiii) Management of vaginal/uterine prolapse and dystocia
(xxxiv) Andrological examination of bull, handling, preservation and evaluation of semen
(xxxv) Vaccination procedures , vaccination schedules and vaccine types for different diseases
(xxxvi) Handling of radiograph, interpretation of a given radiograph of large and small animals
(xxxvii) Client management
(xxxviii) Managing a clinical practice, ambulatory van, transporting a sick animal requirements, etc.
(xxxix) Dosage regimens of important drugs
(xl) Drug administration techniques in different species of animals-oral, parenteral, rectal, intra-peritoneal and intra-uterine
(xli) Identification of major livestock/poultry breeds
(xlii) Measuring climatic parameters and their interpretation
(xliii) Communication technology tools

There shall be no marks for this examination. Every intern shall be graded as 'Satisfactory' or as 'Unsatisfactory' based on the evaluation of this examination and submission of Entrepreneurship Project. The Dean shall then issue the certificate of satisfactory completion of internship training as prescribed by the Veterinary Council of India. In case of unsatisfactory performance in the comprehensive examination for core competence in professional skills, the candidate has to repeat the entire internship programme.

(7) The candidate will become eligible for registration with State/UT Veterinary Council only on the award of the B.V.Sc & A.H. degree or production of a provisional degree certificate by the University.

EXAMINATION AND EVALUATION

9. (1) It shall be the responsibility of the teacher(s)/instructor(s) to ensure that the topics to be covered in the theory and practical in each course is recorded through a lecture/practical schedule and distributed to the students at the beginning of each course. The Head of the Department/ Dean shall ensure that the schedule is adhered to and alternate arrangements are made to cover up the loss in case of any eventualities of unavoidable reasons that lead to non-adherence of the above schedule.

(2) Work distribution chart of each teacher should be available with Dean's office for inspection of the Council. In each subject Professors and senior teachers must be actively involved in teaching, especially in conducting practical for degree course. The principle behind each practical, the objective of each practical level of competence expected from the students etc. should be clearly explained to them by senior teachers.

(3) The examination shall be to assess whether the student has been able to achieve a level of competence. For academic assessment, evaluation of practical aspects of the curriculum should receive much greater emphasis leading to separate examinations and requiring the student to secure a minimum of 50% marks, in theory as well as in practical, in each such examination.

(4) **The weightage of Theory and Practical shall be in the ratio of 60:40 respectively in both internal and annual examinations.**

(5) **The distribution of marks for objective and subjective questions in each course/ paper shall be in the ratio of 60:40 respectively both in internal and annual examinations.**

(6) The schedule of examination during B.V.Sc. & A.H. course shall consist of internal (semester) and external (annual) examinations: internal examination (theory and practical separately) for each course at the end of each semester; and external examinations (theory and practical separately) at the end of each academic year comprising of all the courses of a particular subject taught during that year.

(7) The internal assessment (Semester) shall be conducted in 50% of total marks in theory and practical separately and shall invariably be conducted on completion of the course as per lecture/practical schedule explained under sub-regulation (1) and shall be held without any preparatory leave. It shall be the responsibility of the University/College authorities to conduct these examinations without loss of instructional days of a Semester. Internal Practical examination shall be conducted by a board of examiners consisting of Instructor(s) of the course and a representative of the head of the department. Evaluation of answer books shall be done by the concerned instructor(s). Marks obtained in theory and practical in the internal examinations would be recorded separately and submitted to the Dean/ Principal at the end of the particular semester.

(8) A composite Annual examination for a group of courses/ a course (if only a single course is involved in the paper) shall be conducted for the rest 50% marks in theory and practical separately as per schedule of examination. The annual theory examination(s) shall be conducted by inviting the question paper from appointed paper setter(s). A paper setter shall be provided the courses and syllabus prescribed by the VCI including detailed course outline. A paper setter shall be requested to prepare two sets of question papers, each for main examination and compartment examination (if any). Where necessary, more than one paper setter/ examiner can be appointed. The practical examinations shall be conducted by the Board of Examiners appointed by the university and shall consist of two or more internal (representing the subjects being examined) and one external examiner. Evaluation of answer books of annual examinations shall be done by the external examiner (s).

(9) Annual examinations shall be held on such dates, time and places as the university may determine and must be completed so that the results are announced before the onset of the ensuing semester.

(10) The schedule of examinations (internal/external) shall be adhered to strictly. No re-examination shall be allowed in events of students' strike, boycott, walkouts, medical grounds or what-so-ever may be the reason.

(11) There shall be no supplementary (make up) examinations during the academic session. However, a candidate may be allowed to provisionally sit in the next class provided he/ she has failed only in two papers. He/she cannot be promoted to next B.V.Sc. & A.H. class unless he/she has cleared the failed paper(s).

(12) The records of examination shall be made available to the Council, as and when required and the records of assessment may be retained till six months after the conduct of the Annual examination.

10. PROCEDURE FOR EXAMINATIONS

INTERNAL EXAMINATION :

I. The internal examination of every first semester of the academic year (I, III, V, VII) will be conducted at the end of the semester.

II. The internal examination of every second semester of the academic year (i.e. II, IV, VI and IX) will be conducted after the completion of at least 75% of the course so that the students are given sufficient time to prepare for their annual Professional Examinations.

III. The Controller of Examinations of the University shall arrange the Internal Semester Examinations centrally.

IV. The question paper will be of 2 hours duration and will be combinations of objective and short answer questions as envisaged for the annual examination by ihe VCI. For this, 60 percent questions will be of objective type and 40 percent subjective.

V. **The course teacher(s) shall prepare the question paper. Each question paper will be of 30 marks. The practical will be of 20 marks for each course.**

VI. The answers should be written in the answer books or in the question paper itself in the space provided for writing the answers as the case may be. The Controller of Examinations of the University will provide all the facilities for typing, cyclostyling and duplicating or photocopying as the case may be.

VII. **The result should be prepared by the course teacher within 7 days and sent to the Controller of Examinations through Head of the Department along with a copy of the same to the Dean, Veterinary College. The Controller of Examination should declare and notify the result before the commencement of new semester.**

Note : The answer books of internal theory paper(s) will be shown to students. The student may apply for scrutiny of any course to the controller of examinations within 7 days after the declaration of the result alongwith the prescribed fee. After 7 days no application will be entertain regarding scrutiny.

EXTERNAL ANNUAL / BOARD EXAMINATION :

It will contain two parts as per the guidelines of VCI:

(1) External Annual/ Board Theory Examination.

(2) External Annual / Board Practical Examination.

For 50 per cent of the total marks, Annual Board Examinations shall be conducted at the end of each academic year culminating at the end of a professional programme. Complete course(s) / portions shall be covered in each paper.

A board (Examination Committee) to conduct the Annual Board examination and to evaluate or to determine Promotion at the end of each profession examination, commencing from first professional (B.V.Sc. & A.H.) examination shall be appointed by the Controller of Examination as per the provisions in the University Act.

PRACTICAL EXAMINATION :

The board involving at least one external examiner and two internal examiners appointed by the Controller of Examination shall conduct the practical examination. The internal examiner(s) must be those who have taught the course(s) during the semester(s).

The Internal and External Examiners with mutual cooperation shall conduct oral and practical examination. They shall each have 50 per cent of the maximum marks out of which they shall allot marks to the candidate appearing at the examination according to their performance and the marks sheet so prepared shall be signed by both the examiners. In case of any dispute, either of the examiners shall have the right to prepare and sign and send marks sheet separately to the Controller of Examination together with his/ her comments. The Controller of Examination shall take due note of such comments but, he/ she shall declare results on the basis of the mean of two marks sheets.

EXPLANATION 1: For the first B.V.Sc. & A.H. examination, the subject of Veterinary Anatomy, has one course in the first semester (VAN-111, 1+2=3) and one course in the second semester (VAN-121, 2+2=4). Internal evaluations for VAN-111 shall be conducted at the end of the 1st semester and for VAN-121 the internal evaluation shall be conducted at the end of the 2nd semester. The marks obtained in the examinations shall be recorded separately for theory and practical and sent to the concerned Registrar/ Controller of Examinations/ Dean. After the completion of courses in the second semester, a composite annual examination (for Veterinary Anatomy Paper-I) shall be conducted for the theory and practical of VAN-111 and VAN-121 giving due weightage to each course. The marks obtained in the theory and practical of internal and annual examination shall be added and the grade point calculated and recorded against Anatomy Paper-I. Similar pattern shall be followed for all other subjects of B.V.Sc. & A.H. Degree course. (Annexure I)

EXPLANATION 2 : The teachers while evaluating practical, shall take into account the followings:-

(1) A record or log book maintained by each student as practical records.
(2) Observation and recording of the skill with which each student executes the practical.
(3) Assessment of the comprehensive skill and knowledge of each student through an oral examination (viva-voce).
(4) Atleast ten percent marks may be awarded to day to day records including record of case sheets etc.
(5) In practical examination (both internal and external), the assessment shall invariably include-

1. Practical Record/Log book	10%
2. Assignment and presentation	10%
3. Spotting/ Written test/Problem solving/case study etc	30%
4. Subject related practical	30%
5. Viva voce Examination	20%

NB : Practical manuals be prepared by the respective departments of each of the courses.

TEACHERS, EXAMINERS, PAPER SETTERS

11. (1) The persons with basic veterinary qualification (B.V.Sc./B.V.Sc. & A.H.) shall be recruited as teaching faculty in the Veterinary Colleges.

(2) Teachers in the disciplines of Biochemistry, Biotechnology, Biostatistics and Computer Application, Entrepreneurship, Extension and Economics may be recruited from the persons having qualifications other than the basic veterinary qualification only in case of non-availability of candidates with basic veterinary qualifications. Where candidates with basic veterinary qualification are available, they should be given priority in selection/appointment over the candidates without basic veterinary qualification. Appointment of persons without basic veterinary qualification as teachers in the aforesaid disciplines shall require prior approval of the Veterinary Council of India.

(3) The post of Head of Department in a Veterinary College shall be filled up only with a teacher with basic veterinary qualification.

(4) A person possessing qualification included in the First or Second Schedule to the Act shall be generally appointed as examiner or paper setter for the conduct of a professional examination for the B.V.Sc. & A.H. course. However, a person without the qualifications mentioned above may also be appointed examiner in his/her concerned subject provided he/she possesses the doctorate degree in that subject and a minimum three years teaching experience.

Provided that :-

(a) no such person shall be appointed as an external examiner unless he/she has at least three year's teaching experience;

(b) no person below the rank of Lecturer/Assistant Professor or equivalent shall be appointed as internal examiner;

(c) no person shall be appointed as an external examiner in any para clinical/clinical subject unless he/she possesses a recognized veterinary qualification and holds a postgraduate degree and teaching experience in the subject concerned.

(d) persons working in Government/Semi Government or similar organizations may also be considered for appointment as external examiners provided they possess qualification and experience as laid down above;

(e) paper setter(s) cannot be appointed as practical examiner(s) in the same paper.

(f) local person(s) shall normally not be appointed as paper setter(s)/external examiner(s). However, under exceptional circumstances or unavoidable exigencies arising at the time of examination (like not arrival of appointed examiner/ non-receipt of question paper from paper setter etc.), the University may appoint any qualified person for the purpose to avoid postponement/ cancellation of annual board examination.

(5) Oral and practical examinations shall be conducted by the respective internal and external examiners with mutual co-operation. They shall allot marks to the candidate appearing at the examination according to their performance and the marks sheet so prepared shall be signed by both the examiners.

(6) Every veterinary college shall provide all facilities to the internal and external examiners which are necessary for the conduct of examinations and the internal examiner shall make all preparation for holding the examinations.

(7) The external examiner shall have the right to communicate to the examining body his/ her views and observations about any shortcomings or deficiencies in the facilities provided by the Veterinary College with a copy to VCI, if he/she so desires.

(8) Verification of percentage of passing/failing and deviation from the normal curve of distribution will be subject to scrutiny/ enquiry by the examining body.

THEORY EXAMINATION :

i) **Setting of questions paper for Internal theory examination :** Internal theory Question Papers should be prepared by the Course Instructor(s) and submitted through the Head of the Department in a sealed envelop to the Controller of Examination with in one month of the beginning of the Semester. **(See Annexure - 1)**

ii) Appointment of Examiners : All the External Examiners for the theory and practical Examination and Moderators will be appointed by the Examination Committee of the University as per the provision In Chapter V (Authorities of the University) of the University Act (U.P. Act No. 27 of 2001} Clause 23(2) a.

SETTING OF ANNUAL BOARD THEORY QUESTION PAPER :

Paper setter will be requested to set, two sets of question papers one for the main examination and the other for any unforeseen circumstances / compartment examination of each subject covering all contents of the concerned courses supplied to them all. A set of model question paper along with the clear-cut guidelines shall be made available to all the examiners.

Each paper will have the ratio of 60:40 of objective and subjective questions requiring short answers, respectively. Each paper will be divided into different parts depending upon the number of courses included in that particular paper. The marks obtained in each part/paper would be reflected separately in the mark sheet. **(See Annexure - 2)**

NOTE : The examiners are required to submit one hard copy along with computer floppy typed in MS-WORD.

CONDUCT OF THEORY EXAMINATION :

Before the examination in each paper, the Controller of Examinations would open one of the two sets of question paper(s) meant for that particular paper in the presence of two teachers approved by the Examination Committee. He/she shall make the moderation in the question paper, if required, and make adequate copies to be distributed among examinees. The answer sheets/ books shall be collected and allotted code numbers by a teacher nominated by the Examination Committee, sealed and stored under safe custody.

EVALUATION OF ANSWER SHEETS/BOOKS :

The answer sheets / books shall be evaluated by the external examiners. Immediately after coding, the answer sheets/books will be dispatched to the external examiners for evaluation by registered post-parcel on the same day. The external examiner(s) will be requested to evaluate the answer books and enter the marks in the prescribed mark-sheets and ensure that the result reaches to the Controller of Examinations within 15 days from the date of dispatch. The same teacher who had allotted code numbers will do the decoding.

REMUNERATION FOR EXAMINATION :

THEORY EXAMINATION :

The remuneration for paper setting will be Rs. 400/- per paper per set and typing charges @ Rs. 10/- per page. Postage charges will be reimbursed subject to production of the receipt.

The remuneration for evaluation of answer sheets/books will be Rs. 10/- per student with a minimum of Rs.150/- per paper.

PRACTICAL EXAMINATION :

External Examiner : The remuneration for conducting the Practical examination will be Rs. 10/- per student with a minimum of Rs.150/-per paper.

Internal Examiners : Both the internal examiners will be paid the remuneration for conducting the Practical examination @ Rs. 10/- per student with a minimum of Rs.150/- per paper.

NOTE : Remuneration charges are subject to approval and alterations by the Academic Council and the Executive Council of the University from time to time.

MODERATION :

There shall be a Board of Moderators consisting of the Controller of Examinations and four teachers of the Veterinary Faculty to be nominated by the Examination Committee of the University every year to ensure smooth conduct of the examinations. In the event of any problem/clarification, the board may invite the concerned teacher(s) and Head of the Department, if required, for their opinion and submit a report to the Examination Committee for necessary moderation of the results, if required. However, any moderation suggested shall be uniformly applied to all students and shall be on the merit of the situation.

Evaluation : The overall performance of the students in various professional examinations (including the internal and annual board examination) will be adjudged on the basis of the aggregate marks obtained in the internal semester and annual board Examination, A student is required to secure an aggregate of 50% marks in theory and an aggregate of 50% marks In practical to be declared to have passed in a paper.

NOTE : In case a student is required to appear in compartmental examination of the annual board examination, he/she will be declared fail or pass based on the aggregate marks in both, the internal semester examinations and the compartment examination.

ATTENDANCE :

12. Record of Class Attendance :

(1) Course Teacher(s) shall maintain a record of the attendance of students in each course taught by him/her in each semester for theory and practical separately in a register prescribed by the university for the purpose and will calculate the percentage of attendance.

(2) Monthly attendance of students shall be displayed on the notice board by the concerned course teacher. A copy of the same will be sent to respective class teacher. The class teacher will apprise the attendance to each registered student of that particular course and maintain a record. The deficit of the attendance will be informed by the respective class teacher to the parents of the concerned student(s) with a warning that your ward/son/daughter may not be eligible for Annual Board Examination if he/she fails to achieve the 75% attendance before the commencement of annual board examination, under intimation to the Dean of the faculty.

(3) Students failing to fulfill minimum attendance requirement i.e 75% (in either theory or practical or both), will not be eligible to appear in **Annual Board Examination** of that paper(s) (both theory and practical) and will be declared **failed** in that paper.

(4) The percentage of attendance in a course or paper shall be calculated on the basis of total number of scheduled theory and practical classes separately between the date of commencement of instructions and date of closing of instructions irrespective of the date of registration and not on the basis of held classes. However, for the students who are reverted owing to failure in the compartment examination, the attendance shall be counted from the date of declaration of result of compartment examination and the date of closing of instructions.

(5) Each student shall be regular in attending the classes and is required to have minimum 75% attendance in each paper or subject **with 10% relaxation by the concerned Dean** on the recommendation of **advisor and respective class teacher** under the circumstances such as medical leave, emergency (casuality) etc. **Vice chancellor may accord concession for fraction of one percent** failing to minimum required attendance, he/she will not be allowed to appear in the annual board examination and he/she shall be declared **failed** in

that subject unless withdrawal from the course is permitted. Such candidate will not be eligible for compartmental examination.

(6) Regular teaching shall start from the next day after the schedule date of registration and attendance will be counted from that day till seven days preceding the date of commencement of Annual Board Examination. The students who are required to forgo classes due to their participation in sports, athletics, NCC/NSS camp and other extra-curricular activities at Inter-Collegiate, Inter-University, Inter-State or National level shall be counted as present for the purpose of calculation of percentage of attendance on submission of certificate from Dean and DSW subject to maximum of **10 days in a semester.**

(7) Deans of Colleges shall notify the eligibility of students to appear in the examination **seven days before the commencement of the annual examination** and notice to this effect shall be displayed on the notice board of the college.

(8) A student who has completed attendance requirement, and fails to appear in the practical or theory examination or in both, shall be treated as failed and will be eligible for compartmental examination as per VCI rules.

(9) At the end of each semester, the teacher(s) shall notify the consolidated attendance of the course(s) taught by him after giving benefit of attendance if any, to those students who had been officially engaged elsewhere and submit the same to the Dean through the Head of Department with a copy to the respective class teacher. The combined attendance of all courses will be clubbed and submitted for each external paper in Annual Board Examination by the concerned course teacher(s), and notified to the students under intimation to the class teacher and the Dean.

Note : No NCC or NSS camp shall be arranged during the semester.

PROMOTIONS AND FAILURE :

13. (1) Promotion or failure of a student in a professional year shall be decided only on the basis of aggregate marks of internal and annual board examinations.

(2) A student shall be promoted to next higher professional class only if he/she has passed in all the papers of his/her class by obtaining atleast 50% marks in theory and practical separately (internal and external combined).

(3) A student should secure over all grade point average (OGPA) of 5.00 out of 10.00 at the end of degree programme to be eligible to get B.V.Sc. & A.H. degree.

(4) A student may also be allowed provisional promotion to next higher class till the declaration of the result of the compartment examination (s). However, this promotion shall be subject to clearance in the compartment examination(s) of that/those paper (s) and shall be provisional. If the student fails in the compartment examination (s), he/she shall stand automatically reverted to the class from where he/she was allowed provisional promotion.

(5) **Failed students shall register again for the entire professional class, they failed. Such students shall have to fulfill all requirements of the class afresh.**

(6) **A student failing in the annual examination for three consecutive years in a professional year of B.V.Sc. & A.H. degree programme, shall be finally dropped automatically from the University on account of poor academic performance.**

(7) **In no case, a student shall be allowed to continue his/her B.V.Sc. & A.H. studies beyond 8 academic years (16 semesters) in a Veterinary College.**

COMPARTMENT EXAMINATION :

14. (1) A student failing in a maximum of two papers only may be allowed once to appear in compartment examinations for those paper(s). Compartment examination shall comprise of the external component of both the theory and practical of the failed paper(s), which shall constitute the 100% weightage for that paper(s) and **the marks of Internal examination shall not be considered for the evaluation of Compartment Examination.**

(2) The compartment examinations shall be conducted within 20 calendar days after the date the results of the concerned professional year examination declared. The results of such compartment examination shall be declared within 5 days after the examination is conducted.

(3) In case of failure in any of the compartment paper(s), the student will be reverted back to the previous professional year and will be required to repeat all the requirements of that failed professional year.

(4) Compartment Examination Fee : The comparmental examination fee shall be Rs. 1000/- for conducting compartmental examination. The students appearing in the compartmental examination will be required to deposit the examination fee of Rs. 1000/-each in the office of Finance Officer and submit a copy of cash receipt in the Office of Controller of Examinations to become eligible to appear in the said examination.

SCRUTINY OF ANSWER BOOKS AND RECTIFICATION OF ERRORS :

15. (1) There shall be no provisions of re-evaluation of answer book(s).

(2) A student, however, may be allowed to get his/her answer book(s) scrutinized, for which, the student shall have to apply to Controller of Examination/Coordinator of Examination within three days after the declaration of result and after paying prescribed fee.

(3) The Controller/Coordinator (Examination) shall arrange the scrutiny of answer book(s) by the Moderation Committee.

(4) Scrutiny means re-totaling of the marks, and examination of unmarked question(s), if any.

(a) Scrutiny of answer books/re-totaling of marks in the external board examination will be allowed **only in one subject (only theory).** Students will have to apply for re-totaling within three days of declaration of result by the controller of examinations. Student will have to pay Rs. 250/- as re-totaling Fee. The examination committee will do the scrutiny within two days of the last **date** and result shall be notified within 7 days of the receipt of application from the students.

(b) If there is any change in the marks on re-totaling, the changed marks will replace old marks.

(5) The answer book(s) of annual examination shall not be shown to the student under any circumstances.

(6) In case, the total marks are found to be incorrect on scrutiny, the same will be corrected and the result shall be revised accordingly (even if it is towards lower side). If, however, any question is found to be unchecked by the Examiner, the answer book(s) shall be sent to the Examiner for doing the needful and the result(s) shall be revised accordingly if there occurs any change in the marks.

(7) No representation by the student(s) shall be entertained regarding the outcome of the result after scrutiny.

(8) In case a student on the basis of the result of scrutiny becomes eligible for the compartment examination, he/she may apply to the concerned authority to appear in the compartment examination on the announced scheduled date. The scheduled date of the compartment examination shall under no circumstances be changed on this account.

MODERATION :

16. (1) Question Paper :The examining body may appoint a single moderator or a board of moderators not exceeding three in number. The moderator(s) shall review the question papers on the day of examination after they have been distributed. Any corrections needed will be conveyed to the examinees and any discrepancy in the question paper in respect of syllabus noticed will be conveyed to the Controller/Coordinator of Examination in a written report.

(2) The Results : The Controller/Coordinator of Examination in consultation with the Dean of the College shall form Committee of three members consisting of Dean of the College as Chairman and two other teaching faculty members to moderate the results obtained at the annual board examination. This Committee shall review the results for the normal distribution of marks, the percentage of pass or failure. Any moderation suggested shall be uniformly applied to all students for that paper(s) without altering the merit of the passed candidates. **Any moderation effected should not involve of enhancing of more than total of 5 marks in a professional year for a particular candidate, and in no case more than 3 marks in one paper. The provisions for Moderation of results shall not apply to Compartment Examinations. There shall be no provision for grace marks in any case.**

GRADING AND GRADE POINT AVERAGE :

17. (1) Grade Point (GP) in a course will be the total marks obtained by a student out of 100 divided by 10.

(2) Credit Pont (CP) in a course will be GP multiplied by the credit hours.

(3) Total Credit Points = Sum of the credit points secured.

(4) The Credit Points earned will be zero if the GP in a paper is less than 5.00

(5) Grade Point Average (GPA)= Sum of the Total credit Points earned divided by the sum of Credit Hours.

GRADING :

After adding the marks obtained in the internal examinations and the composite annual examination, grade point for that paper would be calculated on "Ten Point Scale". The aggregate of percentage of marks earned in theory and practical in courses is divided by 10 and is expressed as grade point.

CALCULATION OF OVERALL GRADE POINT AVERAGE (OGPA) :

For calculation of OGPA, the following shall be the formula/ procedure :

(a) The marks awarded in a course out of 100 will be divided by 10. The points so secured in a course will be multiplied by number of credit hours of that particular course, The points earned will be 0 if the marks obtained in a course are less than 50%.

(b) The OGPA will be equal to the total points secured divided by credit hours.
e.g. Suppose a student secures 78 marks out of 100 in a three credit course (2+1 or 1+2} and 73 marks in a two credit course (1+1 or 2+0 or *0+2),* his/ her OGPA will be calculated as follows:

78/10 = 7.8 x 3 = 23.4 (In first course of three credit hours) 73/10= 7.3 x2 = 14.6 (In second course of two credit hours)

Total points secured = 23.4 + 14.6 = 38.0 (In five credit hours)
OGPA = 38/5 = 7.6

DIVISION AND HONOURS :

The corresponding ranking of OGPA with respect to traditional scoring system of Division Ranking shall be as follows:

8.000 and above	-	First Division with Distinction
7.000 - 7.999	-	First Division
6.000 - 6.999	-	Second Division
5.000 - 5.999	-	Pass

PREPARATION OF RESULTS :

(1) Each external examiner shall fill in the marks of various examinations in the prescribed Proforma in duplicate. The concerned instructor(s) and Head of the Department will prepare the result of each internal semester examination by entering the marks of the internal theory and practical examination in duplicate. The concerned instructor(s) shall sign the mark- sheets and Head of the Department shall submit the same to the Controller of Examinations with one copy of the result to the Dean of the College.

(2} Tabulation of the results shall be done, from the award list of the Instructor(s) for the internal semester examination and that of the external examiner for annual board examination by the office of the Controller of Examinations.

(3) Tabulation work should be completed within three days of the receipt of last award list from the External Examiner.

DECLARATION OF RESULTS :

The office of Controller of Examinations will do the collation of the results and submit the same to the Registrar for declaration within 5 days.

NOTE : NO NEW SEMESTER SHALL COMMENCE BEFORE THE RESULT OF THE PROFESSIONAL EXAMINATION IS DECLARED UNDER ANY CIRCUMSTANCES.

ACADEMIC TRANSCRIPT / MARK SHEET :

All the marks/grades obtained in theory and practical in internal and external annual board of examination(s) will be entered in register(s) in the office of the Controller of Examinations separately and the Grade sheets/Transcripts of the first, second, third, fourth and fifth Professional B.V.Sc. & A.H. degree students will be prepared by the office of Controller of Examinations as per the format of VCI.

At the end of each semester and annual board examination, Controller of Examination will issue the semester and annual report card to all the students with a copy of the same to the parents of the student(s) and advisor of the student(s).

On completion of all the requirements for award of the degree (B.V.Sc. & A.H.), students will be issued the final academic transcript b y the office of the Controller of Examination. Students in the transcript will be graded as Excellent, Good or Satisfactory based on the OGPA and condust during stay on the campus.

Excellent	-	**OGPA of > 7.5 without C.P.**
Good	-	**OGPA between 6.00-7.499 without C.P.**
Satisfactory	-	**OGPA between 5.00-5.999 without C.P.**
		or
		Students on Conduct Probation for more than one semester, irrespective of OGPA

Duplicate Transcript and Degree certificate can be obtained from the office of Controller of Examination after submitting an affidavit and by depositing a fee of Rs. 500/- each in the office of the Finance Officer and submit a copy of cash receipt in the office of Controller of Examination.

UNFAIR MEANS / INDISCIPLINE DURING EXAMINATION AND PUNISHMENT THEREOF :

A student detected using or attempting to use any unfair means during semester or annual board examination or indulging in indisciplinary activity leading to disturbance or cancellation of any semester or board examination shall also be deemed to have attempted and failed in that examination (subject) and the provisions of sub-regulations (8) of regulation 9 of VCI (minimum standards of veterinary education - degree course (BVSc & AH) regulations, 1993, shall apply for deciding his promotion or otherwise.

1) The terms "use of unfair means in the examination or attempt to use unfair means in the examination shall denote the items prescribed by the Academic Council, through its resolutions, from time to time. The following items are included In the category (but not restricted to) :

(a) Possession of any books, notes, chits or such other material and also any note(s) or signs written on any part of the body of self or furniture or dresses or any other material pertaining to the subject matter of the examination in the examination hall during the examination hours.

(b) Talking, whispering or signaling in any form in the examination hall or outside the examination hall during the examinations hours.

(c) Copying or allowing to copy.

(d) Any other activity, which may give undue advantage in the examination to any student.

(e) Any attempt to use by any other means, which in the opinion of the invigilators and the superintendent of examination may be considered to be unfair.

2) Every student shall be required to bring his/her own examination material, such as setsquares, scales, eraser etc., himself/ herself, and will not be permitted to borrow any of these material from fellow student in the examination hall.

3) If any student is found to have used or have attempted to use "unfair means" in any examination, the invigilator shall seize his/her answer book forthwith. The student may, however, be permitted to answer the remaining part of the question paper but on a separate answer book.

4) A written statement of the student, found to have used or attempting to use unfair means in the examination hall will be obtained by the invigilator or the superintendent of examination and be forwarded with his/ her report along with any other materials found with the student which should be signed by the student concerned in *token of* the same having been recovered from his possession.

5} The invigilator and superintendent of examination shall submit a detailed report along with the answer books of the students and other related material, if any, to the Controller of Examination immediately after the examination is over, with a copy to the Registrar,

6) In case of the student refuses to give a statement, he/ she shall not be forced to do so but the fact of his refusal be recorded by the invigilator and the superintendent of examination in their report.

7) Controller of Examination will put up the report of invigilators and suptd. of examinations to the examination committee for detailed investigation. Examination committee shall sends its report to the Vice Chancellor with specific recommendation with in a week from date of report.

8) Student found using or attempting to use unfair means or copying during an internal theory and / or a practical examination shell be awarded zero marks and will be declared fail in that **particular course**.

9) Students found using or attempting to use unfair means for copying during Annual Board theory or practical examination shall be declared fail in that particular subject / paper and will not get the benefit of compartmental examination in that subject.

BREACH OF DISCIPLINE AND PUNISHMENT (S) THERE OF :

ACTS OF INDISCIPLINE :

The following shall constitute acts of indiscipline -

(a) Keeping, carrying, using or supplying of any fire arms, lethal weapons, knife with a blade of more than four Inches length in the room or outside.
(b) Keeping, using or supplying intoxicants in any form.
(c) Gambling in any form.
(d) Ragging/**appear to have indulged in act of ragging**, bullying or harassing of students/ **the Molestation or out raging modesty of a student.**
(e) Demonstration in any form including procession and meetings.
(f) Strike or hunger strikes.
(g) Boycotting of the University function, programme, activity or preventing any student from attending the classes, functions, programmes or any other activity of the University.
(h) Abusing.
(i) Recourse of violence, assault, intimidation, rioting etc.
(j) Showing or causing to show any disrespect to a teacher or officer or any misbehaviour or intimidation of an employee of the University.
(k) Incitement to commit any act of indiscipline.
(l) Any breach of law of the country or the state or the Statute, Regulations, Rules of the University or orders of the competent authority.
(m) Disturbing other students in their studies.
(n) Damaging any University property.
(o) Disorderly behaviour in any form.
(p) Attending or organizing unauthorized meetings and participation in such meetings.
(q) Displaying notices, leaflets or posters not signed or countersigned by the Warden or other University officers authorized by the Vice-Chancellor at the hostel and University notice boards or other places or distributing such notices or leaflets or disfiguring or defacing or writing slogans and undesirable things on the University buildings, property etc.
(r) Any act specifically forbidden by the Warden, Chief Warden, Dean student welfare or any officer of the University,
(s) Any other act intended or calculated to cause inconvenience, annoyance, injury or damage to any other intimates of the hostel, employee of the University or residents of the campus, or guest visitors to the University.

PUNISHMENT FOR INDISCIPLINE :

(i) Any inmate who violates any regulation or otherwise indulges in any act of indiscipline as defined above in clause of indiscipline may be fined upto Rs. 250/- by the Warden In-charge of the hostel or the Dean, as the case may be if the Warden/Dean is satisfied that the fine is adequate punishment for the act of indiscipline.
(ii) Cases of indiscipline, which in the opinion of the Warden/Dean are so serious that a fine of

Rs. 250/- or less would not be sufficient punishment shall be referred by the Warden to the Dean Students Welfare or by the Dean, as the case may be, to the Disciplinary Committee for taking disciplinary action against the inmates.

{iii) The DSW/Dean on the recommendation of the Disciplinary Committee of the college may award any of the following punishments.

(a) Fine up to Rs. 500/-. This shall be noted on the inmate's permanent record card but shall not go out on the transcript or the character certificate of the student.

{b) Placing the inmate on **'Conduct Probation'** on the recommendations of college Disciplinary Committee. This will consist of an official warning to the students that one more incident of indiscipline might lead to the dismissal of the student from the University. It shall be noted on the inmate's permanent record card and shall go out on the transcript of the student so long as the student is on such probation.

(iv) Cases of more serious indiscipline in respect of which the Chief Warden/Dean is satisfied that the foregoing punishment in clause of indiscipline, would not be adequate to meet the ends of justice and calls for more severe punishment or cases involving students of more than one college/hostel, shall be referred to the University Disciplinary Committee by the DSW or the Dean as the case may be.

(v) The recommendations of the University Disciplinary Committee shall be forwarded to the Vice-Chancellor as expeditiously as possible for final decision on the punishment.

(vi) The Vice-Chancellor after considering the recommendations of the University Disciplinary Committee may award any one or more of the following punishment -

(a) Monetary Fine

(b) Collective or Group Fine: May be imposed on a group of students, as a whole when the Vice-Chancellor on the recommendations of the University Disciplinary Committee, is of the opinion that it is not possible to fix the responsibility on Individual members of the group, for any act of indiscipline.

(c) Reprimand on Record: This shall consist of an official warning to the student not to repeal any act of indiscipline. This will be noted on student's permanent record card but not on any outgoing transcript.

(d) Conduct Probation: This shall consist of an official warning that one more incident of indiscipline might lead to the dismissal of the student from the University. It shall be noted on the permanent record card and shall go out on the transcript so long as the student is on conduct probation.

(e) Temporary Dismissal : The student shall be dismissed from the University for a specific semester(s) and required to leave the University immediately. This will be entered on the permanent record card and shall go out in the transcript of the student if the same is issued during the period of temporary dismissal. It shall however, not be mentioned in the out going transcript, in case the transcript is issued after re-admission. However, he shall be debarred from admission to the University for any further programme of studies including PG programmes.

(f) Permanent Dismissal/Rustication from University : The student shall be dismissed permanently from the University and shall be required to leave the University immediately. The punishment shall be entered in the permanent record card and transcript of the student and he\she shall be debarred from admission to the University for any further programme.

Clause 7 : The student who was under conduct probation for more than one year will not be eligible for seeking admission in any post graduate programme of the university.

SUSPENDED DISMISSAL :

(I) If a student has been awarded the punishment of temporary dismissal for one or more semesters and he has only two semester or less to complete his/her degree then the punishment of temporary dismissal may be suspended on compassionate ground and he/

she may be placed on 'Conduct Probation' by the Vice-Chancellor on the recommendation of disciplinary committee, to enable him/her to complete his/her degree on his/her moving an application duly countersigned by his parent or guardian and filling in a bond of good behaviour with such conditions as may be imposed for the remaining period of his stay in the University.

(II) In the case of permanent dismissal, if a student has completed at least two semesters satisfactorily in this University prior to being awarded the punishment of permanent dismissal, his/her dismissal may be suspended on compassionate grounds and the student may be re-admitted on bond with such conditions as may be imposed of good behaviour under this regulations.

(III) Readmission through suspension of punishment shall invariably be subject to the following conditions :

(i) The student concerned may be readmitted not as a matter of right but only on compassionate ground on the submission of an unconditional apology by the parents,

(ii) The student concerned will remain on conduct probation during the remaining period of his stay in the University.

(iii) The student concerned will fill a bond of good behavior as prescribed duly countersigned by his parent / guardian which would remain operative for the entire period of his stay in the University,

(iv) He/she will not apply nor will be entitled to admission to any further degree programme in the University,

(v) If the student concerned has been permanently dismissed, he/she may be considered to apply for relief under these regulations only after expiry of one academic year from the date of issue of orders of punishments. But in no case will be entitled to readmission before the expiry of less than four semesters from effective date of punishment.

(vi) No student shall be eligible for seeking relief under this regulation unless he/she has completed at least 2 semesters satisfactorily in the University prior to his/her punishment of permanent dismissal is awarded.

(vii) No student shall be eligible to seek or be granted relief under this regulation if he/she commits any act of indiscipline in the University campus or misbehaves with any officer or teacher of the University within the campus or outside during the period laid down in clause (v) above.

(IV) Before granting the extraordinary concession in suspension of the permanent or temporary dismissal, the Vice-Chancellor may follow any procedure that he/she considers appropriate in order to ascertain as to whether the student applying for the same is likely to abide by the rules and regulations of the University and is not likely to indulge or instigate others to indulge in violations of the rules and regulations. During the period of suspension of permanent/ temporary dismissal, the daily attendance of the student concerned shall be taken by the warden / Asstt. Warden of the hostel and it shall be obligatory for him to present himself before either of them when called upon to do so.

(V) The Vice-Chancellor may revoke the order of suspension of punishment on his/her own initiative or on the receipt of a report from the Chief-Warden / Dean of the College concerned / Dean Student Welfare / Registrar or the effect that the student concerned has not violated conditions of the bond, which will in addition to any other specific conditions may be enforced at Vice-Chancellor's discretion, invariably require him not to :

(i) Absent himself/ herself from the hostel for five or more days consecutively without prior permission of the Warden / Chief Warden.

(ii) Boycott or absent himself/ herself from any examination without prior permission.

(iii) Fall below 75% in attendance in any of the course(s) offered by him.

(iv) Fail to present himself/ herself before his Advisor, Warden, and Chief Warden despite having been asked to do so.

(v) Commit any act of indiscipline as defined.

(VI) However, while the benefit these regulations may be available to cases of indiscipline where the punishment of temporary or permanent dismissal has been awarded for the first time, it is hereby laid down that (i) the suspension of temporary dismissal may be given to student only once during his stay in the University, (ii) If the orders of suspension of punishment of permanent dismissal have been revoked by the Vice-Chancellor on his own or on receipt of a report from the Chief Warden / Dean of the college concerned / Dean Students Welfare / Registrar to the effect that the students concerned has violated the conditions of the bond or other conditions imposed upon him at the time of readmission, then such a student may apply for the review of revocation order only after the expiry of four semesters from the date of issue of revocation orders of suspended dismissal and may be imposed of good behavior under the regulations and this readmission, through review of revocation order of permanent dismissal shall invariably be subject to the same conditions as imposed earlier. In case such a student violates any conditions of the bond or other conditions imposed by the Vice-Chancellor or involves in any act of indiscipline then the student shall be permanently dismissed with no right to appeal for readmission.

(VII) The regulations shall also not apply in case a student is awarded the punishment of temporary dismissal for copying or to any student who is awarded the punishment of temporary or permanent dismissal and after having been debarred from entering the campus is reported to be seen entering the campus without specific permission of the Vice Chancellor. If a student indulges in any act of indiscipline after completing the graduation requirement and/ or after obtaining the provisional degree certificate, in such cases a F.I.R. will invariably be lodged with the police and his character certificate will be issued only after the final decision.

The advisor of the student concerned, the College Disciplinary Committee while enquiring into a disciplinary case may also invite hostel warden concerned.

A student punished may file a request for review of the decision within one month from the date of issue of the orders after which no review application shall be filed and only one review application can be filed.

PROCEDURE FOR THE REMOVAL OF CONDUCT PROBATION :

A. The Dean of the College may remove a student from the conduct probation on the recommendations of the Advisor, Warden and if necessary of College Disciplinary Committee in case he/she was not involved in acts of indiscipline more than once under the following conditions:

(1) If the student was placed on conduct probation by the Dean/Chief Warden on the recommendations of the College Discipline Board;

(2) If the student was placed on conduct probation by the Vice-Chancellor and has completed the graduation requirements.

B. The Vice-Chancellor may remove a student from the conduct probation on the recommendations of the University Disciplinary Committee under the following situations:

(1) If the student was placed on conduct probation by the Vice-Chancellor under recommendations of the university disciplinary committee;

(2) If the student was placed on conduct probation either by Dean/Chief Warden or by the Vice-Chancellor and was involved in acts of indiscipline more than once.

NOTE : THE ACADEMIC REGULATIONS ARE SUBJECT TO CHANGES AS PER DIRECTIONS GIVEN BY V.C.I. OR ACADEMIC COUNCIL OF THE UNIVERSITY FROM TIME TO TIME.

ANNEXURE-1

Internal Theory Examination

A. Objective type questions-60%

Objective type paper must contain atleast 6 question of 10% each of the following type:

1. Fill up the blanks	**10%(0.5×20)= 10.0**
2. Multiple choice question	**10%(1.0×20)= 10.0**
3. True/False	**10%(0.5×20)= 10.0**
4. Match the column	**10%(0.5×20)= 10.0**
5. Abbreviations/define in one line	**10%(1.0×10)= 10.0**
6. Answering one-two lines	**10%(1.0×10)= 10.0**
7. Arranging answer in sequence	**10%(1.0×10)= 10.0**

Out of which first types are mandatory.

B. Subjective type questions-40%

Subjective type paper must contain 5 questions of 8% each of the following type:

1. Write short notes	**4×2.0=8.0**
2. Differences with choice	**4×2.0=8.0**
3. Justify/Reasoning/Explanation/Figure with choice	**4×2.0=8.0**
4. Full descriptive type question with choice	**2×4.0=8.0**
5. Full descriptive type question with choice	**1×8.0=8.0**

ANNEXURE-1

External Theory Examination

A. Objective type questions-60%

Objective type paper must contain at least 6 question of 10% each of the following type:

Q.No.	Questions	01 course	02 course	03 course
1	Fill up the blanks	(0.5×20)=10.0	(1.0×10)=10.0	(1.0×10)=10.0
2	Multiple choice question	(0.5×20)=10.0	(1.0×10)=10.0	(2.0×5)=10.0
3	True/False	(0.5×20)=10.0	(1.0×10)=10.0	(1.0×10)=10.0
4	Match the column	(0.5×20)=10.0	(1.0×10)=10.0	(2.0×5)=10.0
5	Abbreviations/define in one line	(1.0×10)=10.0	(2.0×5)=10.0	(2.0×5)=10.0
6	Enlisting/listing formulae	(1.0×10)=10.0	(2.0×5)=10.0	(2.0×5)=10.0
7	Arranging answer in sequence	(1.0×10)=10.0	(2.0×5)=10.0	(2.0×5)=10.0

Out of which first five types are mandatory

B. Subjective type questions=40%

Q.No.	Questions	01 course 4×2.0	02 course 2×2.0	03 course
1	Write short notes with choice	(4×2.0)=8.0	(2×4.0)=8.0	(2×5.0)=10.0
2	Differences with choice	(4×2.0)=8.0	(2×4.0)=8.0	(2×5.0)=10.0
3	Justify/Reasoning/explanation/figure with choice	(2×4.0)=8.0	(1×8.0)=8.0	-
4	Full descriptive type question with choice	(2×4.0)=8.0	(1×8.0)=8.0	(1.0×10)=10.0
5	Full descriptive type question with choice	(1×8.0)=8.0	(1×8.0)=8.0	(1.0×10)=10.0
Total marks/ course		100.0	100.0	100.0
Weight age in each course		30	30	30

Semester theory examination will be of two hours (one hour objective and one hour subjective type) and annual board theory examination will be of three hours (1.5 hours for objective and 1.5 hours for subjective type)

CHAPTER - 2

SYLLABUS AND COURSES

FOR B.V.Sc. & A.H. Degree Programme

SYLLABUS AND COURSES

SEMESTERWISE DISTRIBUTION OF COURSES

FIRST PROFESSIONAL
SEMESTER - I

VAN-111	Veterinary Gross Anatomy-I (Osteology, Arthrology & Biomechanics)	1+2=3
VPB-111	Veterinary Physiology-I (Blood, Cardiovascular & Excretory Systems and Body Fluids)	2+1=3
VPB-112	General Veterinary Biochemistry	1+1=2
LPM-111	Livestock Production Management-I (General Principles and Ruminants)	3+1=4
AGB-111	Biostatistics and Computer Application	2+1=3
ANN-111	Principles of Animal Nutrition & Feed Technology	2+1=3
Total Credits		**11+7=18**

SEMESTER - II

VAN-121	Veterinary Gross Anatomy-II (Myology, Neurology, Angiology & Aesthesiology)	2+2=4
VPB-121	Veterinary Physiology-II (Neuromuscular, Digestive & Respiratory Systems)	2+1=3
VPB-122	Veterinary Intermediary Metabolism	2+1=3
LPM-121	Fodder Production & Grassland Management	1+1=2
LPM-122	Livestock Production Management-II (Monogastric and Laboratory Animals)	1+1=2
AGB-121	Principles of Animal Genetics and Population Genetics	2+1=3
ANN-121	Applied Animal Nutrition-I (Ruminants)	2+1=3
Total Credits		**12+8=20**

SECOND PROFESSIONAL
SEMESTER- III

VAN-211	Veterinary Histology & Embryology	2+2=4
VPA-211	General Veterinary Parasitology & Helminthology	3+1=4
VPP-211	General Veterinary Pathology	1+1=2
VMC-211	General Veterinary Microbiology	1+1=2
LPM-211	Avian Production Management	1+1=2
ANN-211	Applied Animal Nutrition-II (Non-ruminants, Poultry & Laboratory Animals)	2+1=3
AGB-211	Livestock and Poultry Breeding	2+1=3
LFP-211	Livestock Farm Practice (Non-Credit)	0+1=1
Total Credits		**12+9=21**

SEMESTER IV

VAN-221	Veterinary Splanchnology & Applied Anatomy	1+1=2
VPB-221	Veterinary Physiology-III (Endocrinology, Reproduction, Growth & Environmental Physiology)	3+1=4
VPA-221	Veterinary Entomology & Acarology	1+1=2
VPA-222	Veterinary Protozoology	2+1=3
VMC-221	Veterinary Immunology and Serology	1+1=2
VPP-221	Systemic Veterinary Pathology	2+1=3
LPM-221	Commercial Poultry Production and Hatchery Management	1+1=2
LPM-222	Livestock Production Management-III (Regional interest)	1+1=2
LFP-221	Livestock Farm Practice (Non-Credit)	0+1=1
Total Credits		**12+9=21**

THIRD PROFESSIONAL
SEMESTER –V

VPT-311	General and Systemic Veterinary Pharmacology	2+1=3
VMC-311	Systematic Veterinary Bacteriology & Mycology	2+1=3
VPP-311	Special Veterinary Pathology	2+1=3
VPE-311	Milk and Meat Hygiene, Food Safety and Public Health	2+1=3
LPT-311	Milk and Milk Products Technology	1+1=2
LPT-312	Abattoir Practice and Animal Product Technology	1+1=2
VAE-311	Principles and Techniques of Veterinary and A.H. Extension	2+1=3
Total Credits		**12+7=19**

SEMESTER- VI

VPT-321	Veterinary Neuropharmacology	2+1=3
VMC-321	Systematic Veterinary Virology	2+1=3
VPP-321	Avian Pathology	1+1=2
VPP-322	Aquatic Animal Diseases, Health Care and Management	1+1=2
VPE-321	Veterinary Epidemiology and Zoonosis	2+1=3
LPT-321	Meat Science	1+1=2
VPB- 321	Animal Biotechnology	2+1=3
VAE-321	Livestock Economics, Marketing and Business Management	2+1=3
Total Credits		**13+8=21**

FOURTH PROFESSIONAL
SEMESTER- VII

VPT-411	Veterinary Chemotherapy	2+0=2
VSR-411	General Veterinary Surgery, Anaesthesiology and Diagnostic Imaging	2+2=4
VGO-411	Veterinary Gynaecology	2+1=3
VMD-411	Veterinary Clinical Medicine-I (General & Systemic)	2+1=3
VMD-412	Veterinary Preventive Medicine–I (Bacterial, Fungal & Rickettsial Diseases)	2+0=2

VLD- 411	Veterinary Clinical Biochemistry and Laboratory Diagnosis-I	0+1=1
VCP-411	Veterinary Clinical Practice	0+5=5
Total Credits		**10+10=20**

SEMESTER- VIII

VPT-421	Veterinary Toxicology	2+0=2
VSR-421	Regional Veterinary Surgery	2+1=3
VGO-421	Veterinary Obstetrics	1+1=2
VMD-421	Veterinary Clinical Medicine-II (Metabolic & Deficiency Diseases)	2+0=2
VMD-422	Veterinary Preventive Medicine -II (Viral & Parasitic Diseases)	2+0=2
VLD- 421	Veterinary Clinical Biochemistry and Laboratory Diagnosis-II	0+1=1
VCP-421	Veterinary Clinical Practice	0+5=5
TVC-421	Veterinarian in Society (Non Credit)	1+0=1
Total Credits		**10+8=18**

FIFTH PROFESSIONAL
SEMESTER- IX

VSR-511	Veterinary Orthopedics and Lameness	1+1=2
VMD-511	Animal Welfare, Ethics & Jurisprudence	2+0=2
VMD-512	Zoo/Wild Animal Breeding, Management, Nutrition and Health Care	1+1=2
VMD-513	Pet Animal Breeding Management, Nutrition and Health Care	1+1=2
VGO-511	Veterinary Andrology and Reproductive Techniques	1+1=2
VPE-511	Environment and Environmental Hygiene	2+1=3
VAE-511	Livestock Entrepreneurship	1+0=1
VCP-511	Veterinary Clinical Practice	0+5=5
Total Credits		**9+10=19**

SEMESTER-WISE DISTRIBUTION OF THEORY AND PRACTICAL

Professional Year	Semester	Theory	Practical	Total
First	I	11	7	18
	II	12	8	20
Second	III	12	9	21*
	IV	12	9	21*
Third	V	12	7	19
	VI	13	8	21
Fourth	VII	10	10	20
	VIII	10	8	18**
Fifth	IX	9	10	19
		101	76	177

* 1 credit (0+1) each for two courses on Livestock Farm Practice (non credit) included.
** 1 credit (1+0) for Veterinarian in Society (non credit) included.

Other Non-Credit Course (4 Credits)

Tracking Programmes – Two programmes of 2 Credits each = 4 Credits

SUBJECT-WISE COURSES AND CREDIT HOURS

COURSE NO.	COURSE TITLE	CREDIT HOURS	SEMESTER
1. Veterinary Anatomy			
VAN-111	Veterinary Gross Anatomy-I (Osteology, Arthrology & Biomechanics)	1+2	I
VAN-121	Veterinary Gross Anatomy-II (Myology, Neurology, Angiology & Aesthesiology)	2+2	II
VAN-211	Veterinary Histology & Embryology	2+2	III
VAN-221	Veterinary Splanchnology & Applied Anatomy	1+1	IV
Total Credits		**6+7=13**	
2. Veterinary Physiology and Biochemistry			
VPB-111	Veterinary Physiology-I (Blood, Cardiovascular & Excretory Systems and Body Fluids)	2+1	I
VPB-112	General Veterinary Biochemistry	1+1	I
VPB –121	Veterinary Physiology-II (Neuromuscular Digestive & Respiratory Systems)	2+1	II
VPB-122	Veterinary Intermediary Metabolism	2+1	II
VPB-221	Veterinary Physiology-III (Endocrinology, Reproduction Growth & Environmental Physiology)	3+1	IV
VPB- 321	Animal Biotechnology (To be taught jointly with VMC & VGO)	2+1	VI
Total Credits		**12+6 = 18**	
3. Veterinary Pharmacology & Toxicology			
VPT-311	General and Systemic Veterinary Pharmacology	2+1	V
VPT-321	Veterinary Neuropharmacology	2+1	VI
VPT-411	Veterinary Chemotherapy	2+0	VII
VPT-421	Veterinary Toxicology	2+0	VIII
Total Credits		**8+2 = 10**	

4. Veterinary Parasitology

VPA-211	General Veterinary Parasitology & Helminthology	3+1	III
VPA-221	Veterinary Entomology and Acarology	1+1	IV
VPA-222	Veterinary Protozoology	2+1	IV
Total Credits		**6+3=9**	

5. Veterinary Microbiology

VMC-211	General Veterinary Microbiology	1+1	III
VMC-221	Veterinary Immunology and Serology	1+1	IV
VMC-311	Systematic Veterinary Bacteriology and Mycology	2+1	V
VMC-321	Systematic Veterinary Virology	2+1	VI
Total Credits		**6+4=10**	

6. Veterinary Pathology

VPP-211	General Veterinary Pathology	1+1	III
VPP-221	Systemic Veterinary Pathology	2+1	IV
VPP-311	Special Veterinary Pathology	2+1	V
VPP-321	Avian Pathology	1+1	VI
VPP-322	Aquatic Animal Diseases, Health Care and Management (To be taught jointly with VMD and LPM) Associated with the teaching of VLD-411, VLD-421, VMD-512 & VMD-513	1+1	VI
Total Credits		**7+5 = 12**	

7. Veterinary Public Health & Epidemiology

VPE-311	Milk & Meat Hygiene, food safety and Public health	2+1	V
VPE-321	Veterinary Epidemiology and Zoonosis	2+1	VI
VPE-511	Environment and Environmental Hygiene	2+1	IX
Total Credits		**6+3 = 9**	

8. Animal Nutrition

ANN-111	Principles of Animal Nutrition & Feed Technology	2+1	I
ANN-121	Applied Animal Nutrition-I(Ruminants)	2+1	II
ANN-211	Applied Animal Nutrition-II (Non-ruminants, Poultry & Laboratory Animals) Associated with the teaching of VMD-512 & VMD-513	2+1	III
Total Credits		**6+3 =9**	

9. Animal Genetics & Breeding

AGB-111	Biostatistics and Computer Application	2+1	I
AGB-121	Principles of Animal Genetics and Population Genetics	2+1	II
AGB-211	Livestock and Poultry Breeding	2+1	III
Associated with the teaching of VMD-512 & VMD-513			
Total Credits		**6+3 = 9**	

10. Livestock Production Management

LPM-111	Livestock Production Management-I (General Principles and Ruminants)	3+1	I
LPM-121	Fodder Production & Grassland Management	1+1	II
LPM-122	Livestock Production Management-II(Monogastric and Laboratory Animals)	1+1	II
LPM-211	Avian Production Management	1+1	III
LPM-221	Commercial Poultry Production and Hatchery Management	1+1	IV
LPM-222	Livestock Production Management (Regional interest) (Optional : to be developed on the basis of regional interest)	1+1	IV
	Associated with the teaching of VPP-322. VMD-512 & VMD-513		
Total Credits		**8+6 = 14**	

11. Livestock Products Technology

LPT-311	Milk and Milk Products Technology	1+1	V
LPT-312	Abattoir Practice and Animal Product Technology	1+1	V
LPT-321	Meat Science	1+1	VI
Total Credits		**3+3 = 6**	

12. Veterinary Gynaecology & Obstetrics

VGO-411	Veterinary Gynaecology	2+1	VII
VGO-421	Veterinary Obstetrics	1+1	VIII
VGO-511	Veterinary Andrology & Reproductive Techniques	1+1	IX
Total Credits		**4+3 = 7**	

13. Veterinary Surgery & Radiology

VSR-411	General Veterinary Surgery, Anaesthesiology and Diagnostic Imaging	2+2	VII
VSR-421	Regional Veterinary Surgery	2+1	VIII
VSR-511	Veterinary Orthopedics and Lameness	1+1	IX
	Associated with the teaching of VMD-512 & VMD-513)		
Total Credits		**5+4= 9**	

14. Veterinary Medicine

VMD-411	Veterinary Clinical Medicine-I (General & Systemic)	2+1	VII
VMD-412	Veterinary Preventive Medicine –I (Bacterial, Fungal & Rickettsial Diseases)	2+0	VII
VMD-421	Veterinary Clinical Medicine -II (Metabolic & Deficiency Diseases)	2+0	VIII
VMD-422	Veterinary Preventive Medicine -II (Viral & Parasitic Diseases)	2+0	VIII
VMD-511	Animal Welfare, Ethics & Jurisprudence	2+0	IX
VMD-512	Zoo / Wild Animal Breeding, Management, Nutrition and Health Care (To be taught jointly with AGB, LPM, ANN, VPP and VSR)	1+1	IX
VMD-513	Pet Animal Breeding, Management, Nutrition and Health Care (To be taught jointly with AGB, LPM, ANN, VPP and VSR) Associated with the teaching of VPP-312	1+1	IX
Total Credits		**12+3 = 15**	

15. Veterinary& Animal Husbandry Extension Education

VAE-311	Principles & Techniques of Veterinary and A. H. Extension	2+1	V
VAE –321	Livestock Economics, Marketing and Business Management	2+1	VI
VAE –511	Livestock Entrepreneurship	1+0	IX
Total Credits		**5+2=7**	

16. Teaching Veterinary Clinical Complex

VCP-411	Veterinary Clinical Practice	0+5	VII
VCP-421	Veterinary Clinical Practice	0+5	VIII
VCP-511	Veterinary Clinical Practice	0+5	IX
VLD-411	Veterinary Clinical Biochemistry and Laboratory Diagnosis-I (To be taught jointly by VPB &VPP)	0+1	VII
VLD-421	Veterinary Clinical Biochemistry and Laboratory Diagnosis –II (To be taught by VPB, VPP, VMC &VPT)	0+1	VIII
TVC-421	Veterinarian in Society (Non Credit)	1+0	VIII
Total Credits		**1+17= 18**	

17. Instructional Livestock Farm Complex

LFP-211	Livestock Farm Practice (Non-Credit)	0+1=1	III
LFP-221	Livestock Farm Practice (Non-Credit)	0+1=1	IV
Total Credits			**0+2=2**

GRAND TOTAL

Courses : 65
Credits : Core Courses : 177 (101+76)
Including Non Credit Courses: 1+0(Veterinarian in Society) and 2 credits (0+1) x 2 (Livestock Farm Practice)
Non-Core Course : 4 credits (tracking programmes)

Group of subject-wise credit distribution:

1.	Basic Veterinary Subjects	23+15=38
2.	Production Subjects	23+15=38
3.	Pre-Clinical Subjects	27+14=41
4.	Clinical Subjects	27+13=40
5.	Teaching Veterinary Clinical Complex	0+17=17
	Total :	100+74=174

DEPARTMENT OF VETERINARY ANATOMY

SEMESTER I
VETERINARY GROSS ANATOMY–I
(Osteology, Arthrology and Biomechanics)

VAN - 111 **Credit hours 1+2 = 3**

THEORY

Osteology : Definition of the terms used in Veterinary Anatomy in general and osteology in particular. Classification, physical properties and structure of bones, Gross study of bones of appendicular and axial skeleton of Ox / Buffalo as type species and comparison with Sheep / Goat, Pig, Horse, Dog and Fowl with particular emphasis on their topography, contour, landmarks and functional anatomy from clinical and production point of view. Detail study of bones of head, neck, thorax, abdomen, pelvis, tail, forelimb and hindlimb.

Arthrology : Classification and structure of joints. Articulation and ligaments of head, neck, thorax abdomen, pelvis, tail, forelimb and hindlimb of Ox / Buffalo as type species, their structure, functional anatomy and comparison with other domestic animals from clinical and production point of view.

Biomechanics : Biomechanics and its application with reference to quadruped locomotion, kinetics of locomotion, stress and strains falling on locomotor apparatus, landmarks, angulation and weight bearing bones of ox, buffalo and comparison with other animals particularly horse and dog.

PRACTICAL

Comparative study of the bones of appendicular and axial skeleton, their structure, landmarks, angulation, weight bearing and function in Ox/Buffalo and comparison with that of Sheep/Goat, Pig, Horse, Dog and Fowl and relate them in live animals. Dissection of joints of all the body regions of Ox/Buffalo to study the structure and function and comparison with other domestic animals. Biomechanics and kinetics of locomotion.

SEMESTER II

VETERINARY GROSS ANATOMY–II

(Myology, Neurology, Angiology and Aesthesiology)

VAN - 121 **Credit Hours: 2+2 = 4**

THEORY

Myology : Structural and functional classification of muscles. Gross study of skeletal muscles of head, neck, thorax, abdomen, pelvis, tail, forelimb and hindlimb with their origin, insertion and action and their structural and functional importance from clinical and production point of view in Ox / Buffalo as a type species. Comparative study of muscles in other domestic animals.

Neurology : Study of central, peripheral and autonomic nervous system. Gross study of meninges, brain, spinal cord, cranial and spinal nerves and their functional importance from clinical and production point of view. Gross morphology and disposition of the nerves of head, neck, thorax, abdomen, pelvis, tail, forelimb and hindlimb in Ox / Buffalo as a type and comparative study in other domestic animals.

Angiology : Gross morphology of heart and disposition of arteries, veins and lymphatic of head, neck, thorax, abdomen, pelvis, tail, forelimb and hindlimb in Ox / Buffalo as type and comparison with that of Sheep / Goat, Pig, Horse, Dog and Fowl. Their importance from clinical and production point of view.

Aesthesiology : Gross morphological study of the eye, ear, nose, hoof, horn and skin in Ox / Buffalo. Their functional importance and comparative study in other domestic animals. Computer simulation for dissection and study of body parts.

(Note: The general outline of muscular, circulatory and nervous system be taken up in the beginning of this course to be followed by gross disposition of group of muscles, arteries, veins and lymphatics simultaneously region-wise.)

PRACTICAL

Demonstration of embalming of the carcass and preservation. Dissection/computer simulation models for dissection and demonstration of body parts.

Dissection of muscles of all body regions of Ox/Buffalo, their location, functional role in the body and comparison with other species.

Study of brain and spinal cord in different domestic animals. Study of heart and major blood vessels in different species of animals. Area of auscultation of heart.

Dissection of blood vessels, lymphatics and nerves of head, neck, thorax, abdomen, pelvis, tail, forelimb and hindlimb in Ox / Buffalo and comparative study in other domestic animals. Demonstration of palpable Lymph nodes of the body. Study of the sites of cornual, auriculo palpebral, peterson's, infraorbital, radial, ulnar, median, paravertebral, epidural, pudendal, perineal and tibial nerve blocks and their clinical importance.

Dissection for study of eye, ear, nose, hoof and horn.

SEMESTER III

VETERINARY HISTOLOGY AND EMBRYOLOGY

VAN –211 **Credit Hours 2+2=4**

THEORY

General Histology : Structure of animal cell and basic tissues and their functional activity. Epithelia and their modifications. Connective tissue and its components including blood and bone. Muscular tissue types and their functional peculiarities. Neuron, nerve fibre and ganglion.

Systemic Histology : Study of microscopic structure of the organs of digestive, respiratory, urinary, reproductive, nervous and cardiovascular systems, sense organs, endocrines and lymphoid organs. of domestic animals and birds.

Embryology : Gametogenesis, fertilization, cleavage, gastrulation, and the development of foetal membranes in birds and mammals. Structure and types of mammalian placenta. Development of the organs of digestive, respiratory, urogenital, cardiovascular, nervous and locomotor system and organs of special sense and endocrine glands. Fetal circulation.

PRACTICAL

Microscopy and micrometry : Comparison of light and electron microscopy. Histological techniques, Processing of tissues for paraffin sectioning and Haematoxylin and Eosin staining. Microscopic examination and identification of basic tissue and their components. Examination of histological sections of various organs/systems of domestic animals and birds.

Study of structure of mammalian ova and spermatozoa and egg of fowl. Study of the whole mount and serial sections of avian and mammalian embryo / foetus at different stages of development. Microscopic anatomy of fetal membranes and placenta of various domestic animals.

SEMESTER IV

VETERINARY SPLANCHNOLOGY AND APPLIED ANATOMY

VAN - 221 **Credit Hours 1+1 = 2**

THEORY

Gross morphological and topographical study of various organs of digestive, respiratory, urinary, male and female reproductive, lymphatic and endocrine systems, Pleura and Peritoneum in Ox Buffalo as type and their comparison with that of Sheep/Goat, Pig, Horse, Dog and Fowl.

Different Terminology used in applied Anatomy. Palpable Anatomical body structures and their use in Health and disease.

PRACTICAL

Demonstration and description of palpable anatomical structures on the body surface of live animal (head, neck, thorax, pectoral bones, pelvic bones, limbs). Outline of body cavities and study of organs of digestive, respiratory, urinary, reproductive, lymphatic and endocrine systems of Ox /Buffalo and their comparative anatomy in other species. Pleural and peritoneal reflections. Comparative topographic anatomy in live animals. Nerve blocks and their sites.

Applied anatomy of sites for thoraco-centesis, auscultation, abdominocentesis, rumenotomy, laparotomy, spleenectomy, enterotomy, palpation of anatomical structures in the abdominal and perineal regions. Radiographic visualisation of gross anatomical features of various regions of the body.

(Note: Computer simulation model studies shall be used for better understanding of the subject.)

DEPARTMENT OF VETERINARY PHYSIOLOGY AND BIOCHEMISTRY

SEMESTER I

VETERINARY PHYSIOLOGY – I

(Blood, Cardiovascular, Excretory system and Body Fluids)

VPB – 111 **Credit Hours: 2+1=3**

THEORY

Introduction to Blood : Properties of blood as a body fluid, metabolism and fate of R.B.C; Hemoglobin-chemical structure, synthesis, physiological functions, derivatives of hemoglobin; Anemia; Plasma proteins, lipids –origin and function; Coagulation mechanisms and

regulation of haemostasis; fibronolysis; anticoagulation mechanism. Blood pH, blood volume and their determination. Osmotic fragility, erythrocyte sedimentation rate, haematocrit and haemolysis; Leucocyte - phagocytic and immunogenic functions.

Heart - morphological characteristic, systemic excitability conduction & transmission processes. Cardiac Cycle:-Regulation of cardiac output; coronary circulation; properties of pulse; metabolism & energetic of working myocardial cell, extrinsic and intrinsic regulation;ECG and its significance in Veterinary Sciences – Echocardiography.

Haemodynamics of circulation, circulatory mechanics, resistance to flow, vasoconstriction, nervous and circulating fluid volume controls of blood pressure, neurohormonal control of vascular smooth muscle. Circulatory controls- shock stresses, regional and fetal circulations. Capillary exchange, control of
blood pressure. Adjustments of circulation during exercise.

Kidney - Functional morphology of nephron, factors determining filtration pressure, determination of glomerular filtration rate (GFR) and renal plasma flow -Reabsorption mechanisms for glucose, protein, amino acids, electrolytes; ammonium mechanism, glomerulotubular balance, methods of studying renal functions; urine concentration; micturition, uraemia.

Fluid, water balance, fluid therapy, dehydration, water concentration mechanisms. Acid base balance and H+ regulation, correction and evolution of imbalances, total osmotic pressure, potassium balance, electrolyte and water imbalances, thirst.
Formation and excretion of urine in Birds.

Cerebrospinal fluid, synovial fluids –composition, formation and flow; Joints. Regulations of bone metabolism and homeostasis.

PRACTICAL

Collection of blood samples – Separation of serum and plasma – Preservation of defibrinated blood – enumeration of erythrocytes, leucocytes – differential leucocytic count –platelet count – estimation of hemoglobin –haemotocrit – erythrocyte sedimentation rate – packed cell volume – coagulation time – bleeding time – Erythrocyte fragility and viscosity – blood grouping – recording of ECG –measurement of arterial blood pressure (Sphygmomanometry). Recording of cardiogram of frog heart- Study the effect of heat and cold on heart –effect of vagus stimuli on heat – vagal escape – factors affecting blood flow through blood vessels- urine analysis – physiological constituents , pathological determinates, determined of GFR. Titerable acidity, determination of inorganic phosphorus, urine ammonia and creatinine in urine.

SEMESTER II
VETERINARY PHYSIOLOGY –II
(Neuromuscular, Digestive and Respiratory systems)

VPB-121 **Credit Hours: 2+1 =3**

THEORY

Muscle Physiology - Basic muscle unit characteristic-electrical phenomenon in muscle cell -Membrane potential ionic basis of resting membrane potential, muscle action potential, excitation and propagation of impulse characteristics- latent period refractive ness, threshold level-all & none characteristics - contractile mechanism- excitation –contraction coupling- neuromuscular transmission, types of muscle contraction, phenomenon of fatigue, rigor mortis.

Organization of nervous system - Mechanism of information processing, hierarchical control. Major functional system- sensory, consciousness, emotion, motor and visceral control

and basic functional unit – neuron structure, type- functional characteristics of sub-units of neuron. Membrane potential- ionic basis of resting membrane potential (RMP) nerve action potential, excitation and propagation of impulse characteristics- latent period –refractive ness, threshold level-all & none characteristics. Degeneration and regeneration of nerve fibre. Synaptic and junctional transmission.

Functions of nervous system - reflexes–control of posture and movements, autonomic nervous system and visceral control. Neurotransmitter wakefulness, sleep cycle. Higher function of neurons system –learning memory. Familiarization with common equipments used in neurophysiology (oscilloscope, electroencephalography, machine stimulators etc).

Sense organs and receptors physiology of special senses – EYE: functional morphology, nourishment and protection neural pathway, receptors – optics, ocular muscles and movements, photochemistry, eye defects and eye examinations (as an aid to clinical evaluation). EAR: Physiology of hearing and common hearing impairment. Vestibule apparatus. Physiology of Olfaction And Taste.

Morphological characteristic of monogastric and poly gastric digestive system. Prehension, rumination; defaecation; vomition; regulation of secretory function of saliva, stomach, intestine, pancreas; bile secretion; hunger, appetite control, developmental aspects of digestion; luminous, membranous and microbial digestion in rumen and intestine; permeability characteristics of intestine, forces governing absorption, control intestinal transport of electrolyte and water, enzymatic digestion in monogastric and fermentative digestion in rumen, modification of toxic substances in rumen. Digestion in birds.

Functional morphology of respiratory apparatus. Mechanics of breathing. Transport of blood gases, foetal and neonatal oxygen transport, dissociation curves, pressures, recoil tendency, elasticity, surfactants, pleural liquid, compliance, exchanges of gases in lungs and tissues, neural and chemical regulation of breathing, diffusion, perfusion, hypoxia. Frictional resistance to air flow, airways smooth muscle contraction, respiratory muscle work, panting, adaptation of respiration during muscles exercise high altitude hypoxia, Non-respiratory lung functions. Respiration in birds.

PRACTICAL

Counting of rumen motility, estimation of volatile fatty acids and ammonia in rumen. Bacterial and protozoal count. *In-vitro* action of proteolytic enzymes – pepsin and trypsin.

Experimental physiology: Pithing of frog, preparation of nerve muscle-Recording of twitch response, effect of single stimulus- effect of heat and cold. Fatigue – summation, tetanus. Recording of respiration, spirometry. Recording of volume and capacities in different physiological states including determination of vital capacities. Recording of rumen / intestinal movements (Demonstration)

SEMESTER IV

VETERINARY PHYSIOLOGY – III

(Endocrinology, Reproduction, Growth and Environmental Physiology)

VPB-221 **Credit Hours: 3+1=4**

THEORY

Hormone cell interaction, sub-cellular mechanisms-metabolism of hormones-methods of study of endocrine system; Receptors- mechanism of regulation; Chemistry of hypothalamo –hypophyseal hormones, target organ, pineal, thyroid, thymus, pancreas, adrenal, prostaglandins, hormones of calcium metabolism, disorders, rennin-angiotensin system, atrial natriuretic factors, erythropoietin, GI hormones, pheromones.

Genetic & endocrine control of gonadal development, modification of gonadotrophin release, ovarian functions, follicular development, dynamics, endocrine and receptor profiles, sexual receptivity, ovarian cycle, post partum ovarian activity, ovum transport, capacitation, fertilization, reproductive cycles in farm animals- hormones present in the biological fluids during pregnancy and their uses for the diagnosis of pregnancy –maternal foetal placental participation in pregnancy & parturition, immunology of gestation, preparturient endocrine events.

Spermatogenic cycle and wave- function of sertoli cell-leydig cell- semen – composition-evaluation; Testosterone – function and regulation – cryptorchidism. Puberty –photoperiod- uses of androgens, progestogens, estrogens.

Functional and metabolic organization of mammary glands –structure and development; effect of estrogens and progesterone; hormonal control of mammary growth; lactogenesis and galactogenesis; biosynthesis of milk constituents- secretion of milk, mastitis and metabolism, prolactin and mammary tumours.-lactation cycle.

Biochemical and genetic determinants of growth, regulation of growth, metabolic and hormone interactions, factors affecting efficiency of growth and production in ruminants and single stomach animals. Growth in meat producing animals & birds, growth curves. Recombinant gene transfer technologies for growth manipulation- advantages and limitations. Protein deposition in animals and poultry.

Heat balance, heat tolerance, hypothermia, hyperthermia, thermo-regulation in farm animals, role of skin, responses of animals to heat and cold, fever, body temperature and hibernation. Temperature regulation in birds.

Climatology –various parameters and their importance. Effect of different environmental variables like temperature, humidity, light, radiation, altitude on animal performance. Acclimation, acclimatization – general adaptive syndrome. Clinical effect on endocrine–reproductive function, circadian rhythm.

Neurophysiology of behaviour, types of behaviour, communication, Learning and memory, behavioural plasticity.

PRACTICAL

Oestrus and phases of oestrous cycle in animals (vaginal mucus). Behavioural signs of oestrus. Bio-assay for trophic hormone. Demonstration of hormone estimation. Rectal palpation of reproductive organs. Sperm motility, sperm concentration – live and dead –abnormal sperm count. Measurement of growth in various species. Measuring surface area of animals. Health parameters of animals- body temperature, pulse, respiration and heart rate. Measurement of animal environmental conditions. Behaviour of animals- mating behaviour, milking behaviour, feeding behaviour (live/videographic/computer simulated demonstration)

SEMESTER I

GENERAL VETERINARY BIOCHEMISTRY

VPB- 112 **Credit Hours 1+1=2**

THEORY

Scope and importance of biochemistry : Structure of biological membranes and transport across membranes. Donnan membrane equilibrium. Dissociation of acids, pH, buffer systems, Henderson-Hasselbalch equation.

Biochemistry of carbohydrates. Biological significance of important Monosaccharides (ribose, glucose, fructose, galactose, mannose and amino sugars), Disaccharides (maltose, isomaltose, lactose, sucrose & cellobiose), Polysaccharides, (starch, dextrins, dextrans, glycogen, cellulose, inulin, chitin), and Mucopolysaccharides including bacterial cell wall polysaccharides.

Biochemistry of lipids: Properties and biological significance of simple, compound and derived lipids and lipoproteins. Structure and functions of prostaglandins. Chemistry of bile and bile acids.

Biochemistry of proteins: Structure, properties and biological significance of proteins. Amino acids: classification and structure of neutral, basic and acidic amino acids. Properties of amino acids: amphoteric nature, optical activity, and peptide bond formation. Chemical reactions of proteins.

Biochemistry of nucleic acids: Chemistry of purines, pyrimidines, nucleosides and nucleotides. Biological significance of nucleosides & nucleotides. Structures and functions of deoxyribonucleic acid (DNA) and a typical ribonucleic acid (RNA).

PRACTICAL

Concentration of solutions – System International (S.I.) Units. Preparation/standardization of acids & alkalies. Preparation of buffers and determination of pH. Titration curve of acid versus base. Reactions of mono-, di-, and polysaccharides and their identification. Estimation of lactose in milk. Determination of acid number of an oil. Colour reactions of proteins. Precipitation reactions of proteins. Estimation of amino acids (Sorensen's method)

SEMESTER II

VETERINARY INTERMEDIARY METABOLISM

VPB-122 **Credit Hours 2+1=3**

THEORY

Enzymes : Definition and classification, EC numbering of enzymes. Coenzymes, co-factors & iso-enzymes.

Properties: Protein nature, enzyme-substrate complex formation, modern concept of the active center of enzyme. Specificity of enzyme action: Substrate specificity, group specificity, stereo or optical specificity.

Factors influencing enzyme action: Effects of temperature, pH, concentration of substrate and enzyme. Enzyme units: International Units, katal, turnover number & specific activity.

Enzyme inhibition: Competitive, non-competitive, uncompetitive inhibition & suicidal inhibition. Allosteric enzymes.

Biological oxidation: Enzymes and coenzymes involved in oxidation and reduction viz. Oxidoreductases, oxidases, oxygenases, dehydrogenases, hydroperoxidases & cytochromes. Respiratory chain/ electron transport chain, oxidative phosphorylation, inhibitors, uncouplers and other factors influencing electron transport chain.

Carbohydrate metabolism: Glycolysis, Kreb's cycle, glyoxylate cycle, HMP shunt, gluconeogenesis, Cori cycle, glycogenesis, glycogenolysis, hormonal control of carbohydrate metabolism & regulation of blood sugar. Bioenergetics of carbohydrate metabolism.

Lipid metabolism: Beta oxidation of fatty acids, ketone body formation, biosyntheses of fatty acids, triacylglycerol, phospholipids & lipoprotein metabolism. Bioenergetics of lipid metabolism.

Protein metabolism: Biosynthesis and degradation. Deamination, transamination and decarboxylation of amino acids. Ammonia transport and urea cycle

Nucleic acids: Metabolism of purines and pyrimidines. DNA & RNA biosynthesis. Integration of metabolism. Metabolic functions of macro and micro nutrients, Metabolic functions of lipid and water soluble vitamins. Uses of isotopes in metabolic studies.

PRACTICAL

Effect of pH and temperature on enzyme activity. Estimation of normal / abnormal constituents of urine. Electrophoretic separation of proteins. Paper chromatography. Estimation of bilirubin, blood glucose, electrolytes and other metabolic intermediaries in blood (colorimetry/ spectrophotometry/ flame photometry).

SEMESTER VI
ANIMAL BIOTECHNOLOGY

VPB- 321 **Credit Hours 2+1=3**

THEORY

Definitions, basic concepts and scope of animal biotechnology. Recombinant DNA technology. Gene cloning, vectors and expression vectors. Transformation and transfection. Polymerised chain reaction (PCR), construction of genomic library and cDNA library. DNA sequencing. Principles of transfer of nucleic acids and proteins (Southern, Northern and Western blotting), Nucleic acid hybridization, DNA probes and DNA fingerprinting.
Biotechnological application in animal improvements:

Embryo biotechniques, in *vivo* and in *vitro* embryo production and preservation, sexing, micromanipulation and cloning, transgenic animal and biopharming.

Mapping of genome and genome sequencing. Marker assisted selection. Gene banking. Nutritional biotechnology including bioconversion of lignocellulose, genetic manipulation of microbes for improved feed utilization and health. Animal tissue culture, transformation and cell lines, tumor markers and acute phase proteins

Molecular diagnosis including PCR and DNA probes. Hybridoma and monoclonal antibodies. New generation vaccines: Subunit, recombinant and recombinant vectored vaccines Fermentation process and technologies for milk, meat and leather.

Ethics and regulatory issues in Biotechnology. IPR. Bioinformatics.

PRACTICAL

DNA and plasmid isolation. Gel electrophoresis. PCR. Screening of gametes and embryo. Use of Multimedia and audio-visual aids for molecular biology aspects.

(The course is to be taught jointly with the Departments of Veterinary Microbiology and Veterinary Gynaecology and Obstetrics)

DEPARTMENT OF VETERINARY PHARMACOLOGY AND TOXICOLOGY

SEMESTER V
GENERAL AND SYSTEMIC VETERINARY PHARMACOLOGY

VPT-311 **Credit Hours 2+1 = 3**

THEORY

Historical development, branches and scope of Pharmacology. Sources and nature of drugs. Pharmacological terms and definitions. Principles of drug activity: Pharmacokinetics – Routes of drug administration, absorption, distribution, biotransformation and excretion of drugs. Pharmacodynamics- Concept of drug and receptor, dose-response relationship, terms related to drug activity and factors modifying the drug effect and dosage. Fundamentals of drug-screening and assay of drugs. Adverse drug reactions, drug interaction, drug designing and development, bio prospecting of drugs. Introduction to biopharmaceutics and gene therapy.

Drugs acting on digestive system: Stomachics, antacids and antiulcers, prokinetics, carminatives, antizymotics, emetics, antiemetics, purgatives, antidiarrhoeals, cholerectics and cholagogues. Rumen pharmacology.

Drugs acting on Cardiovascular system: cardiac glycosides, antiarrhythmic drugs, vasodilators and antihypertensive agents, haematinics, coagulants and anticoagulants.

Drugs acting on respiratory system: Expectorants and antitussives, respiratory stimulants, bronchodilators and mucolytics.

Drugs acting on urogenital system: Diuretics, urinary alkalizers, and acidifiers, fluid therapy, ecbolics and tocolytics.

Pharmacotherapeutics of hormones and vitamins.

Drugs acting on skin and mucous membranes: Emollients, demulcents and counter irritants.

Bio-enhancers, Immunostimulants and immunosuppressants.New drugs and drug formulations.

PRACTICAL

Pharmacy appliances. Principles of compounding and dispensing.
Metrology: systems of weights and measures, pharmacy calculations. Pharmaceutical processes. Pharmaceutical dosage forms. Prescription writing, incompatibilities. Drug standards and regulations, Custody of poisons. Compounding and dispensing of powders, ointments, mixtures, liniments, lotions, liquors, tinctures, emulsions, and electuaries.

SEMESTER VI

VETERINARY NEUROPHARMACOLOGY

VPT-321 **Credit Hours 2+1=3**

THEORY

Drugs acting on autonomic nervous system: Neurohumoral transmission, adrenoceptors agonists and antagonists, adrenergic neuron blockers, cholinoceptors agonists and antagonists, ganglionic stimulants and blockers.
Autacoids: Histamine and antihistaminic agents, 5-Hydroxytryptamine and its antagonists, prostaglandins, angiotensin and bradykinin.
Drugs acting on central nervous system (CNS): Pharmacology of neurotransmitters. History of general anaesthetics and theories of anaesthesia. Inhalent, intravenous and dissociative anaesthetics; hypnotics and sedatives; tranquilizers, psychotropic drugs, anticonvulsants, opioid analgesic, non-steroidal anti-inflammatory drugs, analeptics and other CNS stimulants, central muscle relaxants.
Drugs acting on somatic nervous system: Local anaesthetics and peripheral muscle relaxants. New drugs and drug formulations

PRACTICAL

Demonstration of the effect of CNS depressants, analgesics, CNS stimulants, muscle relaxants, anticonvulsants, local anaesthetics in laboratory animals.
Demonstration of the action of adrenergic and cholinergic agonists and antagonists on isolated and intact preparations of the animals
Alternate use of animals as model for demonstration

SEMESTER VII
VETERINARY CHEMOTHERAPY

VPT-411 **Credit Hours 2+0 = 2**

THEORY

Antibacterial agents: Classification, general principles in antibacterial chemotherapy, antibacterial resistance. Sulphonamides and their combination with diaminopyrimidines, sulfones, nitrofurans, nalidixic acid and fluoroquinolones.
Antibiotics: Penicillins and cephalopsorins, aminoglycosides, tetracyclines, chloramphenicol, macrolides, polypeptides. Miscellaneous agents: methenamine, bacitracin. Rifampin,novobiocin,virginamycin, lincosamides and vancomycin.
Antifungal agents: Topical and systemic agents including anti-fungal antibiotics.
Anthelmintics: Drugs used against cestodes, trematodes, nematodes, drug resistance, broad-spectrum anthelmintics.
Antiprotozoal agents: Drugs used in trypanosomosis, theileriosis, babesiosis, coccidiosis, amoebiosis, giardiosis and trichomonosis.
Ectoparasiticides, Antiviral and anticancer agents, Antiseptics and disinfectants, Growth promoters.
Common indigenous drugs of plant origin with proven pharmacological and therapeutic efficacies in various animal ailments.
New drugs and drug formulations.

SEMESTER VIII
VETERINARY TOXICOLOGY

VPT-421 **Credit Hours 2+0=2**

THEORY

General Toxicology: Definitions, fundamentals and scope of toxicology. Sources and mode of action of poisons. Factors modifying toxicity. General approaches to diagnosis and treatment of poisoning.
Toxicity caused by metal and non-metals: Arsenic, lead, mercury, copper, selenium, molybdenum, phosphorus, nitrates and nitrites, common salt and fluoride.
Toxicity caused by plants and weeds: Cyanogenetic plants, abrus, lantana, ipomoea, nerium, datura, nux vomica, castor, selenium containing plants oxalate producing plants, plants causing thiamine deficiency.
Drug toxicity and toxicity caused by agrochemicals: organophosphates, carbamates, chlorinated hydrocarbons, pyrethroids, herbicides, fungicides, rodenticides and urea.
Residue toxicology: Hazards of residues, concepts of withdrawal time and MRLs, minimizing drug and toxic residues in animal products.
Venomous bites and stings: Snake bite, scorpion, spider, wasp stings and toad poisoning. Radiation hazards and industrial toxicants. Toxicity caused by food additives and preservatives.

DEPARTMENT OF VETERINARY PARASITOLOGY
SEMESTER III
GENERAL VETERINARY PARASITOLOGY AND HELMINTHOLOGY

VPA- 211 **Credit Hours 3+1=4**

THEORY

Parasites and parasitism. Types of Parasitism. Commensalism, symbiosis and predatorism, Types of hosts: Final and Intermediate hosts, paratenic host and reservoir hosts, natural and unnatural hosts. Host parasite relationship; mode of transmission of parasites and methods of dissemination of the infective stages of the parasite. Parasite specificity in relation to species,

breed, sex and location. Tissue reactions caused by parasites to the host. Resistance of hosts to parasitic infections/infestation. Immunity against parasitic infections. Standardized Nomenclature of Animal Parasitic Diseases (SNOAPAD).
General description of helminth parasites affecting domestic animals and birds.
Classification of helminths. Characteristics of phylum (Platyhelminthes, Nemathelminthes and Acanthocephala). Salient morphological features of diagnostic importance. Life cycle of the helminths in relation to transmission, pathogenesis, epidemiology, diagnosis, general control measures of following helminthes of animals and birds.
Trematodes : Liver flukes (Fasciola, Dicrocoelium and Opisthorchis), intestinal flukes (Fasciolopsis), blood flukes (nasal schistosomosis), cercarial dermatitis (Schistosoma and Ornithobilharzia), visceral schistosomosis (S. spindale, S. indica, S. incognitum), Amphistomes/ immature amphistomosis (Paramphistomum, Cotylophoron, Gastrothylax, Gastrodiscus, Gigantocotyl, Gastrodiscoides, Pseudodiscus), Lung flukes (Paragonimus) and oviduct flukes (Prosthogonimus).their importance in the diagnosis.
Cestodes:
Metacestodes (bladder worm), Ruminant tape worms (Moniezia, Avitellina, Stilesia), Dog tape worms (Dipylidium, Taenia, Multiceps and Echinococcus), Equine tape worms (Anoplocephala, Paranoplocephala), Poultry tape worms (Davainea, Cotugnia, Raillietina, Amoebotaenia) and Broad fish tape worms (Diphyllobothrium), Dwarf tape worm (Hymenolepis).
Nematodes:
Ascaris, Parascaris, Toxocara, Toxascaris, Ascaridia, Heterakis and Oxyuris.
Bursate Worms (Strongyloides, Strongyles, Chabartia, Syngamus, Oesophagostomum), Kidney worms (Stephanurus, Dioctophyma), Hook worms (Ancylostoma, Agriostomum, Bunostomum, Trichostrongylus, Ostertagia, Cooperia, Nematodirus). Stomach worms (Haemonchus, Mecistocirus). Tissue roundworms. (Habronema, Thelazia, Spirocerca, Gongylonema). Filarial worm Dirofilaria, Parafilaria, Onchocerca, Setaria, Stephanofilaria). Lung worms (Dictyocaulus, Mullerius and Protostrongylus). Guinea worms (Dracunculus).
International regulations for control of different helminthic diseases.

PRACTICAL

Methods of collection, fixation, preservation and mounting of helminth parasites. Study of morphological characters of adults and their larval stages and damages caused by them. Identification of important trematodes, cestodes and nematode. Examination of faecal samples for eggs of trematode, cestode and nematode. Demonstration of the life cycle and development of the type species of Trematode, Cestode and Nematode.

SEMESTER IV

VETERINARY ENTOMOLOGY AND ACAROLOGY

VPA-221 **Credit Hours 1+1=2**

THEORY

General description of insecta and arachnida affecting domestic animals and birds. Arthropoda as direct/indirect parasites. Classification. Life Cycle and vector potentiality in relation to disease transmission, pathogenesis and control of following arthropods affecting animals and, birds.

The biting midges (Culicoides), buffalo/Black fly, gnats (Simulium), sandflies (Phlebotamus). The mosquitoes (Culex, Anopheles and Aedes). Horse fly (Tabanus), Musca,

Stomoxys, Sarcophaga, Warbles (Hypoderma) and bots (Gasterophilus), Nasal bot (Oestrus ovis), Myiasis, Wingless flies (Hippobosca, Melophagus), bugs, lice (Haematopinus, Linognathus, Trichodectus, Damalina, Menopon, Lipeuris, Menacanthus (Poultry lice). Fleas (Pulex, Ctenocephalides, Echidnophaga, Xenopsylla). Arachnids (Ticks and mites of Veterinary importance. Soft tick (Argasidae), (Argus, Orthinodorus and Otobius).
Hard ticks (Boophilus, Hyalomma, Rhipicephalus, Haemophysalis, Amblyomma, Ixodes), Mites (Demodex, Sarcoptes, Psoroptes, Notoedrus, Chorioptes). Anti-tick immunoprophylaxis
Damages to hide and skins due to ectoparasitic infestation.

PRACTICAL

Demonstration of the type representatives of various groups of insects, ticks and mites through charts, specimen and mounted slides. Demonstration of different characters of Insecta and Arachnida (Ticks and mites). Procedure for diagnosis of arthropod infestation to hides and skin. Demonstration of enteric myasis, Procedures for the collection, fixation, preservation and mounting of arthropods parasites.

SEMESTER IV

VETERINARY PROTOZOOLOGY

VPA-222 **Credit Hours 2+1= 3**

THEORY

Introduction and general description to protozoa and their development. Differentiation from protophyta, bacteria and rickettsia, Classification. Life cycle in relation to transmission, pathogenesis, diagnosis and control, of protozoa of veterinary importance.
Kalazar (visceral and cutaneous leishmaniasis, Animal trypanosomosis (Surra), trypanosomosis (due to African Trypanosoma) in cattle and man.

Bovine and avian trichomonosis, black head in turkeys (Histomonas), Bovine amoebae (Entamoeba and Balantidium), Giardia sp, Coccidia and coccidiosis of poultry and animals. Cryptosporidiosis, Cyst forming coccidian (Toxoplasma, Sarcocystis), Neospora (*Neospora caninum*), Malaria parasite of animals and poultry (Plasmodium and Haemoproteus), Piroplasmosis (Babesia), Theilerosis (Theileria),
Recent developments in protozoan vaccines for field use.
International regulations for control of different protozoan diseases.

PRACTICAL

Examination of faecal materials for identification of intestinal protozoa, coccidian and flagellates. Preparation of blood smears, their staining and examination of slides for haemoprotozoan parasites. Methods of collection, fixation, preservation and mounting of protozoan parasites. Identification of representative slides of protozoan parasites.

DEPARTMENT OF VETERINARY MICROBIOLOGY

SEMESTER III

GENERAL VETERINARY MICROBIOLOGY

VMC-211 **Credit Hours 1+1=2**

THEORY

Introduction and history of Microbiology. Morphology, structure, growth and nutrition of bacteria. Classification and nomenclature of bacteria. Sources and transmission of infection. Pathogenicity, virulence and infection. Resistance and susceptibility of host, bacteraemia, septicaemia, toxaemia, endotoxins and exotoxins; Bacterial genetics. Plasmids, Antibiotic resistance.

Introduction, morphology, growth, nutrition, reproduction in fungi, Classification of fungi.
Introduction to viruses: General properties, Replication, Cultivation and Purification of viruses. Cell-Virus interactions. Viral genetics. Interferon.

PRACTICAL

Equipment, Sterilization, disinfection and asepsis, Staining (simple & Grams, acid fast, lactophenol cotton blue), Special staining (metachromatic granules, capsular, spore). Bacterial motility, Preparation of culture media. Aerobic and anaerobic cultivation, Isolation of bacteria in pure culture, Morphological and cultural characteristics, biochemical characters, Antibiogram, Phenol coefficient test, Slide culture technique for fungus.

SEMESTER IV

VETERINARY IMMUNOLOGY AND SEROLOGY

VMC- 221 **Credit Hours 1+1=2**

THEORY

Concepts in Veterinary and Medical Immunology. Immune system: organs, tissues and cells. Types of immunity. Development of humoral and cellular immune responses.
Antigens: definition, specificity, types and factors affecting immunogenicity, blood group antigens.
Antibodies: Structure, properties and function of different classes of immunoglobulins, Site, mechanism and theories of antibody production, Monoclonal antibodies.
Major histocompatability complex, Complement system; Cytokines: Major types and functions.
Serological reactions: Agglutination, precipitation, haemagglutination; Phagocytosis, opsonic index, cytolysis; Complement fixation, neutralization, toxin and antitoxin reaction, immunofluorescence; Hypersensitivity: classification and mechanism of induction.
Autoimmunity and immunotolerance. Immunisation of animals.
Biologicals: Role of conventional and modern vaccines in immunoprophylaxis. Adjuvants. Quality control of biologicals.

PRACTICAL

Preparation of antigen, Raising of antisera, Concentration of Immunoglobulins, Agglutination *(plate, tube),* Precipitation {Agar gel precipitation test (AGPT), Crossed immunoelectrophoresis (CIE), Rocket Immunoelectrophoresis (RIE), Indirect agglutination (Latex co-agglutination, Passive haemagglutination (PHA), Reversed passive haemagglutination (RPHA)}, Haemagglutination, Cornplement fixation test, immunoperoxidase test (IPT), Fluorescent antibody technique (FAT), Enzyme linked immunosorbent assay (ELISA), Cell mediated immune (CMI) response, Veterinary biologicals (visits and appraisal).

SEMESTER V

SYSTEMATIC VETERINARY BACTERIOLOGY AND MYCOLOGY

VMC- 311 **Credit Hours 2+1=3**

THEORY

Study of following important pathogenic bacteria and fungi in relation to their morphology, isolation, growth, colonial, biochemical and antigenic characters. Pathogenicity and diagnosis of bacterial and fungal diseases caused by the following genera:

Bacteria: *Staphylococcus, Streptococcus, Bacillus, Clostridium, Mycobacterium, Enterobacteriaceae (E,coli, Salmonella, Yersinia, Klebsiella and Proteus), Campylobacter, Brucella, Pasteurella and Mannheimia, Pseudomonas and Burkholderia, Moraxella, Haemophilus and Taylorella, Listeria, Actinobacillus, Actinomyces, Arcanobacterium and Corynebacterium, Nocardia, Dermatophilus, Spirochetes, Gram negative anaerobes, Mycoplasma, Rickettsia, Chlamydia and Chlamydophila.*

Fungi: Dermatophytes, *Rhinosporidium, Sporotrichum, Candida,* Mycetomal fungi. *Cryptococcus, Aspergillus,* Zygomycetes and Dimorphic fungi. Mycotic mastitis and abortion, Mycotoxicoses.

PRACTICAL

Laboratory identification of agents of Mastitis, Haemorrhagic septicaemia, Enteric infections, Brucellosis, Tuberculosis and Johne's disease, Clostridial infections, Wooden tongue and Lumpy jaw, Anthrax, Glanders, Aspergillosis, Dermatophytosis, Demonstration of other agents of importance (Phycomycetes, yeasts etc.).

SEMESTER VI

SYSTEMATIC VETERINARY VIROLOGY

VMC- 321 **Credit Hours 2+1=3**

THEORY

Brief history, classification and characteristics of various families of DNA and RNA viruses causing diseases in livestock and poultry, laboratory diagnostic techniques, immunity to viral infections, systemic virology including: DNA viruses: **Poxviridae**: Pox viruses of cow, sheep, goat and fowl. **Asfarviridae**: African swine fever, **Herpesviridae:** Aujeszky's disease, malignant catarrhal fever, infectious bovine rhinotracheitis, equine abortion, Marek's disease, infectious laryngeotracheitis. **Adenoviridae** - Infectious canine hepatitis, egg drop syndrome (EDS), Inclusion body hepatitis-Hydropericardium syndrome (IBH-HPS). **Papillomaviridae:** Papillomatosis, **Parvoviridae:** Canine Parvovirus. **Circoviridae:** Chicken infectious anaemia. RNA viruses: **Orhomyxoviridae:** Swine, equine and Avian influenza. **Paramyxoviridae:** Rinderpest, PPR, canine distemper and Ranikhet disease, **Flaviviridae:** Classical swine fever, bovine viral diarrhoea. **Picornaviridae:** - foot and mouth disease (FMD), duck viral hepatitis, **Rhabdoviridae:** - Rabies, vesicular stomatitis, ephemeral fever, **Coronaviridae:** – Avian Infectious bronchitis, transmissible gastroenteritis, **Togaviridae:** - Equine encephalitis, **Arteriviridae:** equine viral arteritis, **Caliciviridae:** vesicular exanthema, **Retroviridae:** Avian leucosis group. **Lentiviruses-** Equine infectious anemia virus, **Sheep pulmonary adenomatosis, Maedi/visna. Reoviridae:** African horse sickness and blue tongue, Calf Rotavirus, **Birnaviridae:** Infectious bursal disease.
Prions, Exotic and emerging animal and poultry viruses.

PRACTICAL

Glassware and media preparation, Demonstration of Cell culture, Virus propagation by egg inoculation, animal inoculation and cell culture, study of cytopathogenesis, viral inclusions, diagnostic procedures, serological techniques, preservation and transportation of clinical samples for virological investigations. Diagnostic procedures for Peste des petits ruminants (PPR), FMD, Ranikhet disease (RD), Blue tongue, Infectious bronchitis (IB), Infectious bursal disease (IBD) and other viral agents.

DEPARTMENT OF VETERINARY PATHOLOGY

SEMESTER III

GENERAL VETERINARY PATHOLOGY

VPP-211 **Credit Hours 1+1=2**

THEORY

Introduction and scope of Veterinary Pathology, Brief outline of major intrinsic and extrinsic causes of disease. Pathology of hyperaemia, congestion, haemorrhage, edema, thrombosis, embolism, infarction and shock.

Acute cellular swelling and its variants. Glycogen overload and fatty change. Heat shock proteins and lysosomal storage diseases.

Causes and mechanism of reversible and irreversible cell injury, necrosis and its types, apoptosis, differences between post-mortem autolysis and necrosis. Gangrene. Major exogenous and endogenous pigments. Metastatic and dystrophic calcification.

Jaundice in animals. Photosensitizational dermatitis. Aplasia, hypoplasia, atrophy, hypertrophy, hyperplasia, metaplasia and dysplasia. Inflammation: definitions, classification, various cell types and their functions, mediators, cardinal signs and systemic effects.

Cell cycle and cyclins, soluble and insoluble mediators (including growth factors).

Wound healing by primary and secondary intention. Pathology of autoimmune diseases and amyloidosis.

Definitions, general characteristics and classification of neoplasms. Differences between benign and malignant tumours. etiology and spread of neoplasms, immunity and neoplasia, effects and diagnosis of neoplasia, stages and grades of neoplasms.

PRACTICAL

Study of gross pathological specimens and recognition of pathological lesions. Post-mortem (P.M.) techniques. Collection of morbid materials for pathological diagnosis. Techniques for preservation and despatch of materials. Section cutting, staining and identification of microscopic lesions. Examination of slides depicting changes in cells and tissues. Study of histopathological slides showing haemorrhage, congestion, oedema, infarction, hyperplasia, metaplasis, hypertrophy, necrosis, cloudy swelling, amyloid degeneration, fatty changes, calcification , infiltration etc. Examination and interpretation of oncological tissue slides.

SEMESTER IV

SYSTEMIC VETERINARY PATHOLOGY

VPP-221 **Credit Hours 2+1=3**

THEORY

Pathological changes including neoplasms in non-infectious disease conditions affecting Digestive System (mouth, pharynx, salivary glands, oesophagus, stomach, intestines, liver, gall bladder, pancreas), Respiratory System (nasal cavity, larynx, bronchi, trachea, lungs and pleura), Musculo-skeletal System (muscle, bone, joints, ligaments, tendons), Cardio-vascular System (pericardium, myocardium, epicardium, endocardium, arteries, veins), Haematopoietic System (bone marrow), Lymphoid System (lymph nodes, vessels and spleen), Urinary System (kidneys, ureter, bladder and urethra), Reproductive System (male and female genital organs), Nervous System (brain, spinal cord and peripheral nervous system), Endocrine System (adrenal, thyroid, thymus, pituitary, parathyroid and pancreas), Skin and Appendages (hoof and horn), Ear and Eye.

PRACTICAL

Post-mortem examination of large and small animals, recording of gross lesions and compiling the post-mortem report (including vetero-legal cases), despatch of morbid material in vetero-legal cases, study of gross specimens and histopathological slides pertaining to systemic pathology. Collection and examination of clinico-pathological specimens (blood, urine, body fluids, etc.) for diagnosis of systemic affections.

SEMESTER V

SPECIAL VETERINARY PATHOLOGY

VPP- 311 **Credit Hours 2+1=3**

THEORY

General pathology of viral infections. Pathogenesis, gross and microscopic pathology of Foot and mouth disease, Rinderpest, malignant catarrhal fever, blue tongue, infectious bovine rhinotracheitis, bovine viral diarrhoea, caprine encephalitis-arthritis complex, PPR, equine infectious anaemia, equine influenza, equine viral arteritis, equine rhinopneumonitis, African horse sickness, classical swine fever, Aujeszkey's disease, swine influenza, rabies, canine distemper, infectious canine hepatitis, canine parvovirus, feline panleukopenia, maedi, jaagziekte, scrapie, bovine and feline spongioform encephalopathies, pox virus diseases in different animals. Vesicular stomatitis, vesicular exanthema, equine encephalomyelitis, diseases caused by rota and corona viruses,

General pathology of bacterial infections. Pathogenesis, gross and microscopic pathology of Tuberculosis, Johne's disease, actinomycosis, actinobacillosis, anthrax, clostridial group of diseases, streptococosis including strangles in horses, staphylococosis, glanders, pasteurellosis, leptospirosis, listeriosis, swine erysipelas, brucellosis, corynebacterium infections, nocardiosis, campylobacteriosis, Hemophilus, salmonellosis and colibacillosis in swine.

General pathology of mycoplasmal, chlamydial and rickettsial infections and their differentiation. Pathogenesis, gross and microscopic pathology of contagious bovine pleuropneumonia (CBPP), contagious caprine pleuropneumonia (CCPP), porcine enzootic pneumonia, chlamydial group of diseases and anaplasmosis, Q-fever and ehrilichosis.

General pathology of mycotic infections. Pathogenesis, gross and microscopic pathology of superficial and deep mycoses – ringworm, favus, aspergillosis, zygomycosis, histoplasmosis, cryptococosis and candidiasis.

General pathology of helminthic and protozoal infections. Pathogenesis, gross and microscopic pathology of fascioliasis, amphistomiasis, ascariasis, strongylosis, hemonchosis, spirocercosis, filariasis, hookworm, tapeworm infections, coccidiosis, toxoplasmosis, babesiosis, theileriasis and trypanosomiasis.

Pathogical changes in nutritional and metabolic diseases: (deficiency/excess of carbohydrates, proteins, fats, minerals and vitamins and in conditions like milk fever, pregnancy toxaemia, post-parturient haemoglobinuria, ketosis, hypomagnesemic tetany, azoturia, piglet anaemia and sway back/enzootic ataxia and Rheumatism like syndrome).

General pathology of toxicosis. Pathogenesis, gross and microscopic pathology of heavy metal toxicities like arsenic, copper, lead, mercury, cadmium, strychnine, nitrate/nitrite, hydrocyanic acid (HCN), fluoride, oxalate toxicities, insecticide/pesticide poisoning. Pathogenesis, gross and microscopic pathology of aflatoxicosis, ochratoxicosis, trichothecosis and ergotoxicosis. Pathology of exotic and emerging diseases.

PRACTICAL

Post-mortem examination of large and small animals for diagnosis of special diseases. Study of gross lesions particularly those of pathognomonic significance. Study of histopathological slides pertaining to special pathology including special staining of causative agents. Study of rapid diagnostic techniques like biopsy, exfoliative cytology, frozen sectioning.

SEMESTER VI

AVIAN PATHOLOGY

VPP-321 **Credit Hours 1+1=2**

THEORY

Viral Diseases: Pathogenesis, gross and microscopic pathology of Ranikhet disease, infectious bursal disease, infectious bronchitis, infectious laryngotracheitis, fowl pox, avian influenza, Marek's disease, leukosis/sarcoma group of diseases, avian encephalomyelitis, inclusion body hepatitis, hydropericardium syndrome, chicken infectious anaemia. Avian nephritis, egg drop syndrome, infectious stunting syndrome, reovirus infections.

Bacterial Diseases: Pathogenesis, gross and microscopic pathology of Colibacillosis (colisepticaemia, yolk sac infecion, egg peritonitis, coligranuloma), infectious coryza, clostridial diseases (botulism, necrotic enteritis, gangrenous dermatitis, ulcerative enteritis), salmonellosis (Pullorum disease, fowl typhoid, paratyphoid infection), fowl cholera, tuberculosis and spirochaetosis

Mycoplasmal and Chlamydial Diseases: Pathogenesis, gross and microscopic pathology of Mycoplasma gallisepticum infection (chronic respiratory disease), Mycoplasma synoviae infection, Avian chlamydiosis (psittacosis).

Fungal Diseases: Pathogenesis, gross and microscopic pathology of aspergillosis, thrush and favus.

Mycotoxicosis: Pathogenesis, gross and microscopic pathology of Aflatoxicosis, ochratoxicosis and trichothecenes.

Parasitic Diseases: Pathogenesis, gross and microscopic pathology of Helminthic diseases (flukes, cestodes, nematodes), protozoal diseases (coccidiosis, histomoniasis), ectoparasites, Avian malaria

Nutritional and metabolic diseases: Pathogenesis, gross and microscopic pathology of major diseases due to deficiency/excess of carbohydrates, proteins, minerals and vitamins in poultry.

Vices and Miscellaneous Diseases: Pathology of important vices and miscellaneous conditions.

Pathology of exotic and emerging poultry diseases.

PRACTICAL

Post mortem examination and diagnosis of poultry diseases based upon clinical signs, and gross lesions. Writing of postmortem report. Collection, preservation and dispatch of morbid materials in poultry diseases. Clinical examination of blood, faeces and other tissues/fluids for poultry disease diagnosis. Submission of feed samples for analysis.

Study of gross specimens and histopathological slides of different diseases of poultry.

SEMESTER VI

AQUATIC ANIMAL DISEASES, HEALTH CARE AND MANAGEMENT

VPP-322 **Credit Hours 1+1=2**

THEORY

Introduction to aquatic animals, aquatic animal ecology and national economy. Fishery as a method of recycling animal and poultry wastes and feed surplus. Types of common aquatics

animals, fresh and saline water fish, their collection. Care and breeding, egg and spawn management. Integrated aquaculture. Ornamental fisheries. Aquatic animal feeds and feeding. Economic production; Pond and nursery management. Inland and marine capture fisheries, Stock assessment and population dynamics. Fish harvesting and process technology, fish preservation, inspection, utilization of fish in animal feed.
Anatomy, physiology, immunology and inflammatory response in finfish and shellfish (crustaceans and mollusks).
OIE regulations related to aquatic animal health.
Viral, bacterial, mycotic and parasitic diseases affecting aquatic animals. Nutritional and toxic pathology. Miscellaneous non-infectious diseases associated with physicochemical abnormalities of water. Neoplasia of teleosts.
Vaccines and vaccination.

PRACTICAL

Identification of culturable fishes. Techniques to study growth and age in fishes. Composite fish culture techniques. Management of artificial diets, induced breeding techniques. Determination of hydrological parameters, qualitative and quantitative analysis of phyto-and zoo-planktons. Fishing gears and crafts. Management of a typical fish farm.

Normal anatomy and histology of finfish and shellfish. Ante-mortem and post-mortem examination of fish. Haematology. Histopathology of important viral, bacterial, fungal and parasitic diseases. Visit to organized fishery.

(To be taught jointly with Departments of Livestock Production Management and Veterinary Medicine)

DEPARTMENT OF VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY

SEMESTER V

MILK AND MEAT HYGIENE, FOOD SAFETY AND PUBLIC HEALTH

VPE- 311 **Credit Hours 2+1=3**

THEORY

Milk hygiene in relation to public health. Microbial flora of milk and milk products. Sources of milk contamination during collection and transport of milk and processing of dairy products. Control of milk and milk product contamination. Hygienic handling/ management of dairy equipment. Quality control of milk and milk products. Milk hygiene practices in India and other countries. Legislation and standards for milk and milk products. Milk as a source of disease transmission.

Pathological conditions associated with the transport of food animals. Elements of meat inspection. Hygiene in abattoirs. Ante-mortem inspection of meat animals. Humane slaughter of animals. Post-mortem inspection of meat animals. Methods of inspection of meat. Rigor mortis and examination of lymph nodes. Speciation of meat. Health implications of emergency and causality slaughter. Hygienic disposal of unsound meat. Inspection of poultry and aquatic foods (fish) for human consumption. Occupational health hazards in meat processing plants. Meat as a source of disease transmission.

Food safety, definition, hazard analysis and critical control point (HACCP) system and chemical and microbial toxicities associated with milk, meat and aquatic foods. Risk analysis: assessment and management and food safety measures. Toxic residues (pesticides, antibiotics, metals and hormones) and microbial toxins in food and their health hazards. Types of

bio-hazards. Sanitary and phytosanitary measures in relation to foods of animal origin and aquatic foods. International and national food safety standards {Office International des Epizooties (OIE), World Trade Organisation (WTO), Sanitary and Phytosanitary (SPS) and Codex Alimentarius}.

PRACTICAL

Sanitary collection of samples for chemical and bacteriological examination. Grading of milk by MBR test. Test for pasteurization and plant sanitation. Microbiological examination of raw and pasteurized milk, milk products and water. Standard plate, coliform, faecal streptococcal, psychrophilic, mesophilic and thermophilic counts. Detection of adulterants and preservatives in milk and milk products. Isolation and identification of organisms of public health significance from milk.

Visit to abattoirs, meat processing plants, marketing centers and food service establishments. Ante-mortem and post mortem inspection of food animals. Methods of slaughter (demonstration at the slaughter houses). Demonstration of speciation of meat. Physical and bacteriological quality of meat and aquatic foods (fish). Demonstration of toxic chemical and microbiological residues in milk and meat.

SEMESTER VI

VETERINARY EPIDEMIOLOGY AND ZOONOSES

VPE- 321 **Credit Hours 2+1 =3**

THEORY

Definitions and aims of epidemiology. Factors influencing occurrence of livestock diseases and production. Ecological basis and natural history of diseases. Sources, Storage, retrieval and representation of disease information/data. Epidemiological hypothesis. Epidemiological methods: descriptive, analytical (observational), experimental, theoretical (modeling), serological and molecular. Survey of animal diseases. Surveillance and monitoring of livestock diseases. Animal disease forecasting. Strategies of disease management: prevention, control and eradication. Economics of animal diseases. National and International regulations on livestock diseases. Role of OIE and laws on international trade on animals and animal products. Definition, history and socio-economic impact of zoonotic diseases. Classification of zoonoses and approaches to their management. New, emerging, re-emerging and occupational zoonoses. Role of domestic, wild, pet and laboratory animals and birds in transmission of zoonoses. Zoonotic pathogens as agents of bio-terrorism. Reservoirs, clinical manifestations in animals and humans, and the management of the following zoonoses: rabies, Japanese encephalitis, Kyasanur forest disease, influenza, anthrax, brucellosis, tuberculosis, leptospirosis, listeriosis, plague, rickettsiosis, chlamydiosis and dermatophytosis. Food borne zoonoses: salmonellosis, staphylococcosis, clostridial food poisoning, campylobacteriosis, helminthosis, toxoplasmosis and sarcocystosis. Veterinary Public Health Administration.

PRACTICAL

Collection of epidemiological samples. Measurement of disease: determination of morbidity and mortality rates/ratios. Generation of epidemiological protocols and reports. Demonstration of selected software programmes/models e.g. EPIZOO, HandiSTATUS and India-Admas-EPITRAK. Evaluation of vaccines and diagnostic tests. Determination of Associations and risks: relative risk, Odd's ratio and attributable risk. Survey of an animal disease on a farm.

Field survey of zoonotic diseases. Concurrent isolation and identification of important pathogens of zoonotic importance from animal and human sources including foods of animal origin and their interpretation. Study of rural environment and health status of rural community. Visit to primary health centre/human hospital and study of the common diseases affecting rural/ urban population, and probable relationships of these human disease conditions with animal diseases present in the area.

SEMESTER IX

ENVIRONMENT AND ENVIRONMENTAL HYGIENE

VPE- 511 **Credit Hours 2+1=3**

THEORY

Definition, scope and importance. Ecosystem: types, structure and functions. Food chains. Bio-diversity: uses, threats and conservation. Natural resources: forest, mineral, soil and water-their uses and abuses. Environmental pollution-causes, and effects. Control measures of air, water, soil, marine, thermal and noise pollution. Nuclear hazards. Bio-safety and risk assessment. Environment Protection Acts and related issues. Disaster management.

Sources of water supply and water quality. Sources of water contamination. Bacteriology of water. Physical, chemical, microbiological and biological evaluation of water. Water purification. Disposal of sewage and farm wastes. Health implications of farm wastes. Sanitation and disinfection of animal houses. Recycling of farm wastes. Sources of air pollution within animal houses and its effect on animal health and production. Ventilation and ventilation systems within animal houses and specialized laboratories. Prevention and control of air and water-borne diseases. Problems of atmospheric pollution (acid rain, depletion of ozone layer, methane production, green house effect and global warming). Tannery, wool, bone and blood meal industry pollution and its control. Stray and fallen animal management. Pollution due to industrial wastes.

PRACTICAL

Sampling of water for sanitary examination. Physical examination of water: estimation of colour, turbidity, total hardness, solids, alkalinity and acidity of water. Chemical and Microbiological evaluation of water quality. Disinfection of animal houses. Determination of the efficacy of disinfectants. Demonstration of water purification system. Disposal of carcasses. Pathogenic microbes in air. Demonstration of various ventilation systems in animal houses. Demonstration of toxic residues in water and air. Visit to local polluted sites and documentation of local environmental problems.

DEPARTMENT OF ANIMAL NUTRITION

SEMESTER I

PRINCIPLES OF ANIMAL NUTRITION AND FEED TECHNOLOGY

ANN- 111 **Credit Hours 2+1=3**

THEORY

Importance of nutrients in animal production and health. Composition of animal body and plants. Nutritional terms and their definitions. Importance of minerals (major and trace elements) and vitamins in health and production, their requirements and supplementation in feed. Common feeds and fodders, their classification, availability and importance for livestock

and poultry production. Measures of food energy and their applications – gross energy, digestible energy, metabolisable energy, net energy, total digestible nutrients, starch equivalent, food units, physiological fuel value. Direct and indirect calorimetry, carbon and nitrogen balance studies. Protein evaluation of feeds – Measures of protein quality in ruminants and non-ruminants, biological value of protein, protein efficiency ratio, protein equivalent, digestible crude protein. Calorie protein ratio. Nutritive ratio. Various physical, chemical and biological methods of feed processing for improving the nutritive value of inferior quality roughages. Preparation, storage and conservation of livestock feed through silage and hay and their uses in livestock feeding. Harmful natural constituents and common adulterants of feeds and fodders. Feed additives in the rations of livestock and poultry; Antibiotics and hormonal compounds and other growth stimulants, and their uses.

PRACTICAL

Familiarisation of various feed stuff, fodders and their selection. Preparation and processing of samples for chemical analysis – herbage, faeces, urine and silages. Weende's System of analysis – Estimation of dry matter, total ash, acid insoluble ash, crude protein, ether extract, crude fibre, nitrogen free extract, Calcium and phosphorus in feed samples. Demonstration of detergent methods of forage analysis. Qualitative detection of undesirable constituents and common adulterants of feed. Demonstration of laboratory ensiling of green fodders. Silage pit preparation.

SEMESTER II

APPLIED NUTRITION-I (RUMINANTS)

ANN - 121 **Credit Hours 2+1=3**

THEORY

Importance of scientific feeding. Feeding experiments. Digestion and metabolism trial. Norms adopted in conducting digestion trial. Measurement of digestibility. Factors affecting digestibility of a feed. Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to ruminants. Nutrient requirements of livestock-energy and protein requirement for maintenance and production. Methods adopted for arriving at energy and protein requirements for maintenance and production in terms of growth, reproduction, milk, meat, wool and work. Balanced ration and its characteristics. General principles of computation of rations. Formulation of rations and feeding of dairy cattle and buffaloes during different phases of growth, development and production (neonate, young, mature, pregnant, lactating and dry animals; breeding bull and working animals). Formulation of ration and feeding of sheep and goat during different phases of growth, development and production (milk, meat and wool). Use of NPN compound for ruminants.

PRACTICAL

Demonstration of conducting digestion trial in ruminants. Calculation of nutritive value of different feedstuffs in terms of digestible crude protein (DCP), total digestible nutrient (TDN), Nitrogen retention (NR) and starch equivalent (SE). Calculation of requirements of nutrients in terms of DCP, TDN and metabolisable energy (ME) for maintenance, growth, and other types of production like meat, milk, wool, reproduction and work. Formulation of rations for different categories of livestock under different conditions. Demonstration of the methods for improving the nutritive quality of straws and other crop residues. Formulation of rations for feeding of livestock during scarcity periods. Visit to feed factories.

SEMESTER III

APPLIED NUTRITION-II

(NON-RUMINANTS, POULTRY AND LABORATORY ANIMALS)

ANN- 211 **Credit Hours: 2+1=3**

THEORY

Factors affecting digestibility of a feed. Nutrient requirements in poultry, swine and equine – Energy and protein requirement for maintenance and production. Methods adopted for arriving at energy and protein requirements for maintenance and production in terms of growth, reproduction and production (egg, meat and work). Formulation of rations as per Bureau of Indian Standards (BIS), National Research Council (NRC) and Agricultural Research Council (ARC) specifications. Feeding standards, their uses and significance, merit and demerits of various feeding standards with reference to monogastric animals and poultry. Feeding of swine (Piglets, Growers, Lactating and pregnant sows, Breeding boar, Fattening animals), equine (foal, yearling, broodmare, stallion and race horses) and poultry (Starter, Growers, Broilers, Layers) with conventional and unconventional feed ingredients. Feeding of ducks. Laboratory Animal Nutrition: Nutrient requirements of mice, rat, rabbit and guinea pig. Significance of carbohydrates, lipids, proteins and amino acids, minerals and vitamins in lab animal nutrition. Diet formulation and preparation and feeding practices. Feed supplements.

PRACTICAL

Calculation of requirements of nutrients in terms of DCP, TDN and ME for maintenance, growth, reproduction and other types of production like egg and meat. Formulation of rations for poultry and swine with conventional and unconventional feed ingredients. Principles of compounding and mixing of feeds. Visit to poultry farms.

DEPARTMENT OF ANIMAL GENETICS AND BREEDING

SEMESTER I

BIO-STATISTICS AND COMPUTER APPLI CATION

AGB-111 **Credit Hours 2+1=3**

THEORY

A. Basic Statistics :

Introduction and importance. Statistics, parameters, observation, recording and graphical representation of data. Probability and probability distributions: binomial, Poisson and normal. Measures of central tendency and measures of dispersion (simple and grouped data) :Moments and skewness to kurtosis. Correlation and regression. Tests of hypothesis and t, Z, X^2 and F tests of significance and their inter-relationship. Livestock census procedure and census. Introduction to sample survey methods for livestock and livestock products. Bioassay – meaning and uses.

B. Experimental designs :

Completely Randomized Design (C.R.D.) and Randomized Block Design (R.B.D). Analysis of variance.

C. Computer application :

Computer and its components; Types of computers; Hardware, software, human ware and firm ware. Type of memories. Computer languages and their scope and limitations. Computer pro-

gramming : Data types: Constants, variables, expressions, operations, functions, flow charts, commands, simple programs and their execution- scope and limitations. Data base management system : Storage of data, filing, retrieving, reproduction. Use of computer in animal husbandry and veterinary practices.

PRACTICAL

Systematic approach of data, tabulation; simple probability problems. Estimation of measures of central tendency (mean, median, mode) and estimation of measures of dispersion (variance, standard deviation, standard error and coefficient of variation): for simple and grouped data. Graphical representation of data. Tests of significance –t, Z, X^2 and F tests. Estimation of correlation. Estimation of regression. Analysis of variance: C.R.D., R.B.D. Computer basics and components of computer. Simple operations: Entering and saving biological data, database management systems. MS-Office. Spread sheet. Internet, e-mail and geographic information system (GIS).

DEMONSTRATION

Use of word processor and spreadsheet. Graphics and their uses. Data retrieving and analysis through computer (Data base). Use of local area network (LAN) and other network systems. Retrieving library information through network. G.I.S. and its use.

SEMESTER II

PRINCIPLES OF ANIMAL GENETICS AND POPULATION GENETICS

AGB-121 **Credit Hours: 2+1=3**

THEORY

History of Genetics, Chromosome numbers and types in livestock and poultry. Mitosis, Meiosis and gametogenesis. Overview of Mendelian principles; Modified Mendelian inheritance: gene interaction; multiple alleles; lethals; sex-linked, sex limited and sex influenced traits; linkage and crossing over, Mutation, Chromosomal aberrations; Cytogenetics, Extra-chromosomal inheritance. Gene concept – classical and molecular.

Population genetics: Genetic structure of population: Gene and genotypic frequency: Hardy – Weinberg law and its application; Forces (e.g. Mutation, migration, selection and drift) changing gene and genotypic frequencies.

Quantitative genetics: Nature and properties; Values and means, Components of phenotypic and genotypic variance; Concept of genotype and environment interaction, Resemblance between relatives; Heritability, repeatability, genetic and phenotypic correlations.

PRACTICAL

Demonstration of karyotype of Farm animal species; Solving problems on inheritance of Mendelian traits, Linkage and Crossing over. Calculation of gene and genotypic frequencies, Testing a population for Hardy-Weinberg equilibrium; Calculation of effects of various forces that change gene frequencies; Computation of population mean; Estimation of heritability, repeatability, Most probable producing ability (MPPA), genetic and phenotypic correlations.

SEMESTER III

LIVESTOCK AND POULTRY BREEDING

AGB-211 **Credit Hours 2+1=3**

THEORY

History of Animal Breeding; Classification of breeds; Economic characters of livestock and poultry and their importance; Breeding/Selection techniques for optimal production. Selec-

tion: Response to selection and factors affecting it; Bases of selection individual, pedigree, family, sib, progeny and combined; Indirect selection; Multitrait selection.

Classification of mating systems; Inbreeding and outbreeding-genetic and phenotypic consequences viz., inbreeding depression and heterosis: Systems of utilization of heterosis; Selection for combining ability; Breeding methods for the improvement of dairy cattle and buffaloes {crossbreeding, sire evaluation, field progeny testing, open nucleus breeding system (ONBS)}, sheep, goat, swine and poultry; Breed development; Conservation of germplasm, Current livestock and poultry breeding programmes in the state and country.

PRACTICAL

Description and measurement of economic traits of Livestock & poultry. Standardization of performance records, Computation of selection differential, generation interval and expected genetic gain; Construction of selection index; Sire indices, Measurement of inbreeding and relationship coefficients; Estimation of heterosis.

DEPARTMENT OF LIVESTOCK PRODUCTION MANAGEMENT

SEMESTER I

LIVESTOCK PRODUCTION MANAGEMENT-I (GENERAL PRINCIPLES AND RUMINANTS)

LPM-111 **Credit Hours 3+1=4**

THEORY

Livestock in India- association of livestock to Indian society during vedic, medieval and modern era. Demographic distribution of livestock and role in economy. Animal holding and land holding patterns in different agro-ecologies.

Introductory animal husbandry. Common animal husbandry terms. Body conformation and identification. Dentition and ageing of animals. Transport of livestock by rail, road, air and on foot. Common farm management practices including disinfection, isolation, quarantine and disposal of carcass. Introduction to methods of drug administration. Common vices of animals, their prevention and care. Livestock production systems of different agro-climatic zones. Livestock resources and resources management. Livestock produce and products and their availability and their role in rural/urban health/economy. Organic livestock production.

General principles affecting the design and construction of building for housing for various livestock species. Selection of site. Arrangements of the building with special reference to Indian conditions. Utilisation of local materials. Building materials used for construction of wall, roof and floor of animal houses, their characteristics, merits and demerits.

Demography of cattle and buffalo population. Breeds and descriptors of important breeds. Important traits of cattle and buffaloes. General management and feeding practices of calves, heifers, pregnant, lactating and dry animals, and bulls and working animals. Draughtability of cattle and buffaloes. Raising of buffalo males for meat production. Housing systems, layout and design of different buildings for dairy animals including backyard dairy and mixed farms. Routine dairy farm operations and labour management. Methods of milking and precautions. Factors affecting quality and quantity of milk production. Clean milk production. Dairy farm accounts and records. Concepts of input and output cost of dairy farming (small and large holdings).

Demography of sheep and goat population and their role in economy. Breeds and breed descriptors. Important traits for meat, milk and fibre. General management and feeding prac-

tices during different stages of growth, development and production (milk, meat and wool) in small and large holdings. Breeding schedule and management of ram and buck. Weaning and fattening of lambs and kids. Glossaries of terms in wool industry. Shearing of sheep. Physical and chemical properties of wool. Impurities in wool. Factors influencing the quality of wool. Wool grading. Recovery of wool wax and its use. Housing systems, layout and design of different buildings for small ruminants.

Judging for the quality and confirmation of body parts of cattle, buffalo, sheep and goat. Culling of animals. Preparation of animals for show.

Problems and prospects of dairy, meat and wool industry in India. Animal and animal products market and marketing. Animal Fairs and Melas. Animal pounds and Goshalas.

PRACTICAL

Identification of various breeds of cattle, buffalo, sheep and goat. Familiarization with body points of animals. Approaching, handling and restraining of cattle, buffalo, sheep and goat. Clipping, shearing, dipping, spraying and spotting sick animals. Detection of vices. Feeding of animals. Methods of identification (marking, tattooing, branding, tagging and electronic chip). Determination of age. Determination of body weight using different measurements. Preparation of animals for show and judging. Layout plans for dairy and sheep/goat farms. Familiarization with routine farm operations. Selection and culling of animals. Milking of dairy animals. Training of breeding males. Detection of heat. Identification and care of pregnant animals. Care of neonatal and young stock. Maintenance, cost accounting, economic analysis and preparation of balance sheet of dairy and sheep/goat farm records. Structure of wool and its differentiation from hair fibre. Determination of staple length, crimps, diameter and strength of wool fibre. Sorting, packaging and grading of wool. Recovery of wax from wool. Scouring and carbonisation of wool. Visit to different animal farms/ demonstration centres/ individual rural, urban and peri-urban animal units/ wool production centres & industries/ wool, meat and live animal markets. Preparation of project proposals.

SEMESTER II

FODDER PRODUCTION AND GRASSLAND MANAGEMENT

LPM -121 **Credit Hours 1+1=2**

THEORY

Importance of grasslands and fodders in livestock production. Agronomical practices for production of leguminous and non-leguminous fodders in different seasons. Soil and water conservation and irrigation drainage for fodder production. Farm power and agro-energy. Farm machinery and equipment. Harvesting and post harvest techniques for fodder preservation. Storage of feeds and fodders. Scarcity fodders. Feed and fodder management for individual animals. Fodder production for small units through inter cropping or back yard cultivation. Recycling of animals washings and wastes in fodder production.

PRACTICAL

Visit to the fodder farm. Familiarisation with the various types of fodder crops utilised in the state and the samples of fodder in India. Fodder cropping routines – familiarisation. Collection, preservation and storage of feed and fodder; possible damages/loss and methods to prevent them. Cost calculations of fodder production. Familiarisations with the back yard fodder cropping and intercropping of fodder. Livestock waste utilisation and recycling. Calculation on the economic aspects of fodder cropping and procurement of feed.

SEMESTER II

LIVESTOCK PRODUCTION MANAGEMENT - II
(MONOGASTRIC AND LABORATORY ANIMALS)

LPM- 122 **Credit Hours: 1+1=2**

THEORY

Introduction and scope of swine farming in the country. Demography of swine population. Breeds and their role in economy. Management of different categories of swine for optimal production: breeding and pregnant sows; sows at farrowing and after farrowing; pig-lets, growing stock, lactating sows, feedlot stock. Mating technique in swine. Housing of swine. Swine feeds and feeding. Economics of pig farming.

Equine population of India. Horses, donkeys and mules and their utility. Identification of breeds of horses. Dentition and ageing of horses. Handing, restraining, care and routine management of equines including grooming, saddling and exercise. Stable and its management. Feeding routine for horse, donkeys and mules. Vices of horses. Care of stallion. Mating of Horses broodmare and its care. Foaling and care of newborn. Breeding mules. Care of race horses and preparing horses for show. Doping and its detection. Visit to races, polo, horse show.

Importance of laboratory animal breeding care and housing standards of mice, rats and guinea pigs. General considerations on feeding and breeding of laboratory animals. Prophylactic measures for commonly occurring laboratory animal diseases. Concept of production of specific pathogen free (SPF) and germ free laboratory animals.

Scope of rabbit farming in the country, breeds and their distributions in India and abroad. Limitation of rabbit animal production. Selection, care , and management of breeding stock for commercial purpose. Identification. Care and management of kindling animals and kindling. Care of new born, growing stock. Harvesting of products. Breeding and selection techniques for optimal production. Feeds and feeding for rabbit production. Housing of rabbit. Shearing/slaughtering and preservation of products. Diseases and parasite control, hygienic care. Disposal, utilization and recycling of wastes etc. Economic aspects of rabbit production, accounting their expenditure, income etc. Manpower requirements and personnel/labour management. Preparing projects for micro (backyard) mini, and major rabbit farms.

PRACTICAL

Identification of Indian and exotic breeds of swine; handling of swine; Routine inspection , Identification of diseases, examination and control of parasites, vaccination, Identification of pregnant animals. Care during pregnancy, isolation and care of farrowing sows, care of pig lings, Castration, culling, tooth cutting. Calculation of profits and preparation of feasibility reports and projects for piggery. Layout plans of swine houses; routine operations of swine farms. Marketing of swine. Feeding of swines. Preparation of swines for show and judging.

Identification of body parts and handling of laboratory animals. Housing system and space requirements for laboratory animals. Weighing, sexing and weaning of laboratory animals. Marking for identification of laboratory animals for purpose of their individual recording. Computation and compounding of balanced diet for laboratory animal mainly Mice, Rats, Guinea –pigs and Rabbits. Feeding schedule of laboratory animals for high breeding efficiency. Maintenance of breeding records of laboratory animals. Prophylactic measures against common disease of lab animals. Hygienic care and control of parasites (routines).

Visit to the University Rabbitary. Handling and restraint. Body parts. Identification of breeds. Judging. Feeds and feeding. Housing requirement and equipment. Farrowing. Care of newly born young ones- tagging, tattooing for identification. Shearing. Dressing of carcass.

Horse riding: walking, trotting, cantering and galloping. Preparation of equines for show and judging. Layout plans for stables.

SEMESTER III

AVIAN PRODUCTION MANAGEMENT

LPM- 211 **Credit hours 1+1=2**

THEORY

Indian Poultry Industry-brief outline of the different segments-poultry statistics. Classification of poultry, common breeds of poultry including duck, quail, turkey & guinea fowl and their descriptions. Description of indigenous fowls.

Reproduction in fowl, male and female reproduction systems, formation of eggs, structure of eggs.

Important economic traits of poultry, egg production, egg weight, egg quality, growth, feed consumption and feed efficiency, fertility and hatchability, plumage characteristics and comb types.

Scavenging system of management: raising of chicks, scavenger feed base of village. Low input technology; backyard and semi intensive unit of various sizes; their description, management and economic achievements.

New colored feathered birds developed in public and private sectors for meat and egg production for rural poultry; their acceptability and assimilation in rural eco-system.

Mixed farming and poultry raising. Concept of self-local market unit.

Brooding and rearing practices used for chicken, duck, quail, turkey and guinea fowl. Economic production of chicken, and other classes of poultry.

Hatching and feeding norms for different species of poultry. Marketing of poultry and poultry products.

Setting of farms for different classes of poultry. Organic and hill farming.

PRACTICAL

Morphological description of common exotic poultry breeds like White Leghorn (WLH), Rhode Island Red (RIR), Plymouth Rock, Cornish and New Hampshire. Diagrammatic illustration of body parts of chicken, duck, quail, guinea fowl and turkey. Descriptive specialties of indigenous birds, listing of its advantageous value in rural areas. Diagrammatic representation of scavenging, backyard and semi intensive units; with habitats, feed base and shelter. Conservation of indigenous germ plasm; listing of conservation techniques. Demonstration of newly developed breeds in rural environment. Housing, equipments, nesting and brooding requirements. Vaccination, medication and incubation requirements. Preparation of projects for rural people on poultry and other species (duck, quail, guinea fowl and turkey).

SEMESTER IV

COMMERCIAL POULTRY PRODUCTION AND HATCHERY MANAGEMENT

LPM -221 **Credit hours 1+1=2**

THEORY

HOUSING - Location of poultry. Types of poultry houses. Different types of rearing- advantages and disadvantages. Space requirement for different age groups under different rearing systems.

Environmentally controlled housing. BROODING MANAGEMENT- Brooding: Types of brooders; preparation of shed to receive chicks; importance of environment (temperature, humidity and ventilation), Feeding and vaccination in early stage of chicks.

REARING AND MANAGEMENT- Care and management of growing, laying/broiler birds of both breeders and commercial categories of poultry. Battery cage management: different types and sizes. Poultry judging.

LITTER MANAGEMENT- Litter materials, litter-borne diseases and control; potential for poultry litter used as fertilizers; recycling for livestock feeding and power generation; Special management care in adverse weather conditions/ stress; summer management; modification of housing light reflectors; insulators, sprinklers, foggers and other methods; dietary modification to minimize heat stress; special management during rainy and winter season; other stress management- vices in poultry and its remedial measures.

WATER MANAGEMENT- Standard for drinking water in terms of total solids, pH, minerals levels, sanitizers and water sanitations, diseases spread through water contamination-prevention.

BIOSECURITY- Proactive measures to minimize entry of infections in farm premises-farm fencing, disinfectant pits, personnel management, restriction of movement, etc. Poultry welfare and behaviour.

FEEDING- digestive system and digestion in chicken. Classification, selection of common feed ingredients and their nutrient composition. Nutrient requirement for different age groups. Feed formulation, economics of feed formulation-cost/ unit nutrient. Feeding systems and feeding management, economization of poultry feeding. Feed restriction, separate male feeding, non-nutrient feed additives including herbal bio-enhancers; anti-nutritional factors and toxins.

HEALTH CARE- Common poultry diseases: bacterial, viral, fungal, parasitic and nutritional deficiencies. Vaccination schedule for commercial layers and broilers: factors that govern vaccination schedule; vaccination principles type, methods, pre and post vaccination care. Medication: Types of administration- general principles and precautions with emphasis on administering medication through water and feed; commonly used drugs in poultry diseases. Disinfection: Types of disinfectants; mode of action; recommended procedure; precaution and handling.

ECONOMICS- Economics of layer and broiler production; Projects reports layer in different systems of rearing. Projects reports for broilers. Feasibility studies on poultry rearing-in context of small units and their profitability. Designer meat and egg production. Export/import of poultry and poultry products.

BREEDER FLOCK MANAGEMENT- Layer and broiler breeder flock management, housing & space requirements. Different stage of management during life cycle; Light management during growing and laying period, Artificial insemination.

Feeding: Feed restriction, separate male feeding. Nutrient requirement of layer and broiler breeders of different age groups. Healthcare: vaccination of breeder flock; difference between vaccination schedule of broilers and commercial birds. Common diseases of breeders (Infectious and metabolic disorders)- prevention. Fertility disorder- etiology, diagnosis and corrective measures. Selection and culling of breeder flocks. Economic parameters on returns from breeders- for example saleable chicks/hen/production cycle etc.

HATCHERY PRACTICES - Management: principles of incubation. Factors affecting fertility and hatchability, selection, care and incubation of hatching eggs. Fumigation; sanitation and hatchery hygiene. Disposal of hatchery waste; Sexing, grading, packing and dispatch of day old chicks. Economics of hatchery business; Trouble shooting hatch failure: importance of hatchery records, break even analysis of unhatched eggs. Biosecurity in the hatchery. Computer applications for hatchery management.

PRACTICAL

Male and female reproductive system. Artificial insemination. Selection of breeder flock. Working of hatchery incubation requirement; incubators working, care. Hatchery layout and equipments. Handling of eggs prior and during incubation. Candling. Fumigation. Project reports of setting up a hatchery. Hatchery records and maintenance.

Exposure to commercial broiler and layer farms-different system of housing.

Demonstration of litter and cage rearing systems. Feed equipments and maintenance; hammer mill, mixture, pellet mill-types, principle of working, comparison of different types, premix preparations, quality control of raw materials. Feed mill operation. Demonstration of different types of feeder, waterer, fogger, sprinklers etc. Maintenance of farm records. Medication –demonstration of routinely employed methods of administration.

Vaccination practice in general and demonstration of different roots of administration in particular.

SEMESTER-IV

LIVESTOCK PRODUCTION MANAGEMENT (REGIONAL INTEREST)

LPM- 222 **Credit Hours: 1+1=2**

Course Contents to be developed by the University/Veterinary College on the basis of regional interest.

DEPARTMENT OF LIVESTOCK PRODUCTS TECHNOLOGY

SEMESTER V

MILK AND MILK PRODUCTS TECHNOLOGY

LPT- 311 **Credit Hours 1+1=2**

THEORY

Milk industry in India. Layout of milk processing plant and its management, Composition and nutritive value of milk and factors affecting composition of milk. Physico-chemical properties of milk, Microbiological deterioration of milk and milk products. Collection, chilling, standardization, pasteurization, homogenization, bactofugation. Principles of dehydration. Preparation of butter, *paneer/channa, ghee, khoa, lassi, dahi,* ice-cream, cheddar cheese and dairy byproducts, Good Manufacturing Practices. Implementation of HACCP. Toxic/pesticides residues in milk and milk products. Packaging, transportation, storage and distribution of milk and milk products. Organic milk food products. Legal and BIS standards of milk and milk products. Sanitation in milk plant.

PRACTICAL

Sampling of milk, estimation of fat, solid not fat (S.N.F.) and total solids. Platform tests. Cream separation. Detection of adulteration of milk. Determination of efficiency of pasteurization. Microbiological quality evaluation of milk and milk products. Preparation of milk products like curd, ghee, paneer/channa, khoa, ice-cream, milk beverages. Visit to Modern milk processing and milk manufacturing plants.

SEMESTER V

ABATTOIR PRACTICES AND ANIMAL PRODUCTS TECHNOLOGY

LPT-312 **Credit Hours 1+1=2**

THEORY

Layout and management of rural, urban and modern abattoirs. BIS standards on organization and layout of abattoirs, Pre-slaughter care, handling and transport of meat animals

including poultry. Ante-mortem and post-mortem examination. Slaughtering and dressing of carcasses. Evaluation, grading and fabrication of dressed carcasses including poultry.

Abattoir byproducts: meat, bone, fish meal and byproducts of pharmaceutical value. Skin and hides: methods of flaying, defects and preservation Management of organic wastes emanating from animal industries, fallen animals and abattoir effluent. HACCP concepts in abattoir management.

Introduction to wool, fur, pelt and specialty fibers with respect to processing industry. Glossary of terms of wool processing. Basic structure and development of wool follicle. Post shearing operations of wool, classification and grading of wool, physical and chemical properties of wool. Impurity of wool, factors influencing the quality of wool. Brief outline of processing of wool. Tests for identification of wool.

PRACTICAL

Methods of ritual and humane slaughter, flaying and dressing of food animals including poultry. Carcass evaluation. Determination of meat yield, dressing percentage, meat bone ratio and cut up parts. Preparation of different abattoir byproducts. Visit to leather processing unit and slaughterhouses/meat plants.

Wool sampling techniques, determination of fleece density, fiber diameter, staple length, crimp and medulation percentage, scouring/clean fleece yield. Visit to wool production/ processing centre.

SEMESTER VI

MEAT SCIENCE

LPT-321 **Credit Hours 1+1 = 2**

THEORY

Retrospect and prospect of meat industry in India. Structure and composition of muscle (including poultry muscle), conversion of muscle to meat, nutritive value of meat. Fraudulent substitution of meat, preservation of meat and aquatic foods – drying, salting, curing, smoking, chilling, freezing, canning, irradiation, antibiotic and chemicals. Ageing of meat. Modern processing technologies of meat and meat products. Packaging of meat and meat products. Formulation and development of meat and sea foods – kabab, sausages, meat balls/patties, tandoori chicken, soup, pickles, surimi, smoked fish. Physico-chemical and microbiological quality of meat and aquatic food and food products. Basics of sensory evaluation of meat products. Nutritive value, preservation, packaging of egg and egg products. Laws governing national/international trade in meat and meat products. Organic meat food products. Food products of genetically modified animal and marine origin.

PRACTICAL

Chilling/freezing of meat, meat products and aquatic foods. Ageing of meat, preservation and packaging of meat, aquatic foods and shell eggs and their products. Determination of microbial loads in various animal food products, estimation of deteriorative changes in meat and meat products. Preparation of ready-to-eat meat/poultry products. Evaluation of external and internal egg quality, preservation technique of eggs.

DEPARTMENT OF VETERINARY GYNAECOLOGY AND OBSTETRICS

SEMESTER VII

VETERINARY GYNAECOLOGY

VGO-411 **Credit Hours 2+1=3**

THEORY

Clinical evaluation and abnormalities of reproductive tracts in domestic animals. Delayed Puberty and sexual maturity. Estrus detection. Aberrations of estrus and estrous cycle. Seasonal breeding. Pregnancy diagnosis- different methods- in different species. Superfoetation and Superfecundation. Fertility, Infertility & sterility- Anatomical, hereditary, nutritional, managerial, hormonal and infectious causes. Anoestrus, ovulatory defects and cystic ovarian degeneration. Repeat breeding: Fertilization failure, early embryonic mortality. Specific & non- specific infections affecting genital organs-endometritis, cervicitis, vaginitis. Fertility parameters. Sexual health control and reproductive health management. Clinical use of hormones in female infertility. Breeding management, mismating, psuedopregnancy, transmissible venereal tumor (TVT) in bitches. Induction of estrus, Synchronization of estrus, Follicular Dynamics, Ovulation, Superovulation, and Embryo Transfer Technology. Immuno-modulation for enhancement of fecundity

PRACTICAL

Study of female genitalia and its biometry. Methods of estrus detection in farm and companion animals including vaginal cytology. Collection and examination of vaginal mucus by various techniques. Demonstration of different hormonal preparations and their uses. Different protocols for induction and Synchronization of estrus, superovulation and embryo transfer. Pregnancy diagnosis and its differential diagnosis. Use of gynaecological instruments and appliances. Evaluation of female animals for breeding soundness. Demonstration of reproductive pathological conditions using museum specimens. Sexual health control, life history card for the female, recording system for reproductive performance.

Demonstration of ultrasonographic imaging of reproductive organs and pregnancy, Oocyte collection and grading.

SEMESTER VIII

VETERINARY OBSTETRICS

VGO 421 **Credit Hours 1+1=2**

THEORY

Types and functions of placenta in different species. Diseases & accidents during gestation- Abortion in domestic animals-diagnosis & control. Dropsy of fetal membranes and fetus. Fetal mummification, maceration, pyometra and mucometra. Prolonged gestation. Teratology. Premature birth. Uterine torsion. Cervico-vaginal prolapse. Termination of pregnancy. Parturition. Puerperium and involution of uterus in domestic animals. Care and management of dam and newborn.

Dystocia- Types of dystocia - maternal & fetal- approach, diagnosis and treatment. Epidural & other anesthesia in obstetrical practice. Obstetrical operations- mutation, forced extractions, fetotomy and cesarean section. Injuries and diseases in relation to parturition. Postpartum diseases and complications: uterine prolapse, retention of fetal membranes, metritis, postpartum paraplegia.

Animal birth control- ovariohysterectomy and non surgical interventions

PRACTICAL

Study of pelvis and Pelvimetry. Assessment of fetal age. Demonstration of different types of placenta. Use of obstetrical instruments. Epidural and other obstetrical anaesthesia. Manipulation of fetal malpresentation in Phantom Boxes. Approach and treatment of obstetrical cases. Handling of prolapse of genitalia-application of vulvar sutures. Foetotomy. Caesarean section Post operative care and management of obstetrical cases. Demonstration of ovariohysterectomy

SEMESTER IX

VETERINARY ANDROLOGY AND REPRODUCTIVE TECHNIQUES

VGO-511 **Credit Hours 1+1=2**

THEORY

Introduction to Andrology. Development of male genitalia and gonads. Puberty, sexual maturity, sexual behaviour and libido. Factors affecting maturity and sex drive in bulls. Forms of male infertility. Factors causing infertility in male, its diagnosis and treatment. Abnormalities, malformations, diseases of male genitalia and coital injuries, their diagnosis and treatment. Testicular hypoplasia and degeneration. Diseases of the accessory sex glands. Introduction, history, development, advantages and limitations of artificial insemination (A.I.). Methods of semen collection in various species. Factors affecting quality and quantity of semen. Macroscopic/physical, microscopic, biochemical and biological tests for evaluation of semen. Extenders used for semen preservation. Extension of semen, preservation of semen at different temperatures. Storage and shipment of semen. Technique of A.I.

PRACTICAL

Planning and organization of A.I. Centre. Selection, care, training and maintenance of breeding bulls for A.I. Andrological investigations for breeding soundness of bulls. Castration in different species, preparation of teaser bulls. Care, sterilization, storage and upkeep of equipments used for artificial Insemination. Preparation of A.V Collection of semen. Evaluation of semen (Macroscopic/physical, microscopic, biochemical and biological tests). Preparation of extender and Extension of semen. Preservation techniques at different temperatures. Freezing of semen. Insemination techniques for chilled and frozen semen. Recording Systems. Handling and shipment of frozen semen and liquid nitrogen containers at field level.

DEPARTMENT OF VETERINARY SURGERY AND RADIOLOGY

SEMESTER VII

GENERAL VETERINARY SURGERY, ANAESTHESIOLOGY AND DIAGNOSTIC IMAGING

VSR-411 **Credit Hours 2+2=4**

General Surgery

THEORY

Introduction, history, classification, surgical terminology and development of veterinary surgery. Asepsis-antisepsis, their application in veterinary surgery. Surgical risk and judgement. Management of shock, haemmorrhage. Principles of fluid therapy in surgical patients. Differential diagnosis and surgical treatment of abscess, tumors, cyst, haematoma, necrosis, gangrene, burn. Wound: classification, symptoms, diagnosis and treatment; complications, their treatment and prevention.

PRACTICAL

Surgical instruments and equipment. Operation theatre routines. Surgical pack: Preparation, sterilization and handling. Familirisation with suture materials, surgical knots, suture patterns and their use. Familirisation to live surgery haemostasis.

Anaesthesiology

THEORY (Region specific)

Preanaesthetic considerations and preanaesthetics. Anaesthesia, local analgesia / anaesthesia, General anaesthesia, anaesthetic agents (like barbiturates, disssociative agents). Inhalation anaesthesia and agents, maintenance and monitoring of general anaesthesia. Anaesthetic emergencies and their management. Only awareness of neuroleptanalgesia, electro-anaesthesia, acupuncture, hypothermia, muscle relaxants. Post operative pain management. General principles of chemical restraint of wild / zoo animals and anaesthesia of lab animals.

PRACTICAL

Familirisation with anaesthetic apparatus, endotracheal tubes. Laryngoscope, gadgets for monitoring. Pre anaesthetic preparation, induction of general anaesthesia in small and large animals and endotracheal intubation in dogs.

Demonstration of inhalant anaesthesia, monitoring of general anaesthesia and the management of anaesthetic emergencies. Use of artificial / assisted respiration. Various methods of local infiltration anaesthesia and regional block, for surgical procedures of different regions of body in Large and Small animals. Chemical restraint of lab and wild animals (Visit of a wild animal facility and audiovisual aids).

Diagnostic Imaging

THEORY

Production and properties of X-rays. Factors influencing production of X-ray. Principles of viewing and interpreting X-ray films, classification of radiographic lesions. Contrast radiography: classification, materials, uses, indications and contra indications. Biological effects of radiation, radiation hazards and their prevention by adoption of safety measures. Principles of ultrasonography and its applications in veterinary practice. Awareness on principles of radiation therapy, Isotopes and their uses in diagnosis and therapy; Principles and application of CT scan, MRI, echocardiography, scintigraphy, gamma camera, xeroradiography and Doppler.

PRACTICAL

Familirisation with operation of the X-ray equipment, X-ray accessories and adoption of safety measures in radiography. Dark room equipments, X-ray film and its processing. Intensifying screen and its uses. Radiographic technique-positioning of small and large animals. Handling, viewing and interpretation of X-ray films.

Familirisation with film contrasts, density and detail, common defects of X-ray films. Radiographic anatomy and interpretation of radiographic lesions. Demonstration of contrast technique in small animals. Familirisation with ultrasonography of small and large animals (demonstration).

SEMESTER VIII

REGIONAL SURGERY VETERINARY

VSR-421 **Credit Hours 2+1=3**

THEORY

Head and Neck

Affections of the lips and cheek and their treatment. Affections of the tongue and their treatment. Treatment of cleft palate. Nasal polyps. Affections and treatment of Guttural pouch, empyema, chondroids, tympanitis. Sinusitis, pus in the sinus. Affections of the horn and their treatment (avulsion of the horn, fracture of the horn, horn cancer and fissure in horn). Debudding and amputation of the horn. Affections of the teeth and their treatment: congenital abnormalities, irregular molars.(shear mouth, sharp teeth, wave form mouth, step formed mouth) dental tartar and dental caries, dental tumor and periodontal disease. Bishoping, Affections of salivary glands and their treatment (Trauma, sialoliths, salivary cysts, salivary fistula). Affections of the upper and lower jaw and treatment. Affections of the ear and their treatment. (haematoma and chronic otorrhoea). Eye: Clinical examination of the eye. Surgical affections of the eye: Entropion, ectropion, tumor of eyelid. Conjunctiva: Conjunctivitis, occlusion of nasolacrimal duct, squint. Eyeball: affections of the eye: hydropthalmia, glaucoma, tumors of eye, panopthalmia, injuries and infections of anterior and posterior chambers. Worm in the eye. Affections of esophagus: choke, esophageal stenosis, dilation and diverticulum. Tracheal injuries and tracheal collapse. Affections of pharynx and larynx. Foreign bodies (Oral cavity).

Thorax And Abdomen

Fracture of rib. Perforated wounds, sternal fistula, pneumocele, traumatic pneumothorax. Hernia: classification, etiology, diagnosis and treatment, (umbilical, ventral, inguinal, perineal, diaphragmatic). Surgical affections of the stomach in dogs (cardia, pyloric stenosis, torsion). Surgical affections, diagnosis and treatment of stomach in ruminants (ruminal impaction, traumatic reticulitis, diaphramatic hernia abomasal displacement, omasal impaction). Surgical affections of intestines: intestinal obstruction, intussusception, strangulation (volvulus) in large and small animals. Caecal dilation, torsion. Affections of rectum: prolapse, rectal tear, anal adenitis. Congenital anomalies of colon, rectum, anus. Surgical affections of liver, spleen. Surgical affections of kidney,ureters, urinary bladder. Urolithiasis and urethral stenosis their sequlae and surgical treatment. Surgical affections of penis and sheath, affections of testicle, scrotum. Surgical affections of udder and teat. Canine mammary neoplasms.

PRACTICAL

Head and Neck

Demonstration of following:Examination of oral cavity. Location of trephining of sinus in equines. Bovine:Amputation of horn, Debudding. Ligation of Stenson's duct, Tooth rasping / floating, otoscopy in dogs, ear haematoma, tracheotomy, tracheostomy, oesophagotomy. Opthalmoscopy, tests for blindness, operation for ectropion, and entropion, enucleation / extirpation of the eye.

Thorax And Abdomen

Demonstration of followings: Surgical approaches to the thorax and abdomen in animals with landmarks for approach to various organs. Thoracocentesis, abdominocentesis. Rumenotomy,gastrotomy,eneterotomy,eneteroanastomosis, urethrotomy, vasectomy, ovariohysterectomy, spaying, cystotomy and cystorrhaphy. Caesarean section. Amputation of tail.

SEMESTER IX

VETERINARY ORTHOPAEDICS AND LAMENESS

VSR- 511 **Credit Hours 1+1=2**

THEORY

Body conformation of the horse in relation to lameness (trunk, fore limb and hind limb) Lameness: definition, classification and diagnosis. Shoulder slip (sweeny), bicipital bursitis, omarthritis, capped elbow, radial paralysis, carpitis, bent knee, and knock-knee. Hygroma of knee, open knee, blemished knee. Fracture of carpal bone, fracture of accessory carpal, contraction of digital flexors. Splints, sore shin, wind puffs, sesamoiditis. Osslets, ringbone, quittor, side bone, Navicular disease, pyramidal disease. Laminitis, sand crack, seedy toe, fractures of third phalanx, pedal osteitis, and sole penetration. Canker, thrush and corn, Monday morning disease, cording up, myositis of psoas, iliac thrombosis, Crural paralysis, subluxation of sacroiliac joint, rupture of round ligament, trochantric bursitis. Upward luxation fixation of patella, stringhalt, gonitis, chondromalacia of patella, rupture of tendoachilles, rupture of peroneus tertius, fibrotic myopathy and ossifying myopathy. Thoroughpin, bog spavin, spavin, curb, capped hock. Bovine lameness: contusion of sole, ulceration of sole, septic laminitis, avulsion of hoof and subluxation of patella. Interdigital fibroma, cyst, sand crack, hoof deformities. Specific joint disease (septic arthritis, osteochondritis dessicans, degenerative joint disease) in large animals and their treatment. Specific joint disease in dogs and their treatment. (Intervertebral disc protrusion, spondylosis) elbow and hip dysplasiaRupture of cruciate ligament. Fracture and dislocation: Classification and general principles of fracture repair. Application of external and internal immobilization for different bone fractures in small and large animals. Complications of fracture healing. Affections of tendon, tendon sheath, bursa and ligaments. Principles of physiotherapy, classification, scope and limitations.

PRACTICAL

Examination of the horse for confirmation of body (head, trunk, fore limbs and hind limbs) and diagnosis of lameness. Demonstration of equine shoeing. First aid in orthopaedic patients (splint application, Robert Jones's bandage) Plaster of paris cast- application in dogs and calves. Hanging pin and transfixation pinning(demonstration) Intra medullary pinning in dogs(demonstration). Diagnostic nerve block in equine(demonstration)Demonstration of: claw trimming of bovine foot, neurological examination for evaluation of spinal trauma, tenectomies of lateral digital extensor tendon, medial patellar desmotomy,Techniques and application of diathermy, electrical stimulators, ultrasonic, therapy, infra red and ultra- violet rays.

(Courses on Zoo/Wild Animal Breeding, Nutrition, Management and Health Care under VMD – 512 (2+1) and Pet/Companion Animal Breeding, Feeding, Management and Health Care under VMD- 513 (1+1) shall be taught jointly by Departments of Veterinary Medicine, Livestock Production Management, Animal Genetics and Breeding, Animal Nutrition, Veterinary Pathology, and Veterinary Surgery and Radiology).

DEPARTMENT OF VETERINARY MEDICINE

SEMESTER VII

VETERINARY CLINICAL MEDICINE-I (GENERAL & SYSTEMIC)

VMD-411 **Credit Hours 2+1=3**

THEORY

History and scope of Veterinary Medicine, Concept of animal diseases. Concepts of diagnosis, differential diagnosis and prognosis. General systemic states, hyperthermia, hypothermia, fever, septicemia, toxemia, shock and dehydration. Aetiology, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention and control of the following diseases of cattle, buffalo sheep/goat, equine, pig and pet animals. Diseases of digestive system with special reference to rumen dysfunction and diseases of stomach in non-ruminants. Affections of peritoneum, liver and pancreas. Diseases of respiratory and cardiovascular systems including blood and blood forming organs. Diseases of uro-genital system & lymphatic system. Emergency medicine and critical care.

PRACTICAL

Clinical examination and diagnosis: Methods of clinical examination of individual ailing animals including history taking. Examination of animal including behaviour and general appearance: demeanour, voice, eating, drinking, defecation, urination, posture, gait, condition of skin and body coats. Inspection of body: examination of head and neck, thorax, respiratory rates, rhythm, respiratory depth, type of respiration, cardiac sounds, chest symmetry, abdomen, external genitalia, mammary glands and limbs. Physical examination: temperature taking, palpation, percussion, auscultation. Examination of ears, eyes, conjunctiva, eye balls, mouth, submaxillary and other superficial lymph nodes, jugular furrow, oesophagus, trachea. Passing of stomach tube for locating obstruction if any. Examination of specific condition of thorax: pneumothorax, haemothorax and hydrothorax. Percussion/ auscultation of lung and cardiac areas. Examination of abdomen: ruminal motility, consistency, microbial population and their motility in ruminal fluid, use of trochar and canula. Examination of liver and kidneys. Liver and kidney function tests.

SEMESTER VII

VETERINARY PREVENTIVE MEDICINE-I (BACTERIAL, FUNGAL & RICKETTSIAL DISEASES)

VMD-412 **Credit Hours 2+0=2**

THEORY

Clinical manifestation, diagnosis, prevention and control of infectious diseases, namely mastitis, haemorrhagic septicaemia, brucellosis, tuberculosis, Johne's disease, black quarter, tetanus, listeriosis, leptospirosis, campylobacteriosis, actinomycosis, actinobacillosis, enterotoxaemia, glanders, strangles, ulcerative lymphangitis, colibacillosis, fowl typhoid, pullorum disease, fowl cholera, avian mycoplasmosis, spirochaetosis, salmonellosis, swine erysipelas. Other important bacterial diseases of regional importance (e.g. contagious caprine pleuropneumonia, contagious bovine pleuropneuonia etc.). Bacterial diseases of bio terrorism importance – anthrax, botulism etc. Chlamydiosis, Q fever, anaplasmosis. Dermatophillosis, aspergillosis (brooders pneumonia), candidiasis, histoplasmosis, sporotrichosis, coccidiodomycosis, mycotoxicosis, etc.

SEMESTER VIII

VETERINARY CLINICAL MEDICINE-II
(METABOLIC & DEFICIENCY DISEASES)

VMD-421 **Credit Hours 2+0=2**

THEORY

Aetiology, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention and control of metabolic disorders/production diseases. Milk fever, acute parturient hypocalcaemia in goats, sows and bitches, osteodystrophy fibrosa, lactation tetany in mares, downer cow syndrome, ketosis, hypomagnesaemia in cattle and buffalo, azoturia in equines, hypothyroidism and diabetes in dogs. Diagnosis and management of diseases caused by deficiency of iron, copper, cobalt, zinc, manganese, selenium, calcium, phosphorus, magnesium, vitamin A, D, E, B. complex, K and C in domestic animals and poultry. Nutritional haemoglobinuria. Diseases of neonates. Diseases of skin, musculo-skeletal system, nervous system and sense organs of domestic animals. Management of common clinical poisonings. Role of alternative/integrated/ ethno veterinary medicine in animal disease management.

SEMESTER VIII

VETERINARY PREVENTIVE MEDICINE-II
(VIRAL & PARASITIC DISEASES)

VMD-422 **Credit Hours 2+0=2**

THEORY

Clinical manifestation, diagnosis, prevention and control of infectious diseases, namely foot and mouth disease, rinderpest, bovine viral diarrhoea, malignant cattarhal fever, infectious bovine rhinotracheitis, enzootic bovine leucosis, ephemeral fever, blue tongue, sheep and goat pox, PPR, classical swine fever. Important exotic diseases for differential diagnosis - African swine fever, swine vesicular disease, vesicular stomatitis, Rift valley fever, Aujeszky's disease. Rabies, African horse sickness, equine influenza, equine infectious anaemia, equine rhinopneumonitis, canine distemper, infectious canine hepatitis, canine parvoviral disease. Highly pathogenic avian influenza, Newcastle (Ranikhet) disease, Marek's disease, avian leucosis, infectious bronchitis, infectious laryngotracheitis, avian encephalomyelitis, fowl pox, infectious bursal disease, inclusion body hepatitis-hydropericardium syndrome. Other emerging and exotic viral diseases of global importance. Amphistomosis, fascioliosis, gastrointestinal nematodiasis, schistosomosis, echinococcosis, tapeworm infestations (cysticercosis), verminous bronchitis, coeneurosis, trichomonosis, blood protozoan infections (trypanosomosis, theileriosis, babesiosis etc.), canine eperythrozoon infection, coccidiosis.

SEMESTER IX

ANIMAL WELFARE, ETHICS AND JURISPRUDENCE

VMD-511 **Credit Hours 2+0=2**

THEORY

Definition of animal welfare and ethics. Human and animal welfare in relation to ecosystem and environmental factors. Role of veterinarians in animal welfare. Animal welfare organisations, Animal Welfare Board of India – their role, functions and current status. Rules, regulations, laws on animal welfare. Prevention of Cruelty to Animals (PCA) Act, 1960 (59 of 1960). Role and

function of Committee for the purpose of Controlling and Supervising Experiments in Animals (CPCSEA). Protection of wild life in nature and captivity. Protection and welfare of performing animals. Welfare of animals during transportation. Animal welfare in commercial livestock farming practices. Protection and welfare of working animals. Pet and companion animal welfare. Animal welfare during natural calamities and disaster management. Legal duties of veterinarians, Forensic and State Medicine laws. Common offences against animals and laws related to these offences. Examination of living and dead animals in criminal cases. Cruelty to the animals and bestiality. Legal aspects of : Examination of animals for soundness, examination of injuries and post-mortem examination. Causes of sudden death in animals. Collection and despatch of materials for chemical examination, detection of frauds-doping, alternation of description, bishoping etc. Cattle slaughter and evidence procedure in courts. Provincial and Central Acts relating to animals. Glanders and Farcy Act, 1899 (13 of 1899). Dourine Act 1910 (5 of 1910), Laws relating to offences affecting Public Health. Laws relating to poisons and adulteration of drugs. Livestock Importation Act. Evidence, liability and insurance. Code of Conduct and Ethics for veterinarians – the Regulations made under Indian Veterinary Council Act, 1984.

SEMESTER IX

ZOO/WILD ANIMAL BREEDING, NUTRITION, MANAGEMENT AND HEALTH CARE

VMD-512 **Credit Hours 1+1=2**

THEORY

Taxonomy of various genera of wild/zoo animals of India along with their descriptions. Ethology of wild life species. Basic principles of habitat and housing of various classes of wild and zoo animals.

Population dynamics of wild animals, effective population size of wild animals in captivity/ zoo/natural habitats. Planned breeding of wild animals. Controlled breeding and assisted reproduction. Breeding for conservation of wild animals.

Feeding habits, feeds and feeding schedules of zoo animals. Nutrient requirements of wild animals. Diet formulation and feeding of various age groups, sick and geriatric animals.

Restrain, capture, handling, physical examination and transport of wild and zoo animals. Principles of anaesthesia, anaesthetics, chemicals of restraining, common surgical interventions. Capture myopathy.

Principles of zoo hygiene, public health problems arising from zoos. Prevention, control and treatment of infectious, parasitic, nutritional and metabolic diseases in zoo and wild animals. Acts and Rules related to Zoo and wild animals. National and international organisations and institutions interlinked to wild and zoo animals - role and functioning.

PRACTICAL

Visit of nearby wildlife sanctuary/zoo/wild animal centres to study the care and management, restraint, examinations, administration of medicines etc. in zoo animals. To study the housing, feeds and feeding schedule of zoo animals.

To study the implementation of various Acts and Rules related to Zoo animals care and management. Post mortem examination of wild and zoo animals. Handling, processing and interpretation of pathological materials from zoo and wild animals. Attending to common surgical interventions on zoo and wild animals.

Planning for balanced feeding. Diet charts, preparation of balanced diet for new born, growing and sick animals as oral and intravenous feeds. Preparation of modified diet under

selected conditions. Hygienic preparation, preservation and storage of foods.

(This course shall be taught jointly with the Departments of Livestock Production Management, Animal Nutrition, Animal Genetics and Breeding, Veterinary Pathology, and Veterinary Surgery and Radiology)

SEMESTER IX

PET/ ANIMAL BREEDING, MANAGEMENT, NUTRITION AND HEALTH CARE

VMD - 513 **Credit Hours 1+1= 2**

THEORY

Breeds of dogs- international pedigree breeds and those commonly seen in India. Pedigree sheet and major breed traits. Detection of oestrus and Breeding of dogs. Selecting a breed to keep, selection of a pup.

Feeding of dogs- nutritional requirements of important breeds and different age groups. Management of dogs-kennels, care of pups and pregnant bitch. Dog shows- preparation for the shows, kennel clubs, important characters for judgement. Whelping. Utility of dogs- guarding, defence, patrolling, riot control, scouting, espionage, mine detection, tracking, guiding, hunting, races, retrieving, rescue, and other uses. Principles of training of dogs.

Common diseases affecting dogs (bacterial, viral, parasitic, fungal, nutritional etc.) – their clinical manifestations, diagnosis, treatment and control. Vaccination/ deworming schedules. Common surgical interventions in dogs- docking, ear cropping, nail cutting, sterilization. Common anaesthetics and anaesthesia in dogs.

Common breeds of cats, their habits, feeding, breeding and management. Common diseases of cats- their diagnosis, treatment and control. Common surgical interventions in cat. Common pet birds seen in India. Introduciton to their caging, breeding, feeding, management, disease control and prevention.

PRACTICAL

Recognising various breeds. Handling of dogs. Types and use of leads and collars. Brushing/grooming and bathing of dogs. Restraining of dogs for examination/medication. Detection of oestrus, mating, whelping (through demonstration). Care of pups, weaning, administration of medicine. Nail and tooth care, clipping of hairs for show purposes. Hygiene of kennel/pens, feeding utensils. Visit to dog show. Vaccination and surgical interventions (nail clipping, docking, sterilization).

Common breeds of cats, handling, restraint, examination, medication and surgical intervention in cats and kittens.

Identification of common pet birds. Handling of pet birds, their examination and administration of medicines.

(This course shall be offered jointly by the Departments of Veterinary Medicine, Livestock Production Management, Animal Nutrition, Animal Genetics and Breeding, Veterinary Pathology, and Veterinary Surgery and Radiology).

DEPARTMENT OF VETERINARY & ANIMAL HUSBANDRY EXTENSTION EDUCATION

SEMESTER V

PRINCIPLES AND TECHNIQUES OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION

VAE- 311 **Credit Hours 2+1=3**

THEORY

Concept of Sociology. Man-animal relationship (Society, Community, Association, Institutions). Difference in livestock production practices of rural, urban and tribal communities including rearing patterns. Social change and factors of change. Social groups, its types and functions. Social transformation in relation to animal rearing.

Evolution of veterinary and animal husbandry extension in India. Extension education: definition, philosophy and principles. Concept of Community development. Teaching learning process, steps of teaching. Extension teaching methods; their classification and use. Information delivery system in Veterinary and Animal Husbandry extension. Information communication technology.

Role of animals in economy, health and socio-psychology of rural, semi urban and urban society. Client and stakeholder dealings: techniques and procedures including tools for data collection, analysis, history taking, follow-up and appraisal on prognosis. Adoption and diffusion of livestock innovations. Leadership and role of leaders in animal husbandry extension. Farming in rural India - large and small scale farming, mixed farming, co-operative and collective farming, contractual farming, Co-operative Farming for Live Stock Production, Advantages and limitations of co-operatives. Economic principles underlying co-operative societies, co-operative milk unions in India.

Social survey and its types. Social sampling. Identification of key communicators and operating through them. Identifying organizational difficulties in the way of organizing animal husbandry extension programmes. Identification of constraints in the adoption of improved animal husbandry practices.

Animal Husbandry programme planning and evaluation. Feedback evaluation of extension programmes and their impact analysis. Panchayati Raj Institutions, Krishi Vigyan Kendra (KVK), Animal Husbandry Development Programmes in Cattle, buffalo, sheep , goat, poultry, rabbit and piggery.- Key village scheme, Gosadan/Goshala, Integrated Cattle Development Programme (ICDP), Integrated Rural Development Programme (IRDP), Agricultural Technology Management Agency (ATMA).

Gender considerations in Veterinary practice. Changing expectations from new recruits to the profession and employers of veterinarians. Growing changes in corporate, client influence and changes in work ethics.

Information communication technologies. Virtual class room and self learning. E-learning. Information kiosks. Agriculture portals. E-commerce- scope and local application. Computer aided teaching/learning, web-sites dedicated to veterinary and animal sciences education, web directories and virtual learning institutions (e-institutions).

PRACTICAL

Audio-visual equipments. Principles and use of overhead, slide and multimedia projectors, digital video/still camera. Preparation and use of visual aids like posters, charts, flash cards, flipcharts, etc. Use of literature and media in Extension. Identification of key elements in social sampling of data. Collection and analysis of data. Identification of key communicators and

operation programme. Enumeration of organizational difficulties in animal husbandry extension programmes. Identification of constraints in the adoption of improved animal husbandry practices. Constraint analysis.

Group discussions, techniques and procedures for awareness campaigns on different veterinary and animal husbandry practices - signs of diseases, preservation of eggs, clean milk production, controlling of ectoparasites, pail feeding of calves, sexing and culling of birds, first aid for minor wounds, disinfection of byres, branding, use of horn cauterization, timely A. I., choice of good progeny, care in pregnancy, infertility, environmental hygiene, preparation of feeds and feeding schedules, deworming, preventive hygiene, vaccination etc. Organization of animal welfare camps, exhibition, livestock shows etc. Hands on training in the use of computers for teaching and information dissemination. Rapid Rural Appraisal/Participatory Rural Appraisal in identifying livestock production/health care practices.

SEMESTER VI

LIVESTOCK ECONOMICS, MARKETING AND BUSINESS MANAGEMENT

VAE - 321 **Credit Hours 2+1=3**

THEORY

Economics:

Introduction, definition and scope (production, consumption, exchange and distribution) of economic principles as applied to livestock. Common terms - wants, goods, wealth, utility, price, value, real and money income. Important features of land, labour, capital and organization.

Livestock produce and products. Livestock contributions to national economy. Demand projections of livestock produce. Theory of consumer behaviour: law of diminishing marginal utility and indifference curve analysis. Theory of demand; meaning, types of demand, demand curve and law of demand, individual and market demand, elasticities of demand and factors affecting demand. Laws and types of supply. Elasticity of supply. Cost concepts and principle of fixed and variable costs. Theory of production, law of diminishing returns, laws of returns to scale and concept of short and long run periods. Economics of animal disease and disease losses.

Marketing:

Livestock business- concepts, nature and scope. Components, characteristic of small business. Marketable livestock commodities. Concept of market; meaning and classification of markets. Market price and normal price, price determination under perfect competition in short and long run.

Marketing of livestock, and perishable and non-perishable livestock products. Merchandising - product planning and development. Marketing functions; exchange functions- buying, selling and demand creation. Physical functions- grading, transportation, storage and warehousing. Facilitative functions - standardization, risk bearing, market information and market intelligence. Market opportunities - marketing channels of livestock and livestock products, organized/unorganized markets and cattle fairs. Import and export of animal and animal products. International Agreements/ Regulations (WTO and General Agreement on Trade and Tariff-GATT) for marketing/trade of live animals and products.

Management:

Resource Management- Organizational aspects of livestock farms, sources and procurement of inputs and financial resources. Break- even – analysis. Personnel (Labour) Management- Identification of work and work (job) analysis/division of labour.

Accounting:

Definition, objectives, common terms. Different systems of book keeping- single and double entry system. Various types of account books including books of original entry. Classification of accounts and rules of debit and credit. Recording of business transactions. Analysis of financial accounts- income and expenditure accounts, trading account, profit and loss accounts.

PRACTICAL

Book keeping; general entry, writing of journal and ledger, cash book (two and three column), purchase-sale and purchase-sale return registers, trading account, profit and loss accounts, income and expenditure accounts, balance sheet, bills of exchange (bill of receivable and bill of payable), bank reconciliation statement,.

Economics of a dairy unit, poultry, piggery, sheep and goat units. Visit to farms, markets and cattle fairs, backyard units and preparation of report.

SEMESTER IX

LIVESTOCK ENTERPRENEURSHIP

VAE-511 **Credit Hours 1+0=1**

THEORY

Livestock Entrepreneurship. Avenues of entrepreneurship/employment in private and public sectors. Key concepts and theories of self-employment and entrepreneurship. Essential criteria for development of entrepreneurship in livestock sector - basic requirements for entrepreneurship initiatives in livestock and allied sectors (i.e. techno economic feasibility of the enterprises under different conditions, training and management skills, business acumen, business communication, inter-personnel skills for establishing an enterprise, etc.). Entrepreneurial training/ development programmes at the State and National level. Animal Insurance. Bank support for entrepreneurship. Financial credit and financial management- general Principles and practices, analysing project appraisals and reports, capital expenditure decisions, re- investment and payback. Preparing projects for bank appraisal, banking requirements. Assessing project profits. Procurement management, quality issues, standardisation, grading and packaging. Marketing channels. Retail marketing, sales operations and management, advertising, marketing of services. Expectations from a Veterinary professional. Eco-jobs and sustainable development through livestock.

Approach to preparation of Entrepreneurial Project on livestock.

TEACHING VETERINARY CLINICAL COMPLEX (TVCC)

A. VETERINARY CLINICAL PRACTICE

VCP-411(Semester-VII)	**Credit Hour- 0+5=5**
VCP-421(Semester-VIII)	**Credit Hour- 0+5=5**
VCP-511 (Semester-IX)	**Credit Hour- 0+5=5**
	Total: 15

The students shall be imparted the trainings on rotation basis in the following sections of Teaching Veterinary Clinical Complex (TVCC):

1. Ambulatory Section:

Handling, examination, diagnosis and treatment of sick animals under field conditions under the supervision of faculty designated for Ambulatory Clinical activity. Ambulatory Clinics shall be operated by small groups of students and faculty through an equipped mobile unit in

which the departments of Veterinary Medicine, Veterinary Gynaecology and Obstetrics and Veterinary Surgery and Radiology shall be involved.

2. Diagnostic Laboratory Section

The Clinical Diagnosis Laboratory will form an important component of Teaching Veterinary Clinical Complex. The Diagnostic Laboratory will impart training to groups of students for laboratory evaluation and interpretation of clinical samples leading to diagnosis/comparative diagnosis of diseases. This activity will involve training in examining clinical samples (biochemical, toxicological, pathological, parasitological and bacteriological) at the clinical complex, analyzing and correlating with clinical findings and interpreting the results.

Note: The Laboratory shall be run in collaboration with the Department of Pathology.

3. Medicine Section:

Orientation to Veterinary Clinics including hospital set up, administration and functioning. Methods of record keeping. Retrieval, processing, analysis and interpretation of data. Hospital management involving out patient department (OPD), Indoor patient, Critical care/intensive care unit, sanitation, up keeping, practice management etc. Doctor client interaction: Orientation to local language/dialect/ local terminology of the diseases.

Registration, filling up registration cards, history taking. Relating generic and trade names of drugs along with their doses, indications and contraindications to prescribed treatment regimens. Familiarization and practice of first aid procedures and emergency medicine. Practice of collection, labeling, packaging and evaluation of laboratory samples.

Clinical practice comprising of clinical examination of the patient, with emphasis on history taking, examination techniques- palpation, percussion and auscultation, systematic examination of various systems, recording of clinical observations viz. temperature, respiration, pulse, cardiac sounds, cardiac function, pulmonary function, functional motility of digestive system, routes and techniques of administration of medicaments. Diagnosis and treatment of common clinical cases like pharyngitis, laryngitis, stomatitis, indigestion, ruminal impaction, tympany, enteritis, traumatic reticulo-peritonitis, traumatic pericarditis, pneumonia, haemoglobinurea, haematuria, milk fever, ketosis, rickets, osteomalacia, common poisoning, and others.

Collection of materials like urine, faeces, skin scraping, blood, milk and other body fluids for laboratory tests. Preparation of case records; follow-up records etc. Treatment of causalities and other emergencies. Screening of livestock/poultry through tests, mass diagnostic campaigns. Vaccination and other disease prevention and control programmes in the field.

Practice of feeding of sick animals. Acts and regulations pertaining to generation and disposal of biomedical wastes in veterinary institutions. Biomedical waste generation, handling, storage, sorting, coding, transportation and disposal. Hazards of biomedical waste and impact of biomedical waste on the environment.

4. Gynecology & Obstetrics Section:

Practice of pregnancy diagnosis, examination of cases of anoestrus, silent oestrus and conception failure. Treatment of cases of metritis, cervicitis and vaginits. Handling of case of retention of placenta. Management of Ante and post partum prolapse of vagina. Examination and preliminary handling of dystocia cases, faetotomy, caesarian . operation Castration of male calves. Breeding soundness evaluation of bulls. Collection of cervical and vaginal mucus for cytology. Rectal examination of genitalia, vaginal examination. Familiarization with common drugs & hormones used in reproductive disorders, epidural and local anaesthesia for gynaecological cases. Filling of clinical case records and their maintenance.

5. Surgery & Radiology Section

Familiarization with equipments used in different sections of the Hospital. Restraining and positioning of different species of animals for examinations, diagnosis and surgical treatment. Prescription of common drugs, their doses and uses in clinical surgical practice. Filling of clinical case records and their maintenance. Preparation of surgical packs, sterilization procedures for surgical instruments, drapes, operation theaters. Passing of stomach tube and gastric tube. Catheterization and urine collection.

Techniques of examination of neuromuscular and skeletal functions, Familiarisation with antiseptic dressing techniques, bandaging, abdomino-centesis, thoracocentesis. Topography anatomy of Cattle, Horse and Dog. Radiographic positioning and terminology.

Treatment and Management of inflammation, wounds, abscess, cysts, tumors, hernia, haematoma hemorrhage, sinus, fistula, necrosis, gangrene, burn, sprain and tendinits. First aid in fractures and dislocations and other affections of joints, facial paralysis, Eye worm & other minor affections of Eye. Irregular teeth and their rasping, tail amputation, knuckling, upward fixation of patella (medical patellar desmotomy) etc.

Familiarisation with the landmarks for the approach to various visceral organs, thoracocentesis, abdominocentesis. Laparotomy, palpation and visualisaiton of viscera. Urethrotomy, castration, vasectomy, caudectomy, ovario-hysterectomy, thoracotomy, cystotomy, cystorraphy and spleenectomy. Examination of horse for soundness and preparation of certificate for soundness. Tenotomies, suturing of tendon, shortening of tendon.

Note: The skills required for the Comprehensive Examination of Core Competence to be held for the purpose of assessment/evaluation of Internship shall be imparted under these courses.

SEMESTER VII

VETERINARY CLINICAL BIOCHEMSITRY AND LABORATORY DIAGNOSIS - I

B. 1. VLD-411 **Credit Hours 0+1 = 1**

Training in examining clinical samples (biochemical, pathological, parasitological and bacteriological). Analyzing and correlating with clinical findings and interpreting the results. Collection, labeling, transportation, and preservation of body fluid samples. Writing results and report. Interpretation of data in relation to specific diseases.

Clinical significance and interpretation of serum glucose, lipids, proteins, blood urea nitrogen, creatinine, uric acid, ketone bodies, bilirubin & electrolytes from samples. Clinical significance and interpretation of examination of urine samples.

Clinical evaluation of blood (Haemoglobin, packed cell volume, total erythrocytic count, erythrocytic sedimentation rate, total leukocytic count and differential leucocytic count) from clinical samples.

Laboratory evaluation and diagnosis of samples for parasitic diseases (routine faecal examinations- direct smear method, simple sedimentation and floatation methods, Quantitative faecal examination, pastural larval counts), Examination of skin scrapings, examination of blood smear/blood for diagnosis of blood protozoan diseases.

SEMESTER VIII

VETERINARY CLINICAL BIOCHEMSITRY AND LABORATORY DIAGNOSIS-II

B. 2. VLD-421 **Credit Hours 0+1=1**

Evaluation of acid-base balance and interpretation. Biochemical aspects of digestive disorders, endocrine functions. Liver, kidney and pancreatic function tests. Role of enzymes for detection of tissue / organ affections.

Preparation of microscopic slides from tissue collected for diagnosis and its' histopathological interpretation. Examination of biopsy and morbid material for laboratory diagnosis,
Orientation to a clinical Microbiology laboratory, Collection, transport and processing of specimens from clinical cases for diagnosis of important bacterial, fungal and viral diseases. Isolation of bacteria from clinical samples, Identification of bacteria by Grams staining and cultural/biochemical characteristics. Drug sensitivity and rationale for therapy. Diagnosis of diseases by employing tests like Agar Gel precipitation Test. Enzyme linked immunosorbent assay, Dot immuno-assay, tube agglutination test, slide agglutination tests etc.

Practice for separation of toxic materials from samples. Detection of arsenic, lead, antimony, mercury, copper, zinc. fluorides. Nitrates/nitrites cyanides and tannins in body fluids/ tissues of animals. Evaluation of samples of toxic residues. Appreciation and differentiation of symptoms caused by various types of toxic materials including agrochemicals plants and drugs.

SEMESTER VIII

VETERINARIAN IN SOCIETY

C. TVC-421 **Non-Credit Course: 1+0=1**

Man-Animal and Society. Social - ecological interactions in animal rearing. Client oriented approach to physical examination of animals. Concepts in interaction with animal owner/ clients. Bio-medical ethics and clinical evaluation. Communication skills. Anima/owner information management. Human-animal bonds. Health maintenance in individual animals and population. Veterinary public health as component of society. Professional development. Societal responsibilities of veterinarians. Societal responsibilities with respect to Private and Public Hospital and practice management. Social conduct and personality profiles in management of clinical practice. Veterinary professional interactions with Health Authorities, Drug and Food Regulatory Authorities, Zoo/Animal Welfare organisations and Civil Administration. Role of Veterinarian in Natural Calamities and Disaster Management.

SEMESTER III and IV

D. INSTRUCTIONAL LIVESTOCK FARM COMPLEX

Non-Credit Course: (0+1)X2=2 Credits

LFP- 211 and LFP-221

Hands on training of the students on the overall farm practices of livestock management including cleaning, feeding, watering, grooming, milking, routine health care, record keeping, sanitation, housing, fodder production.

These courses shall be non-credit courses and the performance of students shall be assessed and recorded as grades: A- Excellent, B- Good, C- Average and recorded on the Degree Transcript.

CHAPTER - 3

HOSTEL RULES & REGULATIONS

HOSTEL RULES AND REGULATIONS

Approved by Hon'ble Executive Council of University in 7th Meeting and informed by Registrar vide letter no. : 58-59 UPDDVU/R/EC Dt. - 16 Jan. 2006

At present there are four boys hostels namely Gautam, Sampurana Nand, Nehru and Shastri hostels and two Girl's Hostel namely Sarojini and Kasturba, to accommodate the students. Normally the residence in the hostel is mandatory for all students of the University. {Subject, to availability of accommodation}. Only a limited number of students may be allowed to live as non-residents students (Day Scholar) with their parents or bonafide guardians.

1- GENERAL

1.1 Residents shall see the warden/ADSW/DSW in the office during the fixed hours. In case of emergency, the Hostel Attendant on duty should be sent to the Warden/ADSW/DSW's residence.

1.2 It will be compulsory for residents to park their cycles/motor vehicles in the cycle shed on payment of the prescribed parking fee.

1.3 At the time of admission, the students have to deposit two thousand rupees only (Rs. 2000/-) as a hostel security money.

1.4 It is compulsory for the students to submit a photocopy of registration of their vehicles in the office of Hostel Warden.

1.5 Registration number of two wheelers, cars and jeeps of the residents and of their guests must be entered in the register with the Attendant/Chowkidar of the Hostel.

1.6 The telephone is meant for office only. However, incoming phone facility will be available in the Hostel.

1.7 The Hostel identity card testifies the student's status as resident of the hostel. The card is not transferable. The resident will always keep his/her card in his/her room. It should be available for inspection as and when demanded by the Warden or any other person authorized by the Warden/ADSW/DSW. The card should be carefully preserved, In case of loss; it will be replaced on payment of Rs. 25/-.

1.8 The card is valid for the academic session/year for which it is issued. The residents while leaving the hostel at the end of the academic year or in the mid session must return the card to the office of the Warden before the securities are refunded.

1.9 All inmates are required to dine in the common dining hall, unless exempted by the concerned Warden.

1.10 No resident is to insult/injure or appear to cause insult/injure to the feelings and sentiments of other inmates.

1.11 Residents are not to organize themselves into groups or give cause to even appear to have done so, on the basis of cast, colour, region, religion, and class or programme consideration or on the basis of social or political philosophy, violation may lead to expulsion from the college.

1.12 No student shall keep gold or costly jewellary in his/her room.

1.13 While visiting the common room, dining hall and the canteen, the students shall be in proper dress. Smoking is strictly prohibited in common room, dinning hall. reading room and kitchen area.

1.14 Students shall use or handle with care all property belonging to the Hostel. When a student is found guilty of damaging the hostel property, the Warden may recover the cost of repair or replacement and in addition also impose a fine or recommend the imposition of a fine, depending on the circumstances.

1.15 All rooms in the Hostel (including almirah and belonging) shall be open for inspection by the Warden/ADSW/DSW/Dean at any lime.

1.16 The Warden incharge reserves the right to cancel the allotment without assigning any reason there of at any time.

Note 1. All Rights of admission to the University Hostels are reserved with the ADSW/Dean Student Welfare.

2. If a student leaves the hostel with his/her own will or not enroll himself/herself for the hostel, in such instances they will not be entilted for the re-allotment of the room in the hostel.

2- ADMISSION OF STUDENTS TO HOSTEL AND ALLOTMENT OF ROOMS

2.1 Every student enrolled in the University shall stay in one of the University Hostel except when, due to lack of accommodation, it is not possible to give him/her a room in the hostel. In a few special cases such as in the case of local students, permission may be given by the ADSW /DSW for staying with parents or guardians.

2.2 Students of part time course and employees are not eligible for admission to the Hostels, Incase, a student after being admitted to the hostel joins service, he or she shall cease to be eligible for hostel accommodation and he or she shall have to vacate the hostel within 72 hours from the date he or she becomes ineligible.

2.3 Admission to hostel shall be sought in every academic session. No student shall be admitted to a hostel unless:

a) He/She submits, a duplicate admission form duly filled in and signed by the parents/ guardian of the resident/adviser/guide along with receipt of Hostel fee.

b) The Warden/ADSW/DSW is satisfied regarding proper conduct and regular payment of the dues of hostel mess, canteen and electricity. In case of ex-residents, all previous hostel dues should be cleared prior to seeking fresh admission to the new session. (False statement regarding the clearance of dues will result into cancellation of admission and confiscation of hostel securities; besides disciplinary action).

2.4 Seniority shall be the primary consideration for the allotment of cubicles/rooms to under-graduate students within a hostel. The, order of allotment shall be:

(i) Fifth year students of 5-year Programme.
(ii) Fourth year students of 5-year Programme.
(iii) Third year students of 5-year Programme.
(iv) Second year students of 5-year Programme.
(v) First year sludents of 5-year Programme.

Where the number of rooms available happens to be less than the number of students in a given class, the allotment of rooms shall be on the basis of merit

2.5 Allotment to cubicles/rooms and dormitories will be made on the date to be announced, by Warden, When allotment is made to dormitories, the concerned students shall be present so that the choice of partners may be decided in their presence. The wishes of students the matter of partners will be given due consideration.

2.6 Except in the case of brothers and other close relatives, room-mates in dormitories shall normally, belong to same class/year.

2.7 No hostel resident shall be allowed to change his/her room without the permission of the Warden.

2.8 No student can seek admission to more than one hostel in a given session.

2.9 Residents shall be in their rooms during night time and will not move to other rooms for sleeping without the permission of the warden.

2.10 After the general allotment and at the beginning of each subsequent semester, the Warden shall send a complete list of the students staying in his/her hostel, to the ADSW/DSW and to the Dean of the concerned College mentioning, against each resident name, the number of his room and also stating whether it is a double or a single seater,

3- CONDUCT AND DISCIPLINE

3.1 Students shall maintain a high standard of discipline and a peaceful atmosphere in the Hostel as well as on the campus.

3.2 A student may be subjected to various kinds of punishment, by the authority competent to impose such penalty, for the following reasons:

(a) Misbehaviour of any kind including noisy, boisterous, disorderly, obnoxious and disrespectful conducts towards officials and fellow residents. Disregard of the college, Hostel rules, orders and notices and instructions of the members of the college/University staff.

(b) Teasing or otherwise harassing other students and/or the use of violence,

(c) Stealing or pilfering Hostel/University property or the property of other students.

(d) Unruly conduct or rowdyism.

(e) Writing on the walls or other part of the Hostel building or sticking of posters or distribution of unauthorized handbills or notices.

(f) Making noise and or creating other disturbance, including the use of CD player/transistors etc. in such a manner as to disturb others or interfere with studies and comfort of other inmates of the hostel.

(g) Ragging of junior students is strictly banned as per **UGC REGULATIONS ON CURBING THE MENACE OF RAGGING IN HIGHER EDUCATIONAL INSTITUTON, 2009** (Under Section 26 (1) (g) of the University Grants Commission Act, 1956) vide letter no. **F.1-16/2007(CPP-II) Dated 17th June, 2009.**

What Constitutes Ragging -

Ragging constitutes one or more of any of the following acts:

a. Any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student;

b. Indulging in rowdy or indisciplined activities by any student or students which causes or is likely to causes annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;

c. Asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique of such fresher or any other student;

d. Any act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or a fresher;

e. Exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students.

f. And act of financial extortion or forceful expenditure burden put on a fresher or any other student by students;

g. Any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;

h. Any act or abuse by spoken words, emails, post, public insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student;

i. Any act that affects the mental health and self – confidence of a fresher or any other student.

With or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student.

Definitions -

1) In these regulations unless the context otherwise requires, -

a) "Act" means, the University Grants Commission Act, 1956 (3 of 1956);

b) "Academic year" means the period from the commencement of admission of students in any course of study in the institution up to the completion of academic requirements for that particular year.

c) "Anti- Ragging Helping" means the Helping established under clause (a) of Regulation 8.1 of these Regulations.

d) "Commission" means the University Grants Commission.

e) "Council" means a body so constituted by an Act of Parliament or an Act of any State Legislature for setting, or co-ordinating or maintaining standards in the relevant areas of higher education, such as the All India Council for Technical Education (AICTE), the Bar Council of India (BCI), the Dental Council of India (DCI), the Distance Education Council (DEC), the Indian Council of Agricultural Research (ICAR), the Indian Nursing Council (INC), the Medical Council of India (MCI), the National Council for Teacher Education (NCTE), the Pharmacy Council of India (PCI), etc. and the State Higher Education Councils.

f) "District Level Anti – Ragging Committee" means the Committee, headed by the District Magistrate, constituted by the State Government, for the control and elimination of ragging in institutions within the jurisdiction of the district.

g) "Head of the institution" means the Vice-Chancellor in case of a University or a deemed to be University, the principal or the Director or such other designation as the executive head of the institution or the college is referred.

h) "Fresher" means a student who has been admitted to an institution and who in undergoing his/her first year of study in such institution.

i) "Institution" means a higher educational institution including, but not limited to an university, a deemed to be university, a college an institute, an institution of national importance

set up by an Act of Parliament or a constituent unit of such institution, imparting higher education beyond 12 years of schooling leading to, but not necessarily culminating in, a degree (graduate, postgraduate and or/ higher level) and/or to a university diploma.

j) "NAAC" means the National Academic and Accreditation Council established by the Commission under section 12(ccc) of the Act;

k) "State Level Monitoring Cell" means the body constituted by the State Government for the control and elimination of ragging in institutions within the jurisdiction of the State, established under a State Law or on the advice of the Central Government, as the case may be.

2) Words and expressions used and not defined herein but defined in the act or in the General Clauses Act, 1897, shall have the meanings respectively assigned to them in the Act or in the General Clauses Act, 1897, as the case may be.

9. Administrative action in the event of ragging:-

9.1 The institution shall punish a student found guilty of ragging after following the procedure and in the manner prescribed here in under:

a) The Anti-Ragging Committee of the institution shall take an appropriate decision, in regard to punishment or otherwise, depending on the facts of each incident of ragging and nature and gravity of the incident of ragging established in the recommendations of the Anti-Ragging Squad.

b) The Anti-Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad, award, to those found guilty, **one or more of the following punishments, namely;**

i. Suspension from attending classes and academic privileges.
ii. Withholding/withdrawing scholarship/fellowship and other benefits.
iii. Debarring from appearing in any test/examination or other evaluation process.
iv. Withholding results.
v. Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc.
vi. Suspension/ expulsion from the hostel.
vii. Cancellation of admission.
viii. Rustication form the institution for period ranging from one to four semesters.
ix. Expulsion form the institution and consequent debarring form admission to any other institution for a specified period.

Provided that where the persons committing or abetting the act or ragging are not identified, the institution shall resort to collective punishment.

Ragging are not identified, the institution shall resort to collective punishment.

c) An appeal against the order of punishment by the Anti-Ragging Committee shall lie,

i. In case of an order of an institution, affiliated to or constituent part, of a University, to the Vice-Chancellor of the University.
ii. In case of an order of a University, to its Chancellor.
iii. In case of an institution of national importance created by an Act of Parliament, to the Chairman or Chancellor of the institution, as the case may be.

9.2 Where an institution, being constituent of, affiliated to or recognized by a University, fails to comply with any of the provisions of these Regulations or fails to curb ragging effectively, such University may take any one or more of following actions, namely;

i. Withdrawal of affiliation/recognition or other privileges conferred.
ii. Prohibiting such institution from presenting any student or students then undergoing

any programme of study therein for the award of any degree/diploma of the University.
Provided that where an institution is prohibited from presenting its student or students, the Commission shall make suitable arrangements for the other students so as to ensure that such students are able to pursue their academic studies.

iii. Withdrawal grants allocated to it by the University, if any.
iv. Withholding and grants chanellised through the university to the institution.
v. Any other appropriate penalty within the powers of the university.

9.3 Where in the opinion of the appointing authority, a lapse in attributable to any member of the faulty or staff of the institution, in the matter of reporting or taking prompt action to prevent an incident of ragging or who display an apathetic or insensitive attitude towards complaints of ragging, or who fail to take timely steps, whether required under these Regulations or otherwise, to prevent an incident or incidents or ragging, then such authority shall initiate departmental disciplinary action, in accordance with the prescribed procedure of the institution, against such member of the faulty or staff.

Provided that where such lapse is attributable to the Head of the institution, the authority designated to appoint such Head shall take such departmental disciplinary action; and such action shall be without prejudice to any action that may be taken under the penal laws for abetment of ragging for failure to take timely steps in the prevention of ragging or punishing any student found guilty of ragging.

(h) Irregular attendance and unauthorized absence from class and Hostels are serious offences and will be dealt as per Hostel rules.

(i) Participating or causing others to participate in strikes, demonstrations or disturbances of any kind or behaving or causing others to behave in such a manner as to bring the Hostel/ College/University into disrepute.

(j) Demonstration in any form including procession is not allowed.

(k) Convening/organizing/attending unauthorized meetings/programme within the Hostel. Further, inmates are not supposed to organize themselves into groups or give cause to even appear to have done so, on the basis of caste, colour, sex, religion, region, class or on the basis of social of political philosophy.

(l) Non-payment of Hostel/mess dues in time.

(m) Gambling in the Hostel/University premises.

(n) Keeping or consumption of the intoxicating drinks or drugs or liquor in Hostel/University premises.

(o) Keeping firearms other lethal weapons or poison.

(p) Boycotting of University function, programme or activity.

(q) Any student opening a room by breaking the hostel lock or windowpane etc.

(r) Any breach of law of the country or the state, Act, Statues, Regulations or rules of the University or order of competent authority.

(s) Unsportman like behaviour in indoor and outdoor games.

(t) * Breach of any of the hostel rules, provided that student has been found guilty, of having beaten or misbehaved a member of the faculty or his or her family member or other employee of the university or a hostel servant, including the servants/caretaker of the hostel mess/University

canteen the punishment shall be expulsion from the university and period of expulsion will be decided by disciplinary committee and approved by competent authority.

(u) Keeping of pet/domestic animals in the hostel premises.

3.3 Students shall not abuse, maltreat or assault Hostel employees, including mess-servants and employees of the canteen.

3.4 All dealings of students with fellow-students and others should be courteous. Quarrels or disputes with fellow students shall be avoided. Students shall not, under any circumstances take the law into their own hands, but report such cases in writing to the Warden.

3.5 Any act specifically forbidden by the warden/ADSW/DSW/Dean of any officer of the University.

4- ELECTRICITY

4.1 The use of electric bulbs upto 100 watts only will be permitted in Hostel rooms. Students may have their own table lamps. The University does not supply electric bulbs. Students should bring their own.

4.2 Residents using heaters and other electrical gadgets are strictly prohibited.

4.3 Light and fans shall be switched off when not in use.

4.4 Tampering with electric installations shall be treated as a serious offence, When there is a need for carrying out a repair, the electrician should be called in.

4.5 The students may be allowed to use the Desert/Air coolers in summer season provided they will produce the receipt of Rs. 600/- per room/year.

5- FURNITURE AND EQUIPMENT

5.1 Students shall keep their rooms neat and tidy. They shall be responsible, jointly for the furniture issued to them and for the fittings present in their rooms at the time of occupation. If a student observes any damages or defect in the furniture issued to him/her or in the permanent fittings in his/her room or finds anything missing at the time he/she occupies the room, it will be his/her duty to bring it in the notice of the Warden, failing which it will be presumed that every thing was in perfect order at the time of occupation.

5.2 Furniture shall not be removed from one room to another. The furniture belonging to the Common Room, or the Dining Hall or the Hostel Office or the Hostel Guest Room shall not be taken out or brought into the living rooms.

5.3 When a student vacates his/her room, he/she shall return to the warden all hostel furniture and other property issued to him/her, failing which he/she shall be liable to pay the entire cost of such furniture or other property.

6- NIGHT ROLL CALL

6.1 The night roll call will be taken by the concerned Hostel employee/block prefect at 9.00 P.M. in winter and at 10.00 P.M. in summer. Every student must be present in his/her room at the time of roll call.

6.2 A student found absent at the time of the roll call without making an entry in the Register shall be liable to disciplinary action.

6.3 Absence from the Hostel during the night, without the permission of the Warden, will be

deemed to be an act of indiscipline and punished accordingly.

6.4 The student who wishes to go out of the hostel for a few hours in the evening to witness a cinema show or for any other purpose and may not return in time for the roll call may do so after making the necessary entries in the Register kept for this purpose with the Chowkidar.

6.5 Night roll call shall not apply to post-graduate students when they are engaged in research, provided that they produce a certificate, in the prescribed form, from the Head of the Department, to the effect that they are required to stay out of the Hostel during the night for purposes of research.

7- LEAVE RULES

7.1 The advisor of the concerned student must recommend leave application.

7.2 Leave for absence from the college shall not automatically entitle a student to leave the hostel without the permission of the Warden. When a student wishes to leave the hostel for one or more days or night, he/she may apply to the Warden, in writing and get his/her permission.

7.3 Leave should be got sanctioned before it is availed of.

8- MAINTENANCE OF LAWNS AND CLEANLINESS

8.1 The lawns around the hostel are meant for the benefit of the students and for improving the appearance of the hostel. Students are expected to help and to take interest in their maintenance. They shall avoid crossing the lawns and shall use only the passages that are provided. Hedges shall not be tampered with nor shall flowers be plucked.

8.2 Cycling in the lawns and verandahs is strictly forbidden.

8.3 Spitting, except at places meant for such purposes, is strictly forbidden.

8.4 Walls, furniture and doors etc. shall not be disfigured or damaged with ink, pencil, chalk or knives etc.

8.5 Wash basins shall not be blocked with sand, mud or any other extraneous material. For washing hands only soap should be used.

9- STUDENT'S GUEST

9.1 No student's guests/ex-students are permitted to stay in the hostels occupied by them, however, close relatives of students may be allowed with prior permission of Warden.

9.2 Under no circumstance ladies/female guest will be permitted or entertained in the individual rooms of the boy's hostel and male guest in the girl's hostel.

9.3 Non-Indian guests shall be admitted only after prior sponsorship and they shall be required to furnish information regarding their nationality, passport number, period of stay in India, purpose of visit, etc.

10- ADDITIONAL RULES FOR GIRLS HOSTEL

10.1 Parents/guardians must submit to the Warden Incharge a list of close relatives along with their addresses duly signed by them who are allowed to see the students and who can take them out.

10.2 Girls students may meet approved visitors as at Sl.No. 1 only in the Common Room during visiting hours (4:00 P.M. To 6:00 P.M.).

10.3 Parents/guardians/relatives of the students who desires to meet her must get the prior permission of hostel warden. They are not supposed to reach the hostel directly.

10.4 All residents of the Girls hostel are required to be in their rooms by 6:30 P.M. during winter and 7:30 P.M. during summer season.

10.5 The students coming late to the hostel after prescribed time without permission will be treated as serious offence. The students who want to stay out after the prescribed hours must obtain prior written permission of the warden in charge stating the reason of their late return to the hostel.

10.6 The student who wants to stay in the laboratories for research work in night would only be permitted on the recommendation of the Guide or Head of the department. How ever, they must reach to the hostel before 10:00 P.M. in any circumstances.

10.7 Girl students should leave the hostel with prior permission of the Warden on the recommendation of the concerned advisor stating the place and purpose of visit and expected date and time of returning.

10.8 While visiting the Common Room, Dining Hall and the Canteen the students shall be in proper dress.

10.9 Residents returning from home must report themselves before the roll call time.

10.10 No girl student will be allowed to stay outside the hostel beyond the prescribed time in any circumstances (local relatives etc).

11- PUNISHMENT FOR THE MISCONDUCT AND INDISCIPLINE

* Student who has/have committed any act of indiscipline are liable to one or more of the punishment as the case may be or depending upon the recommendation of college disciplinary committee. A warden is competent to impose a fine of rupees two hundred and fifty only (Rs. 250.00/-) on the spot for any act for indiscipline. The quantum of punishment will be increased by multiples of repetition of in disciplinary acts by the students. If student who is on conduct probation for more than one year, repeat any act of misconduct/indiscipline will be expelled from college for the period decided by disciplinary committee and approved by Vice-Chancellor. Punishment under any act of misconduct/indiscipline will always accompany the cancellation of the hostel allotment of the student. The student who has been expelled from college will not enter the campus premises without the permission of DSW or concerned Dean. Failing which he/she is liable for the further punishment.

* Amendments made in the hostel rules 2006 vide
Registrar's Letter No. : 3651-53 UPDDVU/R/EC Dt. - 22 Aug. 2008

Sl. No.	Act of Indiscipline	Punishment
1	Disregard of the college, Hostel rules, orders and notices etc.	a. Warning b. Fine Rs 250.00 c. Expulsion from College for one year.
2	Teasing or otherwise harassing other students.	a. Warning b. Fine Rs 250.00 c. Expulsion from College for one year.
3	Stealing or pilfering Hostel/ University or others property.	a. Warning b. Fine Rs 500.00 c. Conduct Probation for one year d. Expulsion from College for 1 year
4	Unruly conduct or crowdism.	a. Warning b. Fine Rs 250.00 c. Expulsion from College for 1 year
5	Writing on the walls or other part of the Hostel building or sticking of posters or distribution of unauthorized handbills or notices.	a. Warning. b. Fine Rs 500.00 c. Conduct Probation for one year d. Expulsion from College for 1 year
6	Ragging / appear to have indulged in ragging of junior student	**As per the directives of Supreme Court ruling and UGC guidelines**
7	Irregular attendance and unauthorized absence from class and Hostel.	a. Warning b. Fine Rs 250.00 per day
8	Strikes, demonstrations or disturbances of any kind. Demonstration in any form including procession.	a. Fine Rs 500.00 b. Conduct Probation for two years c. Expulsion from College for 1 year
9	Convening/organizing/attending unauthorized meetings/programme within the Hostel.	a. Warning b. Fine Rs 250.00 c. Expulsion from College for 1 year

10	Non-payment of College/Hostel/ mess dues in time.	a. Warning b. Fine Rs 250.00 c. Conduct Probation for two years d. Expulsion from the College
11	Gambling/playing play cards in the University/Hostel premises.	a. Fine Rs 250.00 b. Conduct Probation for two-years
12	Keeping or consumption of the intoxicating drinks or drugs or liquor.	a. FineRs 250.00. b. Conduct Probation for one year c. Expulsion from College for 1 year.
13	Keeping fire-arms other lethal weapons or poison.	a. Expulsion from the College forever.
14	Boycotting of University function, programme or activity.	a. FineRs 250.00.
15	Opening a room by breaking the hostel lock or window pane etc.	a. Warning. b. Fine Rs 250.00 c. Conduct Probation for two years d. Expulsion from the College for one year.
16	Any breach of law of the country or the state, Act, Statues, Regulations or rules of the University or order of competent authority.	a. Expulsion from the College.
17	Keeping of pet/domestic animals in the hostel premises.	a. Warning. b. Fine Rs 250.00 c. Conduct Probation for two year d. Expulsion from the College for one year.
18	Quarrels or disputes with fellow students.	a. Warning b. Fine Rs 250.00 c. Conduct Probation for through-out stay
19	Any Act specifically forbidden by the warden/ADSW/DSW/Dean or any officer of the University.	a. Warning b. Fine Rs 250.00 c. Conduct Probation.

20	Making noise and or creating other disturbance, including the use of CD player/transistors etc in such a manner as to disturb others or interfere with studies and comfort of other inmates.	a. Warning b. Fine Rs 250.00 c. Conduct Probation
21	Parking of cycles/motor vehicles other than the cycle shed and cycling in the lawns etc.	a. FineRs 100.00
22	Dining other than the common dining hall/in drunken state.	a. Warning b. Fine Rs 250.00
23	Smoking at common places.	a. FineRs 100.00
24	Meeting the guest other than common room/taking guest to his or her own room.	a. Warning. b. Fine Rs 250.00 c. Conduct Probation.
25	Coming late after the prescribed time without permission of authority.	a. Warning b. Fine Rs 250.00 c. Conduct Probation
26	Staying outside the Hostels after the prescribed time. (For Girls students)	a. FineRs 250 00 b. Conduct Probation for through-out study c. Expulsion from the College.
27	Allowing to stay outsiders, unsocial elements, Ex-students, opposite sex persons etc.	a. FineRs 1000.00 b. Expulsion from the College. c. Conduct Probation.
28	Keeping vulgar literature, observing adults CD etc.	a. Fine Rs 250.00 b. Conduct Probation for through-out study c. Expulsion from the College for one year.
29	Use of Heaters etc.	a. Fine Rs 250.00 b. Conduct Probation.

NOTE :

Students who will be kept on conduct probation will not be entitled for any scholarship/stipend/ fellowships and not avail any college amenities and services. They will not be allowed to represent University in any sports/cultural events.

CHAPTER - 4

TOUR RULES, DO'S & DON'TS AND MEDALS & AWARDS

TOUR RULES

Approved by Hon'ble Executive Council of University in 12th Meeting held on 10-07-08 and informed by vide Registrar letter no. : 3651-53 UPDDVU/R/EC Dt. - 22 Aug. 2008

1- These rules shall be called as "U.P.Pt. Deen Dayal Upadhaaya pashu chikitsa vigyan Vishwavidyalaya evam Go-anusandhan Sansthan (DUVASU) Mathura students tour rules.
2- These shall come in to force from the date on which they are approved by Executive Council of University.
3- The educational tours are compulsory for the students for which attendance will be given to them. However, under unavoidable circumstances students can be exempted by the Vice-Chancellor on the recommendation of dean of the concerned Faculty.
4- Educational tour for under graduate will be arranged preferably for 2nd & 4th year students or as per direction of DSW.
5- Tour deposit will be realized from the students @ Rs. 100/- per student per tour. Tour deposit will not be refunded in any circumstances.
6- Ordinary tour will be arranged in semester break. However, in exceptional cases tours can be under taken outside the break with the recommendation of dean student welfare after the approval of Vice-Chancellor.
7- The places to be visited will be decided by the Dean Student Welfare consultation with the Dean of respective faculty.
8- The rail concession will be arranged by the Dean Student Welfare and concessional rail fare will be borne by University.
9- If the journey is to be made by road the university will meet whole of the bus fare.
10- The use of university motor vehicle for the tours can be allowed by the Vice-Chancellor on the recommendation of DSW. In such cases the running charges of vehicle will be borne by the University.
11 - The lodging charges at different places during tour will be borne by the University.
12- During tour, charges of all the local transfer(s) made by the road shall be borne by the university.
13- Two teachers and two attendants will be allowed to a company the students on education tour.
14- Students of P.G. classes will be sent for consultation as a part of their PG research programme in different National institute. The places to be visited will be approved by DSW in consultation with the Dean (PG) on the recommendation of concerned head of the Deptt.
15- The student will be paid daily allowances @ Rs. 60/- student per day for participation in inter university/College/National competitions.
16- The student will be paid daily allowances @ Rs. 50/- student per day for educational tours for a maximum period of 10 days.
17- Students participating in the inter college/inter university/inter state/National/Zonal/ symposia/seminar shall be governed by the students tour rules.
18- If the students participating in the inter college/inter university/inter state/National/Zonal/ sports meet or youth festival, the dress kit and other accessories expenditure will be borne by university.
19- These rules are subject to changes as approved by the Executive Council from time to time.

DO'S AND DON'TS AT THE VETERINARY UNIVERSITY CAMPUS

Sl.No.	What to do	What not to do
1	Regard/Respect of Nation and Univ/ College/ Hostel rules	Disregard/disrespect of Nation and Univ/ College/ Hostel rules
2	Respect of Univ. Officers/ teachers/ Employees/seniors and our profession	Disrespect of Univ. Officers/ teachers/ Employees/seniors and our profession
3	Courteous behaviour with the fellow student(s)	Erratic behaviour with the fellow student(s)
4	Univ./College/Hostel should be taken care of and maintain it in proper condition	Unruly conduct/crowdism and teasing or harassing of fellow students
5	Maintain the cleanliness in the University premises	Stealing and pilfering of hostel/ University property
6	Be regular in attending the theory and practical classes as minimum 85% attendance is compulsory for appearing in any examination of the University/College	Writing on walls. Keeping of cash in huge amount/gold/precious items in hostel. Borrowing of money/utensils etc from the fellow students
7	Prepare own notes in consultation with books/reference manuals/journals	Ragging and teasing of juniors
8	Complete manuals/ assignments in time and submit them to the concerned teachers in time	Irregular attendance or unauthorized absence from college/hostel
9	Regard the office orders/notices	Gambling/ cheating/playing cards in and outside campus
10	Obey the directives/instructions of the teacher/warden/advisor and other officers of the University	Keeping/Consumption of liquor/supplying of intoxicating drugs/ pan masala/ cigarette/ tobacco/poisons material etc
11	Make habit to visit library regularly for consultation.	Keeping the fire arms or any type of weapons
12	Keep patience when-ever dispute arise and settle the dispute patiently, if required, take the help of warden/advisor	Follow up of wrong directives/instructions/ orders of the senior students viz. mass bunking from the classes, participation in strikes/demonstrations/meeting/procession or making others to behave in such manner

13	Visit home only in vocations/semester break, if there is emergency, prior permission of warden is must	Keeping of animals in the University premises / hostel
14	Study regularly concerned courses	Quarrels with the fellow and other students
15	Participate in co-curricular activities viz. reading of news paper/Magazine/ games/sports etc.	Parking of vehicles other then designated place
16	Use your own utensils and belongings	Dining/urinating/bathing or washing of the clothes other than designated places
17	Switch off the electric devices before leaving the room.	Smoking/Keeping mobiles on during classes
18	Pay the dues/mess charges/fine/fees etc. within the notified time.	Keeping and meeting the guest other than the visitor's room
19	Always go to practical classes with apron, manuals and other accessories required in the concerned subject.	Coming late in night after prescribed time
20	Assist the room mate and other fellows during illness.	Allowing to stay Ex-students or opposite sex in room or hostel
21	Flush the toilet with water after using it.	Keeping vulgar literature and print media.
22	Avoid the fighting or quarrels outside the University premises and also pay the complete fare of Auto/Vehicle to the person concerned.	Use of heater and other cooking devices, electric utensils and sound systems.
23	During educational tours or private visit to other places always highlight the merit of the University.	Tearing books of Library, Xeroxing of notes from seniors notes, loudly discussion in the library.
24	Develop communication skill.	Disrespect of trees and natural creatures.
25	Fix the ultimate aim, mission and vision.	Spitting in the room/walls/stairs/gardens.
26	Look forward for Overall Personality development.	Use of unfair means.
27	Try to mix up with the colleagues. Avoid shyness during discussion.	Boycotting National/University functions Un sports man like behaviour.
28	Follow the traffic rules and regulations.	Avoid fast driving, riding of more number of persons on vehicle etc.

29	Student can use Bi-Cycle for their movement with in the university premises	Use of Scooter / Motor Cycle / 4 Wheelers is strictly prohibited in the university campus
30	Student can keep mobile phone	Keeping mobile in class room / examination hall is strictly prohibited
31	Student should follow mobile phone manners while talking, so that others are not disturb	Making illicit calls and misusing mobile phone / SIM card / I.D. Proof is punishable offence

MEDALS & AWARDS FOR THE MERITORIOUS B.V.Sc. & A.H. STUDENTS

Approved by Hon'ble Executive Council of University in 12th Meeting held on 10-07-08 and informed by vide Registrar letter no. : 3651-53 UPDDVU/R/EC Dt. - 22 Aug. 2008

S.No.	Medal(s)	Qualification(s)
1	Gold Medal	Student who has secured first Highest CGPA during different BVSc & AH professional examinations in first attempt without any conduct probation or disciplinary action.
2	Silver Medal	Student who has secured second Highest CGPA during different BVSc & AH professional examinations in first attempt without any conduct probation or disciplinary action.
3	Bronze Medal	Student who has secured third Highest CGPA during different BVSc & AH professional examinations in first attempt without any conduct probation or disciplinary action.
4	Vice-Chancellor	For overall performance during the entire course of study without any conduct probation or disciplinary action and as per the following score card. A) Academic 60 percent with minimum 7.0 CGPA B) Extra curricular activities: I) University team caption — 2 marks II) Inter college representation — 3 marks III) Inter University representation 1) Zonal — 4 marks 2) National — 5 marks 3) District level — 3 marks 4) State level — 5 marks 5) Participation in N.S.S. camp — 3 marks 6) Interuniversity participants with laurel — 7 marks a. 1st prize Winner — 2 marks b. 2nd prize Winner — I marks c. 3rd Prize Winner — 0.5 marks
5	Pt. Janaki Nath Madan Memorial Best Clinician Gold Medal	Student who has secured highest marks in the clinical subjects without any conduct probation or disciplinary action or compartmental examination.
6	Book prize for each professional year I[st] position Books of Rs. 750/- I[st] position Books of Rs. 500/-	Two students will be selected after each professional examination on the basis of CGPA who secured higest CGPA in the respective class without any conduct probation or disciplinary action.
7	VIII ISVPT Gold Medal	Student who has secured highest marks in the subject of Pharmacology & Toxicology without any conduct probation or disciplinary action or compartmental examination.

MEDALS & AWARDS FOR THE MERITORIOUS M.V.Sc. STUDENTS

Approved by Hon'ble Executive Council of University in 12th Meeting held on 10-07-08 and informed by vide Registrar letter no. : 3651-53 UPDDVU/R/EC Dt. - 22 Aug. 2008

S.No.	Medal(s)	Qualification(s)
1	Gold Medal	Student who has secured first Highest CGPA in different MVSc professional examinations in first attempt without any conduct probation or disciplinary action.
2	Silver Medal	Student who has secured second Highest CGPA in different MVSc. professional examinations in first attempt without any conduct probation or disciplinary action.
3	Vice-Chancellor	For overall performance during the entire course of study without any conduct probation or disciplinary action and as per the following score card. A) Academic 60 percent with minimum 7.0 CGPA B) Extra curricular activities: I) University team captain — 2 marks II) Inter college representation — 3 marks III) Inter University representation 1) Zonal — 4 marks 2) National — 5 marks 3) District level — 3 marks 4) State level — 5 marks 5) Participation in N.S.S. camp — 3 marks 6) Interuniversity participants with laurel — 7 marks a. 1st prize Winner — 2 marks b. 2nd prize Winner — I marks c. 3rd Prize Winner — 0.5 marks