

DESCRIPTION OF DOCTOR OF VETERINARY MEDICINE PROGRAMME

(Attached to Decision No. 218/QĐ-DT dated March 25, 2020 of the Rector of Thai Nguyen University of Agriculture and Forestry)

I. Description of the training program

1. Introduction to the training program

The undergraduate training program in Veterinary Medicine, which was adjusted in 2020, aims to train veterinarians with strong knowledge and skills; Having serious working attitude and professional ethics, having good health and ability to adapt to the job and respond to the needs of society.

The undergraduate training program in veterinary medicine was inherited from the previous bachelor's degree in Veterinary Medicine and was supplemented and developed to meet the requirements of employers. The specialized subjects of the Veterinary Training program are all taught by lecturers with Ph.D. or above from the Faculty of Animal Science and Veterinary Medicine.

The Faculty of Animal Science and Veterinary Medicine is constantly improving and developing its facilities as well as educational and research activities to meet different requirements in the field of Veterinary Medicine and Animal Science. The Faculty of Animal Science and Veterinary medicine has been providing learners with a comprehensive educational environment in both theory and practice, encouraging learners to learn actively, proactively, creatively and cooperatively.

2. General information about the training program

Program name (Vietnamese)	Thú y
Program name (English)	Veterinary Medicine
Training code	7640101
Awarding body	- Thai Nguyen University of Agriculture and Forestry
Award of qualification	Doctor of Veterinary Medicine
Education level	Undergraduate
Number of credits required	168
Training forms	Full-time (Formal)
Training duration	5 years
Enrollment subjects	- Direct admission for high school students having national and international prizes. - Other admission based on the candidate's national high school

	graduation examination results or academic transcripts. - Scope of enrollment: Nationwide.
Assessment scale	10
Graduation conditions	<ul style="list-style-type: none"> - Accumulating sufficient number of modules and volume of training programme (168 credits) - The cumulative GPA of the whole course is 2.0 or higher; - Having Certificate of Defense Education and Physical Education; - Achieving outcome standards in Foreign Languages and Information Technology.
Job position	<ul style="list-style-type: none"> - Working position: being capable of managing and operating research staff, managerial staff, and technical staff. - Working place: Agencies, enterprises, factories, departments, institutes, research centers, development projects and programs in the field of Veterinary medicine, administrative and non-business agencies at the commune, ward or higher level, educational and training institutions including vocational training centers, professional high schools, colleges, universities related to the veterinary profession.
Higher study	Graduates can continue to study for Masters and PhDs domestically and abroad.
Reference programmes	<ul style="list-style-type: none"> - Advanced Veterinary Training Program - University of Agriculture and Forestry, Ho Chi Minh City. - Veterinary training program (mass program) - Ho Chi Minh City University of Agriculture and Forestry. - Veterinary training program - Vietnam Academy of Agriculture. - Veterinary training program of the University of Adelaide - Australia. - Veterinary training program of the University of Los Banos Philippines.
Updated time of the training programme	March 2020

3. The training objectives of the program

3.1. General objective

The objective of the major in Veterinary medicine is to train Doctors of Veterinary medicine with integrated professional knowledge, grasping social, natural principles and

rules, having basically practical skills, having the ability to work independently, creatively and solving issues related to the field of Veterinary medicine.

3.2. Specific objectives

PO1. Grasping social, natural principles and rules, having basic and professional knowledge to solve issues related to the field of Veterinary medicine.

PO2. Having diagnostic, preventive, treatment, and control skills of animal diseases professionally.

PO3. Having the ability to plan, start-up, business production, and branch development adapted to the social environment.

PO4. Having the ability to work independently and creatively, having the responsibility to protect human health, to respect animal welfare and ecological environment.

4. Outcome standards of the training programme

By completing the training programme of Veterinary medicine, learners have knowledge, skills, autonomous competencies and responsibilities as follows:

PLO1. Applying knowledge of social, natural science into the field of veterinary medicine.

PLO2. Applying knowledge of veterinary medicine to perform prevention, control processes of animal diseases and caring, nursing animals.

PLO3. Synthesizing knowledge of veterinary medicine to perform diagnostic and treatment processes of animal diseases.

PLO4. Implementing critical and creative thinkings into solving issues of the veterinary field effectively.

PLO5. Having presentation, teamwork skills with a role as leader and member.

PLO6. Having communication skills, using multimedia communication methods in the environmental globalization.

PLO7. Being proficient in diagnostic, sampling techniques to manage, detect and treat animal diseases.

PLO8. Being proficient in using vaccine techniques, veterinary drugs and pharmaceutical chemistry to prevent and treat animal diseases.

PLO9. Implementing the plan, start-up, organizing production and business activities, developing markets and promoting trade in the field of veterinary medicine.

PLO10. Applying modern techniques in diagnosing, treating, and controlling animal disease outbreaks, warranting food safety hygiene.

PLO11. Having good health, being able to lifelong learning to adapt with prompt changes of veterinary medicine in the context of globalization.

PLO12. Complying with law regulations and professional ethics, orienting the future clearly.

5. Objective matrix and outcome standards of the training program

Programme objectives (POs)	Expected Learning Outcomes (ELOs)											
	1	2	3	4	5	6	7	8	9	10	11	12
PO1	x	x	x	x	x	x	x	x	x	x	x	x
PO2		x	x	x	x	x	x	x		x		
PO3					x	x			x		x	x
PO4									x		x	x

6. Matrix of knowledge and skills development corresponding to competency levels and outcome standards

MATRIX OF KNOWLEDGE AND SKILLS DEVELOPMENT ORRESPONDING TO COMPETENCY LEVELS AND OUTCOME STANDARDS

No.	SUBJECTS	OUTCOME STANDARDS											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Marxism–Leninism	2			2	1	1					2	2
2	Political economics	2			2	1	1			1		2	2
3	Scientific socialism	2			2	1	1					2	2
4	Ho Chi Minh’s ideology	2			2	1	1					2	2
5	History of Vietnamese Communist Party	2			2	1	1					2	2
6	Chemistry	2				1	1					1	1
7	Biology	2				1	1					1	1
8	General Sociology	2			1	1	1					1	1
9	Physics	1				1	1					1	1
10	Advanced Mathematics	2			1	1	1			1		2	
11	English 1					1	1			1	1	2	
12	English 2					1	2			1	1	2	
13	English 3					1	3			1	1	2	
14	General Informatics					1	2			1	1	1	
15	Probability and Statistics	1			1		1			1		1	1
16	Management Science				2	2	1			1		1	1
17	General microbiology	1	1	1		1		1			1		
18	Vietnamese culture	1			1	1	1			1		1	2
19	Environmental Ecology	1		1		1	1					1	2

20	Vietnam Economic Geography	1			1	1	1					1	1
21	State and Law	1					1					1	2
22	Environmental Pollution	1		1		1	1					1	2
23	Molecular biology	1			1	1						1	
24	Scientific Approach Methodology				1	2	1					1	2
25	Occupational Safety	1	1					1	1		1	1	3
26	Soft skills				3	3	3					2	2
27	Bare hands, Athletics					1						2	1
28	Volleyball					1						2	
29	Badminton					1						2	
30	Foot Badminton					1						2	
31	Martial					1						3	
32	Basketball					1						3	
33	Football					1						3	
34	Animal biochemistry		2	2		2	1					1	2
35	Animal anatomy		2	2		2	1					1	2
36	Animal histology		2	2		2	1					1	2
37	Animal Physiology		2	2		2	1					1	2
38	Animal nutrition		2	2		2	1	2				1	2
39	Veterinary pharmacology		1	2		1	1		2			2	2
40	Veterinary disease diagnosis		1	1	1	2	1	1			1	2	2
41	Veterinary microbiology		3	2		2		1	1		2	2	2
42	Veterinary Immunology		3	2		2		1			2	2	2
43	Veterinary epidemiology		3	2	3	2		2			2	2	2
44	Veterinary pathology		3	2		2		1	2		2	2	2
45	Veterinary toxicology		2	3	2	2	1		2		2	2	2
46	Diagnostic imaging		2	2		2	1	2			3	2	2
47	Animal genetics and breeds		2	2	1	2						1	2
48	Applied biotechnology in animal science and Veterinary medicine		2	2		2	2		1		2	2	2
49	Practice in Veterinary clinical diagnosis		2	2	1	2		3	1		2		2
50	Practice in Veterinary Laboratory Diagnosis		2	2	1	2		3	1		2		2

51	Practice in aquatic disease diagnosis		1	2	1	2		2	1		2		2
52	Practice in caring and training companion animals		2	2	1	2		3	1	1	2		2
53	Veterinary infectious diseases		3	3	1	2		2	1			2	2
54	Parasite and veterinary parasitology		3	3	2	2	2	2	1		1	2	2
55	Veterinary Internal medicine		3	3	2	2	2	2	1		2	2	2
56	Veterinary surgery		3	3	2	2	2	2	3		3	2	2
57	Veterinary reproduction		3	3	2	2	2	3	3		3	2	2
58	Diseases in dogs and cats		2	3	2	2	2	3	3		3	2	3
59	Animal Products Inspection		2			2	2	1			3	2	3
60	Reproductive technology		2	2		2	2	1				2	2
61	Preparation and inspecting of veterinary drugs		1	1		1	1		2			2	2
62	Animal hygiene		3	2	1	2	2					2	2
63	Veterinary herbology		1	2		1	1		3	1	1	1	2
64	One health in Veterinary medicine	2	2	3	2	2	2			2		2	3
65	Food safety and Hygiene		2	1	1	2	2	1			3	2	2
66	Experimental Methodology in Animal Science and Veterinary medicine		2		2	2	2					2	2
67	Professional laws		2	2	2	2	2					2	3
68	Animal welfare and behavior		2	2	1	2	2					2	3
69	Zoonosis		2	3		2	2	2	2		2	2	2
70	Wildlife diseases		2	2		2	2	1	2		2	2	2
71	Aquatic diseases		2	2	2	2	2	2	1		1	2	2
72	Vaccine Application and Production Technology		2	3		2	1		2	2	2	2	2
73	Husbandry environmental and waste management		2	2	2	1		1		2	2	2	2
74	Farm management	1			2	1	1			2	2	2	2
75	Practice in pets Spa		3	2	1	2				2			2
76	Practice in Veterinary surgery and reproduction		2	2	1	2		3	2		2		2

77	Specialized animal Science		3	2	2	2			1			2	2
78	Marketing	1			2	2	3			3		2	2
79	Blockchain applications in Agricultural Economics	1			2	1	2			2		2	2
80	Biorisk management				2	1	2				2	2	2
81	Entrepreneurship	1			2	2	2			3		2	2
82	Brand management	1			2	2	2			3		2	2
83	Business Communication and Negotiation	1			2	2	3			3		2	2
84	Value Chain Analysis	1			2	1	2		1	2		2	2
85	Business Administration	1			2	2	2			2		2	2
86	Agroforestry	1				1						2	2
87	Agronomy	1				1						2	2
88	Project construction and management	1			2	1	2			2		2	2
89	Internship: Planning and organizing to perform the prevention of animal disease outbreak		2	2		2	2	2	2	1	1	2	2
90	Internship: Approaching the profession and constructing professional profile 1					1	1					1	2
91	Internship: Approaching profession and constructing professional profile 2					2	2					2	2
92	Internship: Skills in writing outline and thesis	1			2	2	2			2		2	2
93	Internship: Outbreak management and veterinary practice in poultry farms		2	2	2	3	1	3	3	2	3	2	2
94	Internship: Outbreak management and veterinary practice in swine farms		2	2	2	3	1	3	3	2	3	2	2
95	Internship: Outbreak management and veterinary practice in ruminant farms		2	2	2	3	1	3	3	2	3	2	2

96	Training: Performing basic laboratory skills				1	2		3			1	2	2
97	Training: Veterinary teaching hospital		1	2	2	2	3	3	3		2	2	2
98	Training: Using management and business software of Veterinary drugs.						1			2	1	1	2
99	Graduate internship		3	3	3	3	2	3	3	3	2	3	3
Total		39	107	103	90	124	108	72	64	55	85	154	164

Legends: (1) low contribution, (2) moderate contribution, (3) high contribution and blank square is unclear contribution

7. Methods / strategies for teaching - learning and evaluation methods

7.1. Teaching - learning methods / strategies

7.1.1. Teaching methods / strategies

Each subject in the program is used many different teaching methods such as: presentations, seminars, exercises, discussion, experiments, practice, internship, problem - based teaching, case studies, play-acting...etc. Presentation method is used for theoretical knowledge. The purpose is to help students have a deep understanding of the theoretical content of the module.

Exercise method is used for the knowledge of exercises. The purpose is to apply the subject's knowledge to solve problems and explain phenomena and situations that occur in reality related to the subject or profession; to have social interacting skills , to build autonomy and accountability to improve students' lifelong learning ability.

Seminar and discussion method is used for the knowledge of seminar and discussion. The purpose is to practice presentation skills, exchange discussion contents of the subject, reporting skills, self-research skills, interacting and teamwork skills, build autonomy and accountability to improve students' lifelong learning ability.

Practice method is used for independent practice modules or nested within the content of the subject. The purpose is to practice experimental skills, practice on animals to help students verify the theoretical content of the subject. As a result, improving career skills.

7.1.2. Improving and enhancing teaching quality

- The training program is reviewed and adjusted every 2 years to meet the requirements of stakeholders for the profession;
- In each semester, each division builds schedule for class observation, especially young teachers to exchange and share knowledge and teaching methods to improve teachers' capacity;

- All modules of the program are regularly asked for feedback from students about the quality, talent, mind, virtue and responsibility of the teacher.

8.2. Methods of testing and evaluation

8.2.1. Evaluation of (A) and weightage of the course

- Using a 10-point scale for all assessments in the course.

8.2.2. Evaluation criteria and scales (Rubric assessment)

Example of the module outcome evaluation matrix and the evaluation criteria of the subject of Veterinary infectious Diseases

Matrix to evaluate the outcome standards of the subject

Outcome standards of the subject	Attendance (20%)	Mid-term test (30%)	Final exam (50 %)
CLO1	x	x	x
CLO2	x	x	x
CLO3	x	x	x
CLO4	x	x	x
CLO5	x	x	x
CLO6		x	x
CLO7	x	x	x

Rubric evaluation: on a 10-point scale

Course end score = (attendance * 0.2) + (midterm score * 0.3) + (ending score * 0.5)

* Attendance (weightage: 0.2): = (Rubric score 1 * 0.5) + (Rubric score 2 * 0.5)

Rubric 1: Attendance

Evaluation criteria	Weightage (%)	Excellent (8.5 – 10)	Very good (7.0 – 8.4)	Average (5.5 – 6.9)	Below average (4.0 – 5.4)	Weak < 40
Attend theory, practice, and discussion sessions	60%	Attend all theoretical, practical, and discussion sessions	Attend 90% - 99% of the lessons of theory, practice and discussion	Attend 86% - 89% of the lessons of theory, practice and discussion	Attend 80% - 85% of theory, practice and discussion sessions	Attend less than <80% of theory, practice and discussion sessions
Attitude to learn theory, practice and	40%	Actively speak and develop lessons, proficiently	Be relatively positive to give constructive	Have very few statements to build lessons,	Do not give statements to build lessons,	Only attend class but did not participate in discussion or

discussion hours		perform skills related to the practice. Volunteer to answer questions and answer questions well.	statements, proficiently perform skills related to the exercises and voluntarily answer questions, but the quality of the answers is not high.	manipulate skills related to the practice and volunteer to answer questions. . The answer is often not good	manipulate inadequate skills related to the practice. Be assigned to answer questions. The answer is often not good	volunteer to answer questions. Cannot manipulate the skills related to the practice. Can't understand and cannot answer questions related to previous lessons. Do private work during school hours, go to school late.
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Rubric 2: Essay evaluation

Evaluation criteria	Weightage (%)	Excellent (8.5 – 10)	Very good (7.0 – 8.4)	Average (5.5 – 6.9)	Below average (4.0 – 5.4)	Weak < 4.0
Essay 1	50	Present fully and correctly the required content on the topic, have more relevant content contributing to the expansion knowledge of the topic. The presentation of the report is attractive, clear, easy to	- Present fully and properly content required on the topic. The presentation of the report is clear and easy to understand, focus on the main content. - Can answer > 70% - 80% of questions	Present all required content on the topic, some content is not correct. - The report is readable, difficult to follow, do not focus on the main content - Answer > 50% - 70% of	Lacks some of the required content on the presentation. - Present the report not fluently, do not focus on the main content, and do not get interest from listeners. - Answer 30% - 50% of the	- Present incorrect content as required by the topic, or the content is too sketchy, unable to provide necessary information. - Presentation is too sketchy, the listener cannot understand

		<p>understand, focusing on main content, having creativity in presentation methods.</p> <ul style="list-style-type: none"> - Receive opinions / questions of concern, Questions are answered fully, clearly, and satisfactorily, Demonstrate cooperation among team members clearly. - Answer and reports are divided equally among group members 	<p>and have a reasonable way to answer unanswered parts</p> <ul style="list-style-type: none"> - Show collaboration among team members clearly. - Inappropriate division of answers and reports among group members. 	<p>questions</p> <ul style="list-style-type: none"> - There is cooperation between the group members but not clearly shown 	<p>questions.</p> <ul style="list-style-type: none"> - Do not have cooperation among group members, only 1 or a few members prepare and report 	<p>the content.</p> <ul style="list-style-type: none"> - Can't answer any questions. - Copy from other sources, not directly compile
Essay 2	50	Evaluation is similar to essay 1				

* Mid-term score (weightage 0.3): = (Rubric score 3 * 0.7) + (Rubric score 4 * 0.3)

Rubric 3: Mid-term review

Evaluation criteria	Weightage (%)	Excellent (8.5 – 10)	Very good (7.0 – 8.4)	Average (5.5 – 6.9)	Below average (4.0 – 5.4)	Weak < 4.0
Answer multiple choice questions	100	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer

Rubric 4: Practice

Evaluation criteria	Weightage (%)	Excellent (8.5 – 10)	Very good (7.0 – 8,4)	Average (5.5 – 6.9)	Below average (4.0 – 5.4)	Weak < 4.0
Practice 1	50	<ul style="list-style-type: none"> - Report: Present fully and properly the practice content, have additional contents of lessons learned, suggestions and recommendations. - Perform actions: Manipulate skills related to the topic well, have creative thinking in performing operations, perform well the stage of cleaning and disinfection after the operation. 	<ul style="list-style-type: none"> - Present fully and properly the practice content, have additional content on lessons learned. - Manipulate skills related to the topic well, perform well the stage of cleaning and disinfection after the operation. 	<ul style="list-style-type: none"> - Present fully and properly the practice content. - Manipulate skills related to the topic, know how to perform the stage of cleaning and disinfection after the operation. 	<ul style="list-style-type: none"> - Miss some required content in practice sessions. - Manipulate not enough skills related to the topic, know how to perform the stage of cleaning and disinfection after the operation. 	<ul style="list-style-type: none"> - Present incorrect content as required in the practice sessions or the content is too sketchy, unable to provide necessary information. - Not able to manipulate the skills related to the topic, not perform the stage of cleaning and disinfecting after the operation.
Practice 2	50	Evaluation is the same as Practice 1				

*** Final score (weightage 0.5): = Rubric score 5 * 1**

Rubric 5: End-of-term evaluation

Evaluation criteria	Weightage (%)	Excellent (8.5 – 10)	Very good (7.0 – 8.4)	Average (5.5 – 6.9)	Below average (4.0 – 5.4)	Weak <4.0
Answer multiple choice questions	100	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer

Oral Test score	100	Understanding knowledge, being able to analyze proposed problems	Understanding knowledge, being able to explain proposed problems	Understanding knowledge, being able to know but do not explain proposed problems	Getting knowledge but unclearly understanding problems	Do not understand and answer the questions
Constructed-response test	100	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer	According to the scale in the answer

II. Curriculum description

1. Curriculum structure

Volume of full-course knowledge: 168 credits

(Not including Physical Education and National Defense Education)

CONTENTS	No. of credits
GENERAL CURRICULUM	45
1. Mandatory knowledge block	39
2. Selective knowledge block	6
3. Physical education (excluding cumulative credits)	3
4. Defense education (excluding cumulative credits)	165 hours
SUPPORTING KNOWLEDGE BLOCK (interdisciplinary)	7
1. Mandatory knowledge block	
2. Selective knowledge block	7
PROFESSIONAL KNOWLEDGE BLOCK	116
Foundation	36
1. Mandatory knowledge block	23
2. Selective knowledge block	13
Professional knowledge	45
1. Mandatory knowledge block	28
2. Selective knowledge block	17
Experiment, practice, internship	16
Graduation thesis	10
Job training	9

2. Program contents

Order	Course name	English name	Number of Credits	Number of theoretical periods	Number of practical periods	Course code
	A. Kiến thức giáo dục đại cương	General knowledge	45			
	I. Các học phần bắt buộc	Compulsory courses	39			
	a) Lý luận chính trị	Political Theory	11			

1	Triết học Mác - Lênin	Marxist-Leninist philosophy	3	45	-	MLP131
2	Kinh tế chính trị	Political economy	2	30	-	MLE122
3	Chủ nghĩa xã hội khoa học	Scientific socialism	2	30	-	SCS 123
4	Tư tưởng Hồ Chí Minh	Ho Chi Minh's Ideology	2	30	-	HCM124
5	Lịch sử Đảng Cộng sản Việt Nam	History of the Vietnamese Communist Party	2	30	-	HCP125
b) Ngoại ngữ, Tin học, Khoa học tự nhiên, xã hội		<i>Foreign Language, IT, Natural and Social Sciences</i>	28			
6	Hóa học	Chemistry	4	50	20	CHE141
7	Sinh học	Biology	3	40	10	BIO131
8	Xã hội học đại cương	General Sociology	2	30	0	GSO121
9	Vật lý	Physics	2	30	0	PHY121
10	Toán cao cấp	Advanced Mathematics	2	30	0	MAT121
11	Tiếng Anh 1	English 1	3	45	0	ENG131
12	Tiếng Anh 2	English 2	3	45	0	ENG132
13	Tiếng Anh 3	English 3	3	45	0	ENG133
14	Tin học đại cương	General Informatics	3	15	60	GIN131
15	Xác suất - Thống kê	Probability and Statistics	3	45	0	PST131
II. Các học phần tự chọn (tích lũy đủ 6 TC)		Elective Courses	6			
16	Khoa học quản lý	Management Science	3	45	0	MSC131
17	Vi sinh vật đại cương	General Microbiology	3	39	12	GMI131
18	Văn hóa Việt Nam	Vietnamese culture	3	35	20	VCU131
19	Sinh thái môi trường	Environmental Ecology	3	45	0	EEC131
20	Địa lý kinh tế Việt Nam	Vietnam Economic Geography	3	45	0	VEG131
21	Nhà nước và pháp luật	State and Law	3	45	0	SLA131
22	Ô nhiễm Môi trường	Environmental Pollution	3	45	0	EPO131
23	Sinh học phân tử	Molecular Biology	3	45	0	MBI131
24	Phương pháp tiếp cận khoa học	Scientific Approach Methodology	3	45	0	SAM131
25	An toàn lao động	Labor Safety	3	45	0	WSA131
26	Kỹ năng mềm	Soft Skills	3	30	30	SSK131
III. Giáo dục thể chất*		Physical Education	3			
27	Tay không, điền kinh	Athletics	1	0	30	PED111 +
28	Bóng chuyền	Volleyball	1	0	30	PED112 +
29	Cầu lông	Badminton	1	0	30	PED113

30	Đá cầu	Foot badminton	1	0	30	
31	Võ	Martial Art	1	0	30	
32	Bóng rổ	Basketball	1	0	30	
33	Bóng đá	Football	1	0	30	
IV. Giáo dục quốc phòng*		National Defense Education	165			
B. Kiến thức giáo dục chuyên nghiệp		Professional Knowledge				
I. Kiến thức cơ sở ngành		Pre-major Knowledge	36			
a) Các học phần bắt buộc		Compulsory Courses	23			
34	Hoá sinh động vật	Animal Biochemistry	2	26	8	ABI221
35	Giải phẫu động vật	Animal Anatomy	4	54	12	AAN241
36	Mô phôi động vật	Animal Histology	2	24	12	AHI221
37	Sinh lý động vật	Animal Physiology	4	54	12	APH241
38	Dinh dưỡng động vật	Animal Nutrition	2	26	8	ANU221
39	Dược lý học thú y	Veterinary Pharmacology	3	39	12	VPH231
40	Chẩn đoán bệnh thú y	Veterinary Disease Diagnosis	3	37	16	VDD231
41	Vi sinh vật thú y	Veterinary Microbiology	3	39	12	VMI231
b) Các học phần tự chọn (tích lũy đủ 13 TC)		Elective Courses	13			
42	Miễn dịch học thú y	Veterinary Immunology	2	30		VIM221
43	Dịch tễ học thú y	Veterinary Epidemiology	3	30	30	VEP231
44	Bệnh lý học thú y	Veterinary Pathology	3	39	12	VPA231
45	Độc chất học thú y	Veterinary Toxicology	2	30		VTO221
46	Chẩn đoán hình ảnh	Diagnostic imaging	3	15	60	IDI231
47	Di truyền - Giống vật nuôi	Animal Genetics and Breeds	3	37	16	ABG231
48	Công nghệ sinh học ứng dụng trong Chăn nuôi Thú y	Applied biotechnology in animal science and Veterinary medicine	3	45		ABI331
49	Thực hành Chẩn đoán lâm sàng thú y	Practice in Veterinary Clinical Diagnosis	3		90	VCD231
50	Thực hành Chẩn đoán trong phòng thí nghiệm thú y	Practice in Veterinary Laboratory Diagnosis	3		90	VLD231
51	Thực hành chẩn đoán bệnh ở động vật thủy sản	Practice in aquatic disease diagnosis	3		90	DDA231
52	Thực hành Chăm sóc và huấn luyện thú cưng	Practice in caring and training companion animals	3		90	CTP231
II. Kiến thức chuyên ngành		Specialized Knowledge	45			
a) Các học phần bắt buộc		Compulsory Courses	28			

53	Bệnh truyền nhiễm thú y	Veterinary Infectious Diseases	4	52	16	VID341
54	Ký sinh trùng và bệnh ký sinh trùng thú y	Parasites and Veterinary Parasitology	4	52	16	PVP341
55	Bệnh nội khoa thú y	Veterinary Internal Medicine	3	39	12	VIM331
56	Ngoại khoa thú y	Veterinary Surgery	3	35	20	VSU331
57	Sản khoa thú y	Veterinary Reproduction	3	39	12	VOB331
58	Bệnh ở chó mèo	Diseases in Dogs and Cats	2	24	12	DDC321
59	Kiểm nghiệm thú sản	Animal Products Inspection	3	39	12	API331
60	Công nghệ sinh sản	Reproductive Technology	3	37	16	RTE331
61	Bào chế và kiểm nghiệm thuốc Thú y	Preparation and inspecting of veterinary drugs	3	41	8	PIV331
b) Các học phần tự chọn (tích lũy đủ 17TC)		Elective Courses	17			
62	Vệ sinh gia súc	Animal Hygiene	2	30	0	AHY321
63	Dược liệu thú y	Veterinary Herbology	2	28	4	VHM321
64	Một sức khỏe trong Thú y	One Health in Veterinary Medicine	2	24	12	OHV321
65	Vệ sinh an toàn thực phẩm	Food Safety and Hygiene	2	30		FSH321
66	Phương pháp thí nghiệm trong chăn nuôi - thú y	Experimental Methodology in Animal Science and Veterinary Medicine	2	30		EME321
67	Luật chuyên ngành	Professional laws	2	30	0	SLA321
68	Tập tính và Phúc lợi động vật	Animal welfare and behavior	3	45	-	ABW331
69	Bệnh truyền lây giữa động vật và người	Zoonosis	2	30		ZOO321
70	Bệnh động vật hoang dã	Wildlife Diseases	3	45		WDI331
71	Bệnh ở động vật thủy sản	Aquatic diseases	3	39	12	DAA331
72	Công nghệ sản xuất và sử dụng vắc xin	Vaccine Application and Production Technology	3	30		VUP331
73	Quản lý môi trường và chất thải chăn nuôi	Husbandry environmental and waste management	3	45		AEM331
74	Quản trị trang trại	Farm Management	3	45	0	FMA331
75	Thực hành Spa thú cưng	Practice in pets Spa	3	0	90	PSP331
76	Thực hành Ngoại - Sản thú y	Practice in Veterinary surgery and reproduction	3	0	90	PSO331
III. Kiến thức bổ trợ		Supporting Knowledge	7			
77	Chăn nuôi chuyên khoa	Specialized animal science	4	52	16	GAP441
78	Marketing	Marketing	3	30	30	MAR431

79	Ứng dụng Blockchain trong kinh tế nông nghiệp	Blockchain Applications in Agricultural Economics	3	35	20	BAA331
80	Quản lý nguy cơ sinh học	BioRisk Management	3	45		BRM431
81	Khởi sự kinh doanh	Entrepreneurship	3	45		ENT431
82	Quản trị thương hiệu	Brand management	3	45		BMA331
83	Giao dịch và đàm phán trong kinh doanh	Business Communication and Negotiation	3	30	30	BCN431
84	Phân tích Chuỗi giá trị	Value Chain Analysis	3	45		VCA431
85	Quản trị doanh nghiệp	Business Administration	3	30	30	BAD431
86	Nông lâm kết hợp	Agroforestry	3	45		AFO431
87	Trồng trọt	Agronomy	3	45		CUL431
88	Xây dựng và quản lý dự án	Project construction and management	3	45		PCM431
V.	Kiến tập và Thực tập nghề nghiệp	Internship and Work Experience	16		960	
89	TTNN: Lập kế hoạch và tổ chức thực hiện phòng chống dịch bệnh động vật	Planning and organizing to perform the prevention of animal disease outbreak	4		240	DPC541
90	TTNN: Tiếp cận nghề và xây dựng hồ sơ nghề nghiệp 1	Approaching the profession and constructing professional profile 1	1		60	ACB511
91	TTNN: Tiếp cận nghề và xây dựng hồ sơ nghề nghiệp 2	Approaching the profession and constructing professional profile 2	1		60	ACB512
92	TTNN: Kỹ năng viết đề cương và khóa luận	Skills in writing outline and thesis	1		60	WOT511
93	TTNN: Quản lý dịch bệnh và thực hành thú y tại trại gia cầm	Outbreak management and veterinary practice in poultry farms	5		300	DMP551
94	TTNN: Quản lý dịch bệnh và thực hành thú y tại trại lợn	Outbreak management and veterinary practice in swine farms	5		300	DMP552
95	TTNN: Quản lý dịch bệnh và thực hành thú y tại trang trại gia súc nhai lại	Outbreak management and veterinary practice in ruminant farms	5		300	DMP553
VI.	Rèn nghề	Professional Training	9		540	
96	RN: Thao tác kỹ thuật cơ bản trong phòng thí nghiệm	Performing basic laboratory skills	3		180	BLS631
97	RN: Rèn nghề Bệnh viện Thú y	Veterinary teaching hospital	5		300	PVH651

98	RN: Sử dụng phần mềm quản lý, kinh doanh thuốc thú y	Using management and business software of Veterinary drugs.	1		60	UMT611
99	Thực tập tốt nghiệp	Graduate internship	10		600	VMT710 1
Tổng cộng		Total	168			

Students can choose the subjects outside of the list proposed on the basis that the subjects can support career development in the future. Students should ask for more advice from the Advisory Board to have the right choice.

* Massive Open Online Courses (MOOC)

In order to facilitate access to advanced training programs, students can choose the online courses suggested in the following table to consider the equivalent subjects in the training program:

Order	Course code	Course name	Number of credits	Equivalent subject to MOOC (registration link)
1.	MAT121	Advanced Math I	3	Lms.tnu.edu.vn
2.	GIN131	General information	3	Lms.tnu.edu.vn
3.	SLA121	General law	2	Lms.tnu.edu.vn
4.	HCM124	Ho Chi Minh's ideology	3	Lms.tnu.edu.vn
5.	MLP131	Basic Principles of Marxism-Leninism	4	Lms.tnu.edu.vn
6.	HCP125	Revolutionary ways of the Communist Party of Vietnam	3	Lms.tnu.edu.vn
7.	CHE141	General chemistry	3	Lms.tnu.edu.vn
8.	PHY121	Physics 1	3	Lms.tnu.edu.vn
9.	MSC121	School of Management	3	Lms.tnu.edu.vn
10.	GSO121	General sociology	3	Lms.tnu.edu.vn
11.	EEC121	Environmental ecology	2	Lms.tnu.edu.vn
12.	BCN421	Agricultural extension method	2	Lms.tnu.edu.vn
13.	MSR321	Scientific research methodology	3	Lms.tnu.edu.vn
14.	PST131	Probability statistics	3	Lms.tnu.edu.vn

3. Training plan

(The training program is arranged by semesters and matrix of response to the outcome standards)

No.	Number of Credits	Subjects	Number of Credits		Matrix of response to the outcome standards of the training program (on a 3-level scale)											
			Compulsory	Optional												
		Semester I	16	0	1	2	3	4	5	6	7	8	9	10	11	12

[illegible]

Semester V			13	9												
5	22	Veterinary infectious diseases	4			3	3	1	2		2	1			2	2
		Veterinary Internal medicine	3			3	3	2	2	2	2	1		2	2	2
		Veterinary surgery	3		3	3	2	2	2	2	3		3	2	2	3
		Reproductive technology	3		2	2		2	2	1				2	2	2
		Diagnostic imaging		3		2	2		2	1	2			3	2	2
		Veterinary epidemiology		3		3	2	3	2		2			2	2	2
		Animal welfare and behavior		3		2	2	1	2	2					2	3
Semester VI			10	6												
6	16	Parasite and veterinary parasitology	4			3	3	2	2	2	2	1		1	2	2
		Diseases in dogs and cats	2		2	3	2	2	2	3	3		3	2	3	2
		Internship: Planning and organizing to perform the prevention of animal disease outbreak	4			2	2		2	2	2	2	1	1	2	2
		Zoonosis		2		2	3		2	2	2	2		2	2	2
		Animal hygiene		2		3	2	1	2	2					2	2
		Veterinary toxicology		2		2	3	2	2	1		2		2	2	2
		Semester VII			17	2										
7	19	Specialized animal Science	4			3	2	2	2			1			2	2
		Scientific socialism	2		2			2	1	1					2	2
		Animal Products Inspection	3			2			2	2	1			3	2	3
		Veterinary reproduction	3			3	3	2	2	2	3	3		3	2	2
		Training: Veterinary teaching hospital	5			1	2	2	2	3	3	3		2	2	2
		Veterinary herbology		2		1	2		1	1		3	1	1	1	2
Semester VIII			10	4												
8	14	Ho Chi Minh's ideology	2		2			2	1	1					2	2
		Preparation and inspecting of veterinary drugs	3			1	1		1	1		2			2	2
		Internship: Outbreak management and veterinary practice in poultry farms	5			2	2	2	3	1	3	3	2	3	2	2
		Exprimental Methodology in Animal Science and Veterinary medicine		2	2	2	3	2	2	2			2		2	3
		One health in Veterinary medicine		2	2	2	3	2	2	2			2		2	3
Semester IX			10	4												
		Marketing	3		1			2	2	3			3		2	2
		History of Vietnamese	2		2			2	1	1					2	2

9	14	Communist Party														
		Internship: Outbreak management and veterinary practice in ruminant farms	5			2	2	2	3	1	3	3	2	3	2	2
		Food safety and Hygiene		2		2	1	1	2	2	1			3	2	2
		Professional laws		2		2	2	2	2	2					2	3
Semester X			11													
10	11	Graduate internship	10			3	3	3	3	2	3	3	3	2	3	3
		Internship: Approaching the profession and constructing professional profile 2	1						2	2					2	2

4. Instructions for program implementation

a. The training program is implemented according to the formal university training regulations under the current credit system of the Ministry of Education and Training and the University of Agriculture and Forestry.

The prescribed hours are as follows:

1 credit = 15 periods of theoretical teaching or class discussion

= 30 periods of experiment or practice

= 45 periods of self-study

= 45 - 90 periods of practice at the facility.

= 45 - 60 periods of project implementation, graduation thesis.

The number of course periods is a multiple of 15.

b. Foreign language outcome standards: According to the regulations of the University of Agriculture and Forestry. During the study period, the University may control the student's foreign language development through each academic year to determine the number of credits in the semester that students are allowed to register. Students can study by themselves or enroll in the school's program of developing foreign language ability.

5. Briefly describe the content and volume of the subjects

1. Marxist-Leninist philosophy - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the subject content: This module equips learners with knowledge of the laws of motion, the most common development of nature, society and thinking to

form the most common worldview and methodology for scientific awareness and revolutionary practice. The content of the module includes:

Part I: Overview of philosophy and history of philosophy

Chapter I: An overview of philosophy

Chapter II: An overview of the history of philosophy before Marx

Chapter III: Birth and development of Marxist-Leninist philosophy

Chapter IV: Some trends in modern Western philosophy

Part II: Basic principles of Marxist-Leninist philosophy

Chapter V: Matter and consciousness

Chapter VI: Two principles of material dialectic

Chapter VII: Pair of basic categories of material dialectic

Chapter VIII: Basic laws of material dialectic

Chapter IX: Cognitive theory

Chapter X: Socio-economic form

Chapter XI: Class and ethnicity

Chapter XII: State and social revolution

Chapter XIII: social consciousness

Chapter XIV: Marxist-Leninist philosophical view of man

2. Political Economy - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Political economy is a social science that studies the production and exchange of goods placed in relation to politics under the perspective of politicians. Political economics is the module that provides the most basic concepts and knowledge systems for the modern economics faculty such as supply and demand, profit, and free trade, etc. Many perspectives of the main political economic schools have become the ideological creeds of economists and politicians.

3. Scientific socialism - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Scientific socialism is a module equipping learners with knowledge of socio-economic theories created by Marx and Engels. This module is one of the three constituent parts of Marxism-Leninism, studying social movement aimed at abolishing capitalism and building socialist society, towards building communist society. In a narrow sense, scientific socialism is one of the three parts of Marxism-Leninism. The Scientific Socialism module building on the philosophical methodology of dialectical materialism and historical materialism and the scientific theoretical bases of economic laws and relations economy, etc. will help students explain scientifically about the process of arising the socialist revolution, formation and development of the socialist socio-economic form, associated with the worldwide historical mission of the modern working class to liberate people and society.

4. Ho Chi Minh Thought - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: This module provides a system of Ho Chi Minh's views and ideas in the revolutionary cause, summarized and systematized by the Communist Party of Vietnam. This ideological system includes views on basic issues of the Vietnamese revolution, from the people's democratic revolution to the socialist revolution; applying and developing Marxism-Leninism in Vietnam's specific conditions. After completing this module, learners will increase their awareness of regularly practicing, cultivating, studying and following the example of Ho Chi Minh's ethical and style to increasingly improve themselves and contribute to building country.

5. History of the Communist Party of Vietnam - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the subject content: This module presents objectively, comprehensively and systematically the basic facts about the history of the Party through each stage and period of the revolution in its movement, development and internal relations.. On that basis, comparing with practical requirements to analyze and evaluate the Party's activities; affirming the victories, achievements, mistakes and shortcomings in the Party leading the

Vietnamese revolution; Generalizing historical events and events, pointing out the nature, general tendency and objective laws governing the movement of history.

The study and research of this module also has great significance in educating learners about the revolutionary tradition, about patriotism and genuine national spirit, and pride towards the Party and the Vietnamese people; At the same time, it also has the effect of fostering the will to fight for the revolution, motivating learners to be aware of imitating those who went ahead, continue fighting bravely, tenaciously, intelligently and creatively to protect and to develop the revolutionary achievements that the Party and people have spent so much blood to win, successfully building socialism and firmly defending the Fatherland.

6. Chemistry - 4 credits

Allocation of study time: 4 credits (50 theory periods / 20 practice periods / 120 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Chemistry module consists of 6 chapters, including 50 theoretical periods and 10 practical periods. The theoretical part equips students with basic knowledge of chemical balance, the factors affecting chemical balance; explaining the transition of the reversible reaction; reaction speed and influencing factors. At the same time, it also provides basic concepts and knowledge about the solution. Research on the composition and content of survey samples: qualitative analysis, quantitative, structural determination, assessment of product results and quality, separation, separation, cleaning, preparation of compounds super pure, etc.

The practical part equips students with some basic laboratory rules; research experiments on the effects of factors on chemical balance, reaction speed, explanation and application in practice; practice determining the pH value of some common solutions; research on titration experiments, determine the content of analyzed samples.

7. Biology - 3 credits

Allocation of study time: 3 credits (40 theory periods / 10 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Biology module consists of 7 chapters. The theory section equips students with basic knowledge about the chemical composition of the living organism, the organizational levels of the living organism, the main metabolic

modes in living cells, the reproduction and development of living organisms, ability to induce and adapt to the living environment of organisms, the evolution of organisms, the application of Biology in agriculture and forestry, etc.

The practical part equips students with some basic laboratory rules; research and practice to make live plant specimens; observing some fixed specimens of animal cells; visually observing reproductive organs of some flowers; Observing and classifying a number of results to actualize the theoretical content to help learners inculcate knowledge.

8. General Sociology - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The General Sociology subject is a compulsory subject in order to systematically equip students with basic knowledge of sociology, including: subjects, functions, research task of sociology; basic sociological concepts. On the foundation of these basic concepts, students can understand relationships between individuals, groups and society; the role position of individuals, social groups, institutions, social organizations, classes and social classes in a society. On the basis of that knowledge, educating students about professional sociology in the construction of our country today.

9. Physics - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Physics module consists of 5 chapters with 17 theoretical periods and 13 exercises and discussion periods. Theoretical part: equipping students with general understanding about mechanics, basic motion types associated with practice, Newton's fundamental laws ; common concepts and phenomena in fluid mechanics, analyzing important applications of fluid mechanics in agriculture and forestry; equipping students with basic knowledge of electromagnetic fields, electromagnetic waves and applying them to the fields of agriculture and forestry; providing some knowledge about optical waves, quantum optics, photochemical processes; basic knowledge of nuclear physics and use of some nuclear techniques in high-tech agriculture. Exercises and discussion sections: Asking students to apply the

knowledge they have learned in each chapter to solve practical problems such as explaining phenomena, applying their learned knowledge to their current major.

10. Advanced Math - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Advanced Math includes 3 chapters with 17 theoretical periods and 13 discussion periods. Theoretical part: Equipping the concepts of matrices, matrix operations, application of matrices in real problems; system of linear equations, knowing how to solve the system of mathematical equations; differential equations, different types of differential equations and some applications of differential equations; some optimal mathematical types in agriculture and forestry and methods to solve the optimal problem. Discussion part: Asking students to apply the learned methods to solve problems, especially being proficient in using software (Excel) on the computer to solve problems of matrices, system of linear equations and optimal problems.

Equipping learners with basic calculation skills, practicing analytical skills, and mathematical modeling for a number of practical problems such as: Business management and production problems; the problem of the ration of animal feed; Calculation of residual chemical content in the environment and food; the optimization problem in Agriculture and Forestry. Equipping students with some software to solve math problems, then apply them to solve math problems in the module and apply them in real problems.

11. English 1-3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Course content summary: This module provides learners with basic and core knowledge of Grammar (sentence structures, verb tenses ...), Pronunciation (stress & intonation), and Vocabulary (words & word formation). Consolidating these basic Grammar, Pronunciation and Vocabulary to work as a basis for practice in communication; Initially forming language skills such as Listening, Speaking, Reading, and Writing through firm theory and proficient practice; Helping students understand the

basic concepts of interdisciplinary relationships between language, culture and verbal communication.

Grammar: the present simple tense; the past simple tense ; the present continuous tense; the past continuous tense; Like/would like; modal verbs; comparison.

Vocabulary: Verbs for everyday activities and spare time; adjectives; present and past expressions of time; words describing feelings, states; transport.

Reading: health; sport; transport; explore.

Listening: health; sport; transport; explore.

Speaking: ambition; telling stories.

Writing: linking words; reporting; narrative.

Pronunciation: / s /, / z /, / iz /, / d /, / t /, / id /, / ɪ /.

After completing this module, students will be able to skim and grasp the main idea; Read detailed information, guess the meaning of words in context; Listen to the main idea, listen to discover some detailed information, listen to guess the word; perform simple conversations and simple sentence patterns to convey information, respond to information given by others within the program; write sentences within the range of topics learned in the program.

12. English 2 - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Course content summary: This module provides learners with basic and core knowledge of Grammar (sentence structures, verb tenses ...), Pronunciation (stress & intonation), and Vocabulary (words & word formation). Consolidating these basic Grammar, Pronunciation and Vocabulary to work as a basis for practice in communication; Initially forming language skills such as Listening, Speaking, Reading, and Writing through firm theory and proficient practice; Helping students understand the basic concepts of interdisciplinary relationships between language, culture and verbal communication.

Grammar: countable nouns and uncountable nouns; words indicating quantity, articles; future tense with be going to, will; present continuous tense refers to the near future; preposition of place; present perfect; relative clauses and conditional sentences type 1.

Vocabulary: words for materials; linking words; synonym; professional words; suffixes; prefix.

Reading comprehension: the environment; life; events; Workplace; exploration.

Listening: the environment; plans and intentions; job interview; the importance of technology; new invention.

Speaking: presentation; interview.

Writing: write a report; an email; description; CV; paragraph; linking words; topic sentence.

Pronunciation: sound / tə /, / ð ə /, / ð i /, / w /, intonation in conditional sentences.

After completing this module, students will be able to skim and grasp the main idea; Read detailed information, guess the meaning of words in context; Listen to the main idea, listen to discover some detailed information, listen to guess the word; perform simple conversations and simple sentence patterns to convey information, respond to information given by others within the program; write sentences within the range of topics learned in the program.

13. English 3 - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Course content summary: This module provides learners with basic and core knowledge of Grammar (sentence structures, verb tenses ...), Pronunciation (stress & intonation), and Vocabulary (words & word formation). Consolidating these basic Grammar, Pronunciation and Vocabulary to work as a basis for practice in communication; Initially forming language skills such as Listening, Speaking, Reading, and Writing through firm theory and proficient practice; Helping students understand the basic concepts of interdisciplinary relationships between language, culture and verbal communication.

Grammar: Passive sentences (present and past); Past Perfect Tense; Used to; reported speech; uncertain pronouns; conditional sentence type 2;

Vocabulary: verb phrases; holiday-related words; independent preposition; classification of animals; weather.

Reading: history; language; travel and vacation; nature.

Listening: learning languages; travel; nature.

Speaking: plan for vacation; predict the future.

Writing: letter; story.

Pronunciation: sound / s /, / z /, / stress.

After completing this module, students will be able to communicate in English, text documents in English, and read documents in English at pre-intermediate level.

14. General informatics - 3 credits

Allocation of study time: 3 credits (15 theory periods / 60 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips learners with knowledge of computers and computer networks, skills to use basic informatics applications. After completing this module, students can be proficient in using computers; work on Windows operating systems and some application programs; know how to effectively manage and exploit information on computers, use computers safely and have legal knowledge in the use of information technology; be proficient in Microsoft Word to compose and present a complete document in a form, use a number of auxiliary tools for faster word processing; Use Microsoft Excel to build a complete database to solve real problems; Use calculation functions in Excel from basic to complex to calculate, statistic, and filter necessary information; Use Microsoft PowerPoint to create an engaging and effective presentation; Know how to exploit and connect information available on the Internet to serve learning and research; know how to use email to send and receive documents.

15. Probability - Statistics - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: Advanced Math

Parallel learning: No.

Summary of the subject content: The Probability module includes 2 parts: Probability and statistics with 27 theoretical periods and 18 discussion periods. Theoretical part: Equipping learners with knowledge of trial, event, probability of events; random variables, probability distribution laws and characteristic parameters of random variables; sample population, sample characteristic parameters and calculation; parameter estimation; parameter testing; correlation and regression. Discussion: Asking students to calculate the probabilities of events through the formulas; determining the probability distribution law and calculating the characteristic parameters of work-related diseases; Being proficient in solving estimation problems, testing parameters, finding correlation coefficients and writing regression equations of two random variables.

16. Management Science - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the subject content: The Management Science module helps equip students with the basic knowledge in the field of management science. On that basis, students have the ability to apply theories to management practice, create favorable conditions for them to go into research and solve theoretical or practical problems in separate fields or in interdisciplinary. Students can master modern management science, science and technology knowledge, quickly and effectively solve problems of management practice; have the capacity to create, analyze and evaluate management policy; have the ability to quickly and reasonably adapt to changes in the management environment; have the capacity to organize, mobilize and persuade the public to realize the goals of the organization.

Management Science module: Management Science is a highly practical and applied subject. The module is designed into 6 chapters, each chapter is compiled in order, presented in a logical, scientific, detailed manner the content of each problem, from which drawing the meaning of learning and researching. The main content includes:

Chapter 1: Introduction to Management Science

Chapter 2: Principles, functions and methods of management

Chapter 3: Managers

Chapter 4: Information in management

17. General Microbiology - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Previous lesson: Biology

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The module provides students with basic knowledge of morphological, structural, physiological, biochemical and genetic characteristics of common microorganism groups in nature and in human body, animals such as bacteria, viruses, yeasts, fungi ... In addition, the subject also studies the effects of extracellular factors on microorganisms, studies the beneficial and harmful side of microorganisms in life, especially in the agricultural field, thus, understanding and explaining phenomena and applying microorganisms in learning and researching to production practices.

In addition, the module also serves as a premise and basis for students to acquire knowledge of other subjects such as veterinary microbiology, infectious diseases, etc. At the same time, it can be used as reference materials for staff researching microbiology.

18. Vietnamese culture - 3 credits

Allocation of study time: 3 credits (45 theory periods/0 practical lessons/90 self-study periods)

Pre-course: General Sociology

Prerequisites: Marxist-Leninist Principles

Parallel Course: No

Summary of subject content: The module consists of 5 chapters with 45 hours of theory, exercises and group discussions. The theoretical part aims to provide a comprehensive overview of the cultural awareness and organizational culture of the Vietnamese people's living, thereby educating the compassion, awareness and responsibility of each citizen towards the national cultural heritage and the future of Vietnamese culture. On that basis, helping learners to recognize Vietnamese cultural values, contributing to preserving and promoting national identity on the path of international integration, building Vietnamese culture and people for comprehensive development, towards truth - goodness - beauty. The practical exercises and discussions help students apply theoretical knowledge in solving and identifying life problems to exchange, orient and grasp the trend of social development, equip themselves with new skills, ability and positive attitude to meet the human needs of the new era.

19. Environmental Ecology - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: Biology

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The subject is divided into 5 main parts: General concepts in ecology; Individual ecology; Biomes and biomes; Ecosystem; Ecology with environmental resource management. Providing students with basic knowledge of ecology; the interaction relationship between an organism and its environment. On that basis, applying it to build a balanced agricultural ecosystem towards sustainable agricultural development, as well as manage, protect the living environment and exploit natural resources in a reasonable and effective manner.

20. Vietnam's economic geography - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: Biology

Prerequisite: No.

Parallel learning: No.

Summary of subject content: Economic Geography module is an economic - social science, researching on the current situation and development orientation of natural resources of Vietnam; The integration capacity of Vietnam in the region and in the world; International economic association influencing Vietnam's socio-economic development; Territorial organization of all branches and economic regions of Vietnam.

21. State and law - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: Marxist-Leninist philosophy

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The State and law module provides learners with basic knowledge about the state and law such as: origin, nature, form, types of state and law in the history; Basic legal concepts such as legal norms, legal relations, law implementation, law violation, liability, socialist legislation, legal system; the basic contents of important legal branches in the Vietnamese legal system and the law on anti-corruption.

22. Environmental Pollution - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite module: Chemistry, general microbiology

Parallel learning: No.

Summary of the subject content: The Environmental Pollution module aims to meet the requirements of improving the quality of students in the fields of management and engineering, as well as those who are working in factories, companies, businesses, research institutes, schools and State agencies. The environmental pollution module provides students with an overview of knowledge about the environment, environmental composition, the role of the environment, the relationship between development and sustainable development. The module introduces the basic concepts of main types of environmental pollution, causes of pollution, agents and harms causing environmental pollution as well as measures to prevent and minimize environmental pollution. The module consists of 5 main contents as follows: Theoretical basis of environmental

pollution, air environment pollution, water environment pollution, soil pollution and other forms of environmental pollution.

23. Molecular Biology - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: Biology

Parallel learning: No.

Summary of subject content: Molecular biology is a module on the organization of life at the molecular level, providing background knowledge of biological macromolecules (DNA, RNA, protein) and how to organize, life activity at the molecular level. It is the foundation for students to understand the methods of testing and evaluating food using the tools of Molecular Biology.

24. The scientific approach - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the subject content: The module "Scientific approach" aims to help students know how to approach science, some scientific research methods, how to identify and select research problems, how to write research proposals, how to conduct research, how to write reports and publish results of scientific topics. After completing this module, students have the most basic knowledge to participate in scientific research. Skills: The module "Scientific approach" helps students to have the ability to think scientific logic, to know scientific reasoning and to analyze science.

25. Occupational safety - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite modules: Chemistry, Physics, Biology, General Microbiology

Parallel learning: No.

Summary of subject content: Occupational safety course aims to meet the requirements of improving the quality of students in the fields of management and engineering such as: Veterinary Medicine, Food Technology, Environmental Science, High-tech Agriculture, etc, and for those working in factories, companies, businesses, research institutes, schools and government agencies. The occupational safety course

introduces students to the basic concepts of occupational safety and health such as: labor; dangerous and harmful factors at the workplace; labor accidents and the causes of occupational accidents; Concept of labor protection, nature of labor protection; labor safety culture and digitization and labor safety. The subject introduces the legal system of labor safety and hygiene in Vietnam such as the Law on Occupational Safety and Hygiene; Protection policy for special and dangerous workers; Decrees and Decisions of the Government; Circulars of the Ministry and inter-ministry and the System of technical standards and regulations on occupational safety and sanitation.

The occupational safety course provides learners with basic and necessary knowledge about occupational safety and sanitation such as: working conditions, personal protective equipment in work; ways to avoid harmful factors, measures to improve working conditions and prevent occupational accidents and diseases for employees; handling incident situations in production and first aid for occupational accidents (theory and practice); planning and implementing the management system of occupational safety and sanitation; building a culture of safety in production; know the rights and obligations of employers and employees in occupational safety and health. Moreover, the course also equips learners with knowledge of occupational safety techniques such as: Electrical safety technique; chemical safety engineering; safety in using pressure equipment; safety in working with lifting equipment; fire and explosion safety and laboratory safety.

26. Soft skills

Allocation of study time: 3 credits (45 theory periods/0 practical lessons/90 self-study periods)

Pre-course: General Sociology

Prerequisites: Marxist-Leninist Principles

Parallel Course: No

Summary of course content: The module equips knowledge and skills in handling situations, agricultural extension methods, and some basic skills; planning agricultural extension programs; methods of inspection and evaluation with the participation of the people; agricultural extension for special target groups, and training of trainers. Thereby, learners develop communication skills, consulting, applying multimedia communication methods, soft skills at work, working independently, in groups, in the community, and systematize knowledge for critical thinking about social and professional issues.

27. Physical exercises, athletics - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The module equips students with knowledge and skills to practice physical exercises and perform athletic content such as running. After completing this module, students will improve the awareness of regular exercises to have a better spirit of learning and working.

28. Volleyball - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of volleyball. After completing this module, students will improve their awareness of regular exercise to have a better spirit of learning and working.

29. Badminton - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of badminton. After completing this module, students will improve their awareness of regular exercise to have a better spirit of learning and working.

30. Stone Bridge - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of soccer. After completing this module, students will improve their awareness of regular exercise to have a better spirit of learning and working.

31. Martial - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of martial arts. After completing this module, students will improve their awareness of regular exercise to have a better spirit of learning and working.

32. Basketball - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of basketball. After completing this module, students will improve their awareness of regular exercise to have a better spirit of learning and working.

33. Football - 1 credit

Allocation of study time: 1 credit (0 theory period / 30 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course equips students with knowledge and skills of football. After completing this module, students will improve their awareness of regular exercises to have a better spirit of learning and working.

34. Animal biochemistry - 2 credits

Allocation of study time: 2 credits (26 theory periods / 8 practice periods / 60 self-study periods)

Previous modules: Biology, Organic Chemistry

Prerequisite: no

Parallel modules: Animal Physiology, Nutrition & feed, Organization & embryology.

Summary of subject content: The course provides learners with knowledge about: i) Structure, properties and functions of the components of the animal's body; ii) The role and biological effects of vitamins, enzymes, hormones on the growth and development of animals and pathogens due to lack of vitamins, enzymes or hormone disorders; iii) Digestion, absorption, total normalization, resolution and activities of livestock and poultry; iv) Mechanisms, origins and causes of most common diseases due to metabolic disturbances in cattle and poultry bodies.

35. Animal Anatomy - 4 credits

Allocation of study time: 4 credits (54 theory periods / 12 practice periods / 120 self-study periods)

Previous lesson: no

Prerequisite: no

Parallel modules: Biochemistry of animals, Animal physiology, Animal embryonic tissue...

Summary of subject content: The Animal Anatomy module equips students with the knowledge about the position, shape, structure and function of organs in the body of cattle (buffalo, cow, horse, pig, and goat) and poultry (chicken).

After completing the section on Animal Anatomy, students will be able to correctly locate and describe organs in the body of cattle and poultry for medical examination and treatment; compare and distinguish organs of livestock and poultry species; perform animal anatomy operations and have practical applications.

36. Animal embryonic tissue - 2 credits

Allocation of study time: 2 credits (24 theory periods / 12 practice periods / 60 self-study periods)

Previous lesson: Biology

Prerequisite: No.

Parallel modules: coronary anatomy, coronary physiology, coronary chemistry

Summary of the subject content: The Animal Embryo Tissue Module equips learners with the knowledge of the smallest unit of the body (cytology), general organs / tissues of the body (General studies of organizations, the microstructure of the organ systems such as: respiratory, digestive, genital,... (Specialized studies of organizations) and embryology as the foundation for specialized subjects such as Diagnosis Veterinary diseases, Diagnostic Imaging, Veterinary immunology, Veterinary pathology, Reproductive technology, Specialized husbandry, etc. After studying the Organization module and embryo, students can read microscopic template, describe structure of organizations and agencies; explain the relationship between structure and function, and have practical applications.

37. Animal physiology - 4 credits

Allocation of study time: 4 credits ((54 theory periods / 12 practice periods / 120 self-study periods)

Previous modules: Biology, Animal Anatomy

Prerequisite: No.

Parallel modules: Biochemistry of animals, Nutrition and animal feed, Genetics - Animal breeds, Animal embryonic tissue...

Summary of the subject content: The module of Animal Physiology provides learners with knowledge about the functions of the body from the molecular level, cell to organ system; studying the normal process of the organs in animal body with the complete unity and external relations under the regulation of nerves and fluids. From this knowledge, animal husbandry engineers, veterinarians will have the basis to notice the difference in the case of pathology to find out how to adjust the balance of the animal's body or find out how to adjust normal physiological activities into physiological activities according to human wishes to bring high benefits in animal husbandry and veterinary medicine. This is a very important subject that creates a theoretical basis for students in Veterinary Medicine to acquire specialized knowledge in the direction of controlling growth, development, reproduction, prevention and treatment of animal diseases. After completing this module, students will have a good career attitude in animal welfare practice.

38. Nutrition and animal feed - 2 credits

Allocation of study time: 2 credits (26 theory periods / 8 practical periods, 60 self-study periods)

Previous modules: Organization and embryology, Animal anatomy.

Prerequisite modules: Animal biochemistry, Animal physiology

Parallel modules: Planning for production and use of software for managing and trading veterinary drugs

Summary of the course content: Nutrition and animal feed module provides university students with the following knowledge: i) Nutrients being essential to animals such as proteins, lipids, hydrates, minerals, vitamins and their biological role; the pet's need for nutrients. Through the learned knowledge, learners can analyze to see the causes of diseases due to lack of nutrients or excess nutrients. ii) Method of assessing the quality of protein and nutritional value of food so that learners can evaluate the biological value of protein and nutritional value of each type of food when there are enough data; iii) Needs of nutrients of different types of animals such as: Growing, pregnant, nursing, lactating cattle; growing poultry, laying eggs poultry, etc. From this learned knowledge, learners can apply it to calculate the energy and protein needs for each specific animal; iv) Common feed ingredients used in animal husbandry and their nutritional value; Principle of combining ingredients into animal complete feed. Thus, learners can create complete feed formulas for animals with high nutritional value and low cost.

39. Veterinary pharmacology - 3 credits

Allocation of study time: (39 theory periods / 12 practice periods / 90 self-study periods)

Prerequisite modules: Animal biochemistry, Animal physiology

Previous module: General Microbiology

Parallel learning: no

Summary of the module content: The module focuses on basic knowledge of pharmacology, pharmacokinetics, and mechanism of action of drugs; drugs acting on specialized organs of the body; drugs with metabolic effects, growth stimulants, antimicrobial, anti-fungal, viral, anti-parasitic drugs and instructions on how to use preventive and treat drugs for livestock and poultry.

40. Veterinary disease diagnosis - 3 credits

Allocation of study time: 3 credits (37 theory periods / 16 practice periods / 90 self-study periods)

Previous modules: Animal Physiology, Animal Anatomy

Prerequisite module:

Parallel modules: Parasitic Diseases, Infectious Diseases, Veterinary Surgery

Course content summary: The Veterinary Diagnosis module provides learners with the basic knowledge of veterinary disease diagnosis, approach and fixation of animals for medical examination; method of questioning; basic examination methods: observation, touching, typing and listening; general examination methods: general clinical examination, animal morphology examination, physical examination, mucosal examination, third lymph node examination, hair and skin examination, body temperature measurement; Examination method of cattle and poultry systems: cardiovascular and blood test, respiratory system examination, gastrointestinal system examination, urinary - genital system examination, nervous system examination.

41. Veterinary microbiology - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Prerequisite Module: General Microbiology

Previous lesson: Biology

Parallel learning: no

Summary of course content: The module equips learners with knowledge about biological characteristics of bacteria, fungi, viruses that cause disease in cattle and poultry: 1. Concepts and subspecies. 2. Morphological, color-catching, cultured and biochemical properties. 3. Resistance and pathogenicity. 4. Diagnosis by culture, isolation and serological diagnosis. 5. Prevention and treatment of diseases caused by pathogenic microorganisms in livestock.

42. Veterinary immunology - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous lesson: General microbiology

Prerequisite: no

Parallel learning: No.

Summary of subject content: The course equips students with knowledge of; (i) the natural resistance of the animal to ecology; (ii) functional roles of components in the body's immune system and immune response processes in the body; (iii) mechanism of action and immune state of the body; (iv) the body's immune response against pathogenic microorganisms; (v) Application of veterinary immunology in testing, diagnosis, prevention and treatment of diseases in animals. After completing this module, students grasp the basic knowledge of resistance and immune states of the animal body, understand the laws and mechanisms of immune response, concept and properties of antigens and antibodies and apply some advanced technologies in the prevention and surveillance of diseases in animals.

43. Veterinary epidemiology - 3 credits

Allocation of study time: 2 credits (30 theory periods / 30 practice periods / 90 self-study periods)

Previous module: Diagnosis of veterinary diseases

Prerequisite: no

Parallel modules: Infectious diseases Veterinary, Vocational training using disease management software.

Summary of subject content: The course provides learners with knowledge about: i) Causes of disease and risk factors for disease formation; ii) Understanding epidemiology of infectious diseases and infectious disease prevention measures; iii) Methods of calculating epidemiological parameters, analyzing risk factors between disease and pathogens; iv) Knowing how to take samples and the number of samples in the study.

44. Veterinary pathology - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Prerequisite modules: Animal Anatomy, Animal Embryo Tissue, Animal Biochemistry, Animal Physiology

Previous modules: Veterinary pharmacology, Veterinary immunology, Veterinary microbiology, Diagnosis of veterinary diseases.

Parallel module: Veterinary infectious diseases.

Summary of the subject: Veterinary Pathology Unit is the study of the functional and morphological changes of tissues and cells when the body is sick. This is the Pre-Clinical Course of Veterinary Medicine and it is served as the bridge between the foundation disciplines and other clinical subjects. This module equips learners with some basic principles in pathology as the basis for disease diagnosis. At the same time, equipping students in veterinary science with basic understanding of specialized

pathological features including pathological features of animal organs, pathological features of different etiologies in animals allowing veterinarians to quickly and accurately diagnose and differentiate between diseases, thereby, making reasonable and effective treatment regimens for diseases in animals.

45. Veterinary toxicology - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Prerequisite modules: Animal biochemistry, Veterinary pharmacology

Previous lesson: No.

Parallel learning: No.

Summary of the subject's content: Veterinary Toxicology module equips learners with the following knowledge: The concept of poison, how toxins enter the animal's body, the impact of toxins on the body. After this course, students will know how to diagnose and treat poisoned animals, how to prevent poisoning and use appropriate measures to treat when animals are poisoned.

46. Diagnostic Imaging - 3 credits

Allocation of study time: 3 credits (15 theory lessons / 60 practice periods / 90 self-study periods)

Previous modules: Veterinary pathology, Diagnosis of veterinary diseases...

Prerequisite Module: Animal Anatomy

Parallel modules: Veterinary Epidemiology, Vaccine Production and Use Technology, Reproductive Technology, Veterinary Infectious Diseases, Veterinary Surgery...

Summary of subject content: Diagnostic Imaging module equips students with knowledge of physical foundations, principles, techniques of Diagnostic Imaging Methods such as routine radiology, ultrasound organs in the animal's body such as heart, lungs, blood vessels, genital system, urinary system, bones, joints, nerves, digestive system. After completing this module, learners will be able to apply general knowledge about using ultrasound and X-ray machines in diagnosing diseases for animals; know how to ultrasound some organs in the body such as heart, lungs, blood vessels, genital system, urinary system, bones, joints, nerves, digestive system; know how to take X-rays to diagnose diseases related to bones, joints, nerves, abdomen and facial teeth.

47. Genetics - Breeds - 3 credits

Allocation of study time: 3 credits (37 theory periods / 16 practice periods / 90 self-study periods)

Previous modules: Biology, Biochemistry of animals

Prerequisite modules: Animal Physiology, Animal Anatomy

Parallel modules: Veterinary immunology, Nutrition and animal feed

Summary of course content: This module equips learners with basic scientific knowledge of : i) genetic basis of animal traits and behaviors; immune genetics in animals as the basis for access to specialized veterinary disciplines; ii) the origin, domestication process, adaptation and characteristics of livestock breeds; iii) the scientific basis and methods of evaluating, selecting, creating and breeding animals to lay the foundation for students to understand related diseases based on the origin, appearance and health of the animals.

This module helps students to (iv) understand the nature and importance of breeds and how to create breeds in breeding, thereby explaining the nature of some reproductive diseases, v) having skills in building spectroscopy on software for breeding. Being proficient in identifying, evaluating and classifying physical appearance of the breed to select seed meeting production needs. After completing the course, students will be able to apply the knowledge learned to scientific research as well as develop modern techniques and technologies to select disease-resistant breeds in breeding.

48. Biotechnology in Animal Husbandry - 3 credits

Allocation of study time: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous modules: Chemistry, Biology, Physics

Prerequisite: No.

Parallel learning: No.

Summary of subject content: The course provides learners with basic scientific knowledge about biotechnology and the most prominent applications of biotechnology in animal husbandry and veterinary medicine (breeding, nutrition, disease prevention, product processing, waste treatment and environmental protection). After completing their studies, students will identify basic techniques for biotechnology, and know how to apply biotechnology in animal husbandry.

49. Veterinary Clinical Diagnostic Practice - 3 credits

Distribution of study time: 3 credits (0 theory periods / 90 practice periods / 90 self-study periods)

Prerequisite modules: Veterinary microbiology, Diagnosis of veterinary diseases

Previous modules: Animal Physiology, Biochemistry, Animal Physiology

Parallel modules: Veterinary pathology, Veterinary infectious diseases...

Summary of subject content: The Veterinary Clinical Skills module provides students specialized in high quality Veterinary Medicine fixing methods and general clinical operations on buffaloes, cows, and goats, pigs, dogs, cats and poultry (domestic animals), methods of examining organ systems, ultrasound methods, X-rays, rumen

puncture, and exploratory puncture on goats, pigs. In addition, this module also helps students manipulate how to use modern equipment to diagnose diseases for livestock and poultry such as ultrasound, endoscopes, X-ray machines, etc. Finally, the module equips students with skills to adapt to the working environment of veterinarians in practice.

50. Veterinary Laboratory Diagnostic Practice - 3 credits

Distribution of study time: 3 credits (0 theory periods / 90 practice periods / 90 self-study periods)

Previous lesson: General microbiology; Biochemistry, Physiology of animals

Prerequisite modules: Animal embryonic tissue, Veterinary microbiology, diagnosis of veterinary diseases

Parallel modules: Veterinary pathology, Veterinary infectious diseases...

The Veterinary Laboratory Diagnostic Practice module provides students with knowledge and skills about blood test methods, urine tests, and ultrasound methods on dogs and cats. Methods of preparing instruments for culture of microorganisms, media used for the culture and isolation of bacteria, methods of preparation of culture media, isolation of some species of pathogenic bacteria in animals and identification of bacteria; Equipment and chemicals used as microscopic templates, methods of specimen making and reading microscopic templates of cattle and poultry muscular systems such as respiratory system, digestive system, genitourinary system, urinary system. Method of polymerase chain reaction (PCR) on bacteria, viruses, parasites, etc.

51. Practice of diagnosing aquatic diseases - 3 credits

Distribution of study time: 3 credits (0 theory periods / 90 practice periods / 90 self-study periods)

Prerequisite Module: Aquatic Animal Diseases

Previous lesson:

Parallel modules:

The course provides students with the knowledge of methods of observing, recording the external and internal characteristics of infected aquatic animals to shape and form disease diagnosis diagrams by group of infected species or group of pathogen; providing basic knowledge and skills in the diagnosis and testing of endosymal diseases in which students will observe and perform the operations of the Parasitic Diagnostic Method routine; providing students with a method of diagnosing fungal diseases by scanning method; providing students with knowledge and skills about Rapid Diagnostic Methods and Bacterial Isolation Methods in the Laboratory; providing students with knowledge and skills to identify diseases caused by viruses by microscopy method, gram staining method, tissue cutting method and molecular method which have been widely used in the identification of viral diseases in aquatic animals.

52. Pet care and training practices - 3 credits

Distribution of study time: 3 (0 theory periods/90 practice periods/90 self-study periods)

Previous lesson: no

Prerequisite: no

Parallel modules: Plantation Anatomy, Organization and embryology, Animal physiology, Biochemistry

Course content summary: Pet Care and Training Practical Module equips students with knowledge of the biology of pets to take care and train them.

After completing the Pet Care and Training module, students have the ability to use a number of specialized tools in taking care and training pets and perform proficiently in the care and training of pets.

53. Veterinary Infectious Diseases - 4 credits

Allocation of study time: 4 credits (52 theory periods / 16 practice periods / 120 self-study periods)

Previous lesson: No.

Prerequisite modules: Veterinary pharmacology, Veterinary microbiology, Veterinary immunology, Diagnosis of veterinary diseases

Parallel modules: Veterinary pathology

Summary of subject content: Veterinary Infectious Diseases is a research science studying on: i) Outline of Veterinary Infectious Diseases (including the concepts and manifestations of infections, types of infections, mode effects of pathogens, stages of disease progression, stages of the epidemic process, factors affecting the epidemic process, mode of transmission of infectious diseases, principles and measures for disease prevention and control Infectious); ii) Specialized infectious diseases (including: common infectious diseases of many animals, infectious diseases of cattle, infectious diseases of pigs, infectious diseases of poultry).

54. Veterinary parasites and parasitic diseases - 4 credits

Allocation of study time: 4 credits (52 theory periods / 16 practice periods / 120 self-study periods)

Previous lesson: No.

Prerequisite modules: Veterinary immunology, Animal anatomy, Veterinary pathology, Diagnosis of veterinary diseases, Veterinary pharmacology

Parallel modules:

Course summary: Parasites and Veterinary Parasites is the science that studies: i) the fundamental problems of veterinary parasites (including concepts, classifications, characteristics, and parasitic survival point, helminthic eradication theory, methods of diagnosis of parasitic diseases, methods of diagnosis and prevention of parasitic

diseases); ii) Specialized parasites, including: trematodes and some trematodes, tapeworms and some tapeworm diseases, nematodes and some nematodes, parasitic arthropods and some animal diseases arthropods, protozoa and some protozoan diseases in cattle and poultry.

55. Veterinary medical disease - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Previous modules: Animal Physiology, Animal Anatomy, Veterinary Pathology

Prerequisite modules: Veterinary pharmacology, Diagnosis of veterinary diseases

Parallel modules: Veterinary surgery, Diseases in dogs and cats

Summary of the subject's content: The Veterinary Medicine Disease module provides learners with the knowledge of medical treatment outline, knowledge of blood transfusion, fluid transfusion for cattle, and at the same time going in deep to learn about pathological features, causes, symptoms, lesions, diagnostic and treatment methods of diseases in the cardiovascular, respiratory, digestive, urinary, neurological systems, metabolic disorders, toxins cause disease in animals. After completing the module on Veterinary Medicine Disease, students will be able to apply general medical knowledge to support treatment for animal diseases; apply clinical diagnostic techniques; apply a number of non-clinical diagnostic techniques and modern techniques such as ultrasound, blood, urine testing in the diagnosis of common medical diseases occurring in the organs of cattle; perform surgical operations in support of the treatment of internal animal diseases; be proficient in prescribing, supporting treatment and treatment of animal diseases.

56. Veterinary Surgery - 3 credits

Allocation of study time: 3 credits (35 theory periods / 20 practice periods / 90 self-study periods)

Prerequisite modules: Animal Anatomy, Veterinary Pharmacology, Diagnosis of Veterinary Diseases

Previous lesson: no

Parallel modules: Veterinary medical diseases, Veterinary obstetrics

Course content summary: The Veterinary Surgery Course provides students of high quality Veterinary Medicine major with knowledge of the basic techniques of veterinary surgery, including immobilization methods, principles of infection prevention in surgery, methods anesthesia and local anesthesia used in surgery (pre-anesthetics, anesthetics and local anesthetics), surgical hemostasis methods, needles and sutures, as well as methods of connecting the tissue used to seal wounds, and dressing methods for animals. Next, the module will introduce each specific surgery case by organ and anatomical region of the animal including reproductive organ surgery, surgery on the

head and abdomen. In addition, the module will introduce some of the most common surgical diseases in animals including trauma, lesions, infections, varnish, tumors and diseases of the skin, muscles, bones and joints, nails and eyes. In short, this module is closely related to the knowledge of animal physiology, animal physiology, pharmacology and disease diagnosis, in order to provide essential knowledge and skills to the students of Veterinary Medicine before become a veterinarian.

57. Veterinary Medicine - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Previous modules: Organization and embryology, Animal biochemistry, Veterinary immunology, Veterinary microbiology, Veterinary pharmacology, Veterinary pathology, Reproductive technology

Prerequisite modules: Animal Anatomy, Animal Physiology, Veterinary Diagnosis

Parallel modules: Veterinary medical diseases, Veterinary surgery

Summary of subject content:

The module equips learners with knowledge of: Pregnancy phenomenon, factors affecting the body of pregnant animals, gestation period, and the development of fetus through stages, physiological changes of the animal's body during pregnancy to carry out methods of diagnosis of cattle pregnant. When there are results of pregnant cattle, the technical process of caring, raising, managing and using pregnant cattle will be carried out. Students also learn about animal performance near farrowing factors, factors promoting farrowing and methods of farrowing; causes, symptoms, diagnosis and treatment of diseases during animal gestation, diseases during farrowing, postpartum illness, mammary gland disease, dysplasia, checking steps before procedures in difficult delivery interventions and interventions in difficult delivery cases; reproductive disorders in cattle, the causes of reproductive failure phenomenon in cattle, methods of diagnosing male animals not reproducing, methods of diagnosing non-reproductive females and treatment methods .

58. Disease in dogs and cats - 2 credits

Distribution of study time: 3 (12/24/60)

Prerequisite modules: Animal Anatomy, Veterinary Pharmacology, Diagnosis of Veterinary Diseases

Previous lesson: no

Parallel modules: Veterinary medical diseases, Veterinary obstetrics, Animal welfare.

Summary of subject content:

The Cat and Dog Diseases module provides high-quality veterinarians with the basic knowledge of immobilization methods, examining cat and dog systems (skin, lymph nodes, digestive system, respiratory system, secretory system, genitourinary system). In addition, the module also provides knowledge about some common infectious diseases, parasites, general surgery in dogs and cats such as diseases, cause of disease, pathogenesis, diagnostic methods and prevention and treatment to help students have the ability to think, analyze and offer effective solutions for prevention and treatment in reality. Finally, the module also equips students with skills to adapt to the working environment of a veterinarian in practice.

59. Animal testing - 3 credits

Time distribution: 3 credits (39 theory periods /12 practice periods/90 self-study periods)

Prerequisite modules: Veterinary Infectious Diseases, Veterinary Parasites and Parasites

Previous modules: Veterinary microbiology, Diagnosis of veterinary diseases

Parallel modules: Veterinary Law

Summary of the subject content: The Animal Products Testing module equips students with basic knowledge about: methods of preserving animal products; methods of transporting animals and animal products to ensure veterinary hygiene requirements; process of animal quarantine when transporting; veterinary hygiene requirements for the places of slaughtering and processing animal products; the inspection and taking care of livestock and poultry before slaughter; the inspection of cattle and poultry meat after slaughter; the preservation, processing and veterinary hygiene inspection of animal products to provide humans with high value animal products, ensuring food hygiene, safety, and health safety for consumers and epidemic safety for livestock and poultry.

60. Reproductive technology - 3 credits

Allocation of study time: 3 credits (37 theory lessons / 16 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite modules: Animal Anatomy, Animal Physiology, Animal Embryo Tissue

Parallel learning: No.

Summary of the subject content: Reproductive technology module equips students with knowledge about the reproductive activities of male and female cattle; egg movement, sperm motility and sperm life time in female animals' genital organs and fertilization; techniques for exploiting semen of male cattle, techniques for semen quality testing, preparation, conservation and transport of semen; techniques of artificial insemination for cattle and poultry; technology of bovine embryo transfer and gender control essentials in animal reproduction. After completing the reproductive technology module, students will be able to apply the knowledge about the reproductive activities of

male cattle to perform proficiently exploiting semen skills of boars, bulls and roosters; analyze semen quality of male cattle; application of semen dilution, conservation and transport techniques; be proficient in artificial insemination techniques for pigs and apply artificial insemination techniques for cows; understand and apply the basic steps of bovine embryo transfer technology and sex control methods in mammalian reproduction.

61. Veterinary drug preparation and testing - 3 credits

Time distribution: 03 credits (41 theory periods/8 practice periods/90 self-study periods)

Previous modules: Chemistry, Biology

Prerequisite modules: Veterinary Pharmacology, General Microbiology, Veterinary Microbiology

Parallel learning: No.

Summary of subject content: Preparation and testing of veterinary drugs is a module that equips learners with theoretical basis and practical techniques for preparation and production of common drugs; on quality standards, packaging, preservation and testing techniques of such drugs in order to maximize the therapeutic effect of drugs, ensure safety, convenience for users and meet the economic efficiency.

The contents of the module include: i) basic knowledge of drug preparation, testing and pharmacology; ii) some methods of dosage form of drugs; iii) Some basic methods and technical technologies for testing veterinary drugs.

62. Cattle hygiene - 2 credits

Time distribution: 02 credits (30 theory periods/0 practice periods/60 self-study periods)

Previous course: Veterinary Infectious Diseases, Veterinary Medical Diseases, Parasites and Veterinary parasites...

Prerequisite modules: Biochemistry of animals; Animal physiology; specialized husbandry.

Parallel modules: Veterinary Law; Animal testing; Hygiene and food safety

Summary of subject content: The course equips learners with basic and up-to-date knowledge of the effects of external factors on the health and production health of animals. Livestock hygiene standards contribute to improving livestock productivity and livestock waste treatment methods minimizing environmental pollution.

63. Veterinary medicinal herbs - 2 credits

Allocation of study time: 2 credits (28 theory periods / 4 practice periods / 60 self-study periods)

Previous lesson: No.

Prerequisite Module: Veterinary Pharmacology, Veterinary Infectious Diseases, Veterinary Parasites and Parasites...

Parallel modules: Veterinary toxicology, Disease transmission between humans and animals...

Summary of the subject content: The Veterinary Medicinal Medicine module provides students with the basic knowledge of medicinal herbs, the history of development of medicinal herbs in the world and in Vietnam, naming medicinal herbs, principles and methods of medicinal collection, methods of drying medicinal herbs, methods of selecting, packaging and preserving medicinal materials, methods of preparing medicinal herbs according to Oriental medicine; Chemical and pharmaceutical ingredients in medicinal herbs, their pharmacological effects and their therapeutic applications; Methods of evaluating and testing medicinal herbs; Morphological characteristics, distribution, chemical composition, pharmacological effects and application of some medicinal herbs in the treatment of diseases such as infectious diseases, parasitic diseases, obstetric diseases, and diseases internal medicine in organ systems such as circulatory system, digestive system, genitourinary system, urinary, etc. Folk remedies in disease treatment; Some prevention of toxic herbs.

64. One Health in Veterinary Medicine - 2 credits

Allocation of study time: 2 credits (24 theory periods / 12 practice periods / 60 self-study periods)

Prerequisite: no

Previous modules: Veterinary Epidemiology, Diagnosis of Veterinary Diseases, Veterinary Infectious Diseases, Parasites and Veterinary Parasitic Diseases.

Parallel Module: Disease is transmitted between animals and humans.

Summary of subject content: The One Health module in Veterinary Medicine provides high quality veterinarians with basic knowledge of One Health, including the factors that influence One Health, the One Health core competencies; core competency of One Health (Planning and management of plans for disease control; Cultural factors, beliefs and One Health; Leadership, collaboration, One Health partnerships; Ethical values, private One Health systems for disease control and food safety; One Health communication, information, policy and advocacy) and the application of core competency to One Health problem solving in the community (disease transmission and food safety issues). In summary, this course gives students the ability to identify issues in the One Health field in the community and propose solutions with the participation of many stakeholders (medical, veterinary, schools and other disciplines).

65. Food safety and hygiene - 2 credits

Time distribution: 2 credits (30 theory periods, 0 practice periods, 60 self-study periods)

Prerequisite: no

Previous modules: General Microbiology, Animal Biochemistry, Animal Physiology

Parallel learning: no

Summary of subject content: Course equips learners with knowledge of food safety and hygiene; The most basic concepts of food and food safety and hygiene; Basic knowledge about microorganisms infecting in food, pathways of infection with food, characteristics of some microorganisms that cause human diseases through food, knowledge of sanitation facilities food production, hygienic requirements for street food and beverages on food quality management systems such as HACCP, ISO, VietGAP in animal husbandry, and the food safety and hygiene law.

This module helps students apply the knowledge of the subject in production organization, implementation and management of food safety and hygiene issues for food manufacturers and products of livestock. Learners have skills to identify hazards and devise solutions related to food safety and hygiene in the production, organization and management of the food sector in general and animal science and veterinary medicine in particular.

66. Experimental methods in animal husbandry - veterinary medicine - 2 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 60 self-study periods)

Previous modules: Animal biochemistry, Animal physiology, Genetics and animal breeds, Nutrition and animal feed.

Prerequisite: Probability - Statistics

Parallel modules: Management Science

Summary of subject content: Scientific research method module equips students with knowledge of basic principles in designing an experiment, methods of designing one-factor and two-factor experiments, methods of analyzing experimental data and processing research results using computer software such as SAS, Minitab software. After completing this module, students have the ability to detect and analyze research problems, write proposals and write explanations of scientific research topics at the grassroots level; apply the learned knowledge to experimentally design one factor and two factors in practical production; analyze and evaluate experimental data and be proficient in processing research results using the Minitab software on the computer.

67. Specialized Law - 2 credits

Time distribution: 02 credits (30 theory periods/0 practice periods/60 self-study periods)

Pre-study: Major and industry foundations

Prerequisite Course: Veterinary VSV module; Veterinary Pharmacology, Veterinary Epidemiology; Veterinary infectious diseases, Veterinary parasites and parasitic diseases, Preparation and testing of veterinary drugs.

Parallel modules: Animal hygiene, animal testing, specialized husbandry

Summary of the course content: The Veterinary Law was passed by the National Assembly on June 19, 2015, and became effective on July 1, 2016. The Law includes 116 articles, divided into 7 chapters. This module equips learners with animal disease prevention and control laws, quarantine of animals and animal products, control of slaughter of animals, preliminary processing and processing of animals and animal products; Veterinary hygiene inspection, veterinary medicine management, veterinary practice and law enforcement clause. After completing the Veterinary Law module, students have sufficient legal knowledge of the industry and are proficient in finding circulars related to specific laws to apply to the organization of production and business, register products, practice veterinary medicine in accordance with the law; Having independent and teamwork skills; being honest and performing animal welfare.

68. Behavior and Animal Welfare - 3 credits

Time distribution: 3 credits (45 theory / 0 practice period / 90 self-study period)

Previous modules: Biology

Prerequisite: No.

Parallel modules: Animal Physiology, Animal Biochemistry

Summary of the course content: This module equips learners with basic scientific knowledge of: i) factors affecting animal behavior, recognizing how behavioral patterns contribute to our understanding of animal welfare; ii) Understanding the relationship between nutrition and feeding with “5 No”, the relationship between welfare and disease, productivity and applying the principles of environmental improvement when designing feeding systems for animals.

This module helps students: iii) Identify issues around the slaughter of animals, humane slaughter methods that promote good practice and the protection of animal welfare, and animal protection legislation at slaughter time; social, cultural, economic and legal factors affecting the quality of the animal’s death; iv) Laws for the protection of animals during livestock production and slaughter.

This module helps students distinguish between science, ethics and law regarding Animal Welfare; explain the principles of humane education, clarify the role of humanitarian education in influencing human behavior toward animals; encourage students to think rationally about issues of animal welfare in order to seek support from many sources, some local sources, some international sources; play a big role in directly improving animal welfare through our own actions and through influencing others to do together.

69. Infection between animals and humans - 2 credits

Allocation of study time: 2 credits (30 theory periods, 0 practice periods, 60 self-study periods)

Previous modules:

Prerequisite modules: Veterinary pathology, Veterinary pharmacology, Veterinary microbiology, Veterinary immunology, Diagnosis of veterinary diseases

Parallel modules:

Course content summary: Zoonotic Disease is the science that studies: i) Outline of zoonotic diseases (including Concepts and general introduction to intermodal diseases between animals and humans; main types of infectious diseases; animals carrying pathogens.); ii) Infection between animals and humans caused by viruses; iii) Infection between animals and humans by bacteria; iv) Infection between animals and humans by parasites; v) One Health Application in zoonotic disease prevention.

70. Disease in wildlife - 3 credits

Allocation of study time: 3 credits (45 theory periods, 0 practice periods, 90 self-study periods)

Previous modules: Veterinary Law, Diagnosis, Veterinary Pharmacology

Prerequisite modules: Veterinary microbiology, Veterinary immunology

Parallel modules: Veterinary infectious diseases, Veterinary parasites and parasitic diseases

Summary of the subject's content: The Wildlife Diseases module is equipped with the following knowledge: i) Classification of animals, classification of birds, classification of reptiles, classification of rodents); ii) Some common diseases in animals (including: infectious diseases, parasitic diseases, internal - external - obstetric diseases); iii) Some common diseases of avian birds (infectious diseases, parasitic diseases); iv) Some common diseases in reptiles (infectious diseases, parasitic diseases); v) Some common diseases in rodents (infectious diseases, parasitic diseases).

71. Aquatic animal diseases - 3 credits

Allocation of study time: 3 credits (39 theory periods / 12 practice periods / 90 self-study periods)

Previous modules: no

Prerequisite modules: General Microbiology, Animal Physiology, Veterinary Pharmacology

Parallel learning: no

Summary of subject content: The module provides students with general and detailed knowledge about aquatic pathology so that students confidently apply them in production practice, specifically:

The module provides students with basic knowledge about the emergence and development of diseases in aquaculture. Methods of determining the cause of fish death in ponds; analysis of specific pathological signs of some parasitic internal-external

diseases, fungal diseases, bacterial diseases and viral diseases commonly occurring in aquatic animals. The module also provides students with knowledge of drugs and chemicals as well as methods of using drugs and chemicals routinely in the prevention and treatment of shrimp and fish in aquaculture.

72. Technology for production and use of vaccines - 3 credits

Allocation of study time: 2 credits (30 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: General microbiology.

Prerequisite modules: Veterinary microbiology, Veterinary immunology

Parallel module: Veterinary infectious diseases

Summary of subject content: Technology for production and use of vaccines is a science study on: i) basic issues about vaccines (including: concept and classification of vaccine, basic properties of vaccines, ingredients of vaccines, characteristics of some vaccines used in veterinary medicine); ii) Technology of production and testing of vaccines, including principles of vaccine production, vaccine production, a number of processes for vaccine production and testing, and some procedures for vaccine testing; iii) Use of vaccines in disease prevention for livestock and poultry (including: principles of vaccine use, rules of specific antibody formation after vaccination in animals, rules of vaccine use, some vaccines used to prevent diseases for livestock and poultry.

73. Environmental and livestock waste management - 3 credits

Time distribution: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous course: Veterinary Infectious Diseases, Veterinary Medical Diseases, Parasites and Veterinary parasites...

Prerequisite modules: Biochemistry of animals; Animal physiology; specialized husbandry; Veterinary infectious diseases.

Parallel modules: Veterinary Law; Animal testing; Hygiene and food safety

Summary of subject content: The course equips learners with basic and up-to-date knowledge of the effects of external factors on the health and production health of animals; environmental treatment techniques for livestock waste contributing to the improvement of livestock productivity and minimizing environmental pollution.

74. Farm administration - 3 credits

Time distribution: 3 credits (45 theory periods; 0 practice periods; 90 self-study periods)

Previous modules: Animal Physiology, Animal Anatomy, Veterinary Pathology

Prerequisite Module: Veterinary Pharmacology, Diagnosis of Veterinary Diseases

Parallel modules: Veterinary surgery, Diseases in dogs and cats

Summary of the course content: The Farm Management module provides learners with the basic and general concepts of farm management, the scientific basis of farm management; establishment and construction of farm production and business plans; knowledge of management, establishment, production, production resources, farm technology, the role and importance of traceability, application in farm management in the age of applying information technology 4.0 for livestock products. After completing the Farm Management module, students have the ability to apply the knowledge they have learned to build and manage production and business activities, and trace the origin of a farm to meet practical requirements.

75. Pet Spa practice - 3 credits

Allocation of study time: 3 credits (0 theory period / 90 practice period / 90 self-study period)

Previous modules: Animal chemistry, Animal physiology, Animal embryonic tissue, Nutrition and feed, Veterinary microbiology, Diagnosis of veterinary diseases, Veterinary pharmacology

Prerequisite: no

Parallel modules: Veterinary Epidemiology, Diagnostic Imaging, Veterinary Pathology, Veterinary Surgery, Veterinary Medicine, Veterinary Surgery....

Summary of subject content: The Pet Spa Practice Course equips students with the knowledge of pet bath, spa, and beauty.

After completing the Pet Spa practice module, students will use proficiently some specialized tools used to beautify pets; at the same time, students will be able to master the most basic techniques to care and beautify pets.

76. Foreign Practice - Veterinary Medicine - 3 credits

Allocation of study time: 3 credits (0 theory period / 90 practice period / 90 self-study period)

Previous modules: Animal embryo tissue, Animal biochemistry, Veterinary microbiology, Veterinary pharmacology, Veterinary pathology, Diagnosis of veterinary diseases

Prerequisite modules: Animal Anatomy, Animal Physiology, Veterinary Surgery, Veterinary Medicine

Parallel modules: Veterinary infectious diseases, Veterinary parasites and parasitic diseases, Veterinary medical diseases

Summary of subject content:

The module equips the learners with the basic techniques of Veterinary Surgery, and performs in-depth techniques for the intervention and treatment of Dermatology in cattle. To improve skills and performance of professional operations, the module

provides method and practice of cattle sterilization; method of linking the tissue for cattle, method of connecting the bones of cattle; method of cutting, bringing the rectum back to the previous position in cattle; method of hernia surgery for malformations in cattle; method of patching buffalo and cow's nose to restore the aesthetics of buffalos, cows and make it easier to manage; method of cutting rumen of ruminant cattle to repair and treat rumen diseases avoid endangering the manager and fellows; Intestinal resection of animals to restore intestinal damage to animals; method of examining the female genital tract and diagnosing pregnant animals to have appropriate care and management; treatment methods of endometritis, hysterectomy and caesarean section for pregnancy to overcome fertility for animals.

77. Specialized husbandry - 4 credits

Time distribution: 4 credits (52 theory periods / 16 practice periods / 120 self-study periods)

Previous modules: Genetics - Animal breeds, Reproductive technology

Prerequisite modules: Anatomy of animals; Animal embryonic tissue; Animal biochemistry; Animal physiology; Animal feed nutrition.

Parallel modules: Animal hygiene, animal testing, animal-to-human disease

Summary of the course content: The course provides learners with knowledge about physical characteristics and production capabilities of a number of popular breeds of buffaloes, cows, pigs and poultry in Vietnam; Basic contents on breeding techniques with breeding male and female animals, young animals and domestic animals for meat; at the same time it provide learners with basic knowledge of poultry hatching techniques.

78. Marketing - 3 credits

Time distribution: 3 credits (30 theory periods/30 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the course content: The Marketing module equips learners with basic knowledge of marketing in the context of commodity economic development in Vietnam and integration with the world economy. The module helps learners understand the market, market approaches, and know how to find, create and develop products that meet market needs. In addition, the module also equips learners with the most basic knowledge and skills on selecting new products, optimizing resources in production, flexible pricing strategies, building sales networks and promoting effectively and sustainably product brand. Understanding market needs and finding ways to satisfy market demands is the core content of the Marketing module that helps production and business activities succeed.

79. Blockchain application in agriculture - 3 credits

Time distribution: 3 credits (35 theory periods/20 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of course content: The module focuses on issues such as management and development of online transactions, online marketing, data exchange of animal husbandry production and business, and QR code traceability, electronic payment, etc. After completing the course, students will be able to apply some existing technology applications in traceability, production management and online transactions, electronic marketing and electronic payments to organize and manage production and start-up in the veterinary sector.

80. Biological risk management - 3 credits

Time distribution: 2 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: Biology, General Microbiology

Parallel learning: No.

Summary of the module content: This course includes basic and advanced knowledge of biological risks, biosafety levels; basic and advanced knowledge of safe laboratory practices, microbiological techniques, risk assessment and management of genetically modified organisms and products derived from them. Thus, learners can apply this knowledge in the management of biological risks in research and production practice.

81. Starting a business - 3 credits

Time distribution: 3 credits (45 theory periods/0 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Course summary: The module consists of four chapters. Chapter 1 introduces the foundations for starting a business, Chapter 2 deals with forming, evaluating and choosing a business idea, Chapter 3 deals with business planning, Chapter 4 deals with business planning to build a business start-up and business development model. After completing this module, learners will be able to summarize the basic knowledge of business, entrepreneurship and start a business; apply analytical methods, assess their own strengths and weaknesses, opportunities in life to form, evaluate and build business ideas. Have ability to develop and implement a Business Plan.

82. Brand Management

Time distribution: 3 credits (45 theory periods / 0 practice periods / 90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

This module provides the brand equity management process for a product brand. The aim is to develop strategies and tactics of building, maintaining, and developing a customer-oriented brand.

At the end of the module, students are equipped with knowledge applied to management, which focuses on content such as model building, brand design and identity, positioning strategies, media and intellectual property.

83. Transactions and negotiations in business - 3 credits

Time distribution: 3 credits (30 theory periods/30 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of the module content: The subject of Business Transactions and Negotiation aims to convey to students the basics of business negotiation, the basic principles of transactions, the psychological basis of transactions, multilateral transactions and transaction rituals, the main contents of the negotiation and the strategy in the negotiation, the negotiation process and the conclusion of the negotiation, the legal basis of the negotiation. After completing this module, students have scientific knowledge in business negotiation, including general issues of business negotiation; the main contents, strategies and tactics of business negotiations; negotiation stages and the legal basis of business negotiation.

84. Value Chain Analysis - 3 credits

Time distribution: 3 credits (45 theory periods/0 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

Summary of course content: The module equips learners with basic knowledge of value chain analysis and methods of approaching and evaluating value chain; practice value chain analysis tools for livestock products. After completing the study, learners can use proficiently the analysis tools of price chain analysis, apply policies in linking, develop livestock and veterinary value chains.

85. Corporate governance - 3 credits

Time distribution: 3 credits (30 theory periods/30 practice periods/90 self-study periods)

Previous lesson: Management Science

Prerequisite: No.

Parallel modules: Starting a business, building and developing a brand

Summary of the course content: The business administration module aims to equip students with basic knowledge of business administration skills including introduction of business issues, business environment, introduction fundamentals of governance (human resource management, production and operations management, quality management, cost management, results and corporate financial policy) as well as related issues of inspection and control in the enterprise. The module also helps learners form the necessary skills to become a truly dynamic administrator with good skills and professionalism.

The module consists of 05 chapters with logical sequence, easy to understand, providing full basic knowledge as well as applying skills into practice. The layout is as follows:

Chapter 1: General corporate governance issues

Chapter 2: The business environment of the business

Chapter 3: Planning in corporate governance

Chapter 4: Basic areas in corporate governance

Chapter 5: Business results management and control in the business

86. Agroforestry - 3 credits

Time distribution: 3 credits (45 theory periods; 0 practice periods; 90 self-study periods)

Previous modules: Specialized Livestock, Cultivation

Prerequisite module:

Parallel modules:

The module provides learners with the basic and general concepts of agroforestry farm management, the scientific basis of farm governance; establishment and construction of farm production and business plans; knowledge of management, establishment, production organization, production resources, farm technology and the role, importance of traceability, application in farm management in the age of applying information technology 4.0 for livestock products. After completing the course, students will be able to apply the knowledge they have learned into the construction, management of production and business activities, and traceability of an agroforestry farm to meet practical requirements.

87. Cultivation - 3 credits

Time distribution: 3 credits (45 theory periods/0 practice periods/90 self-study periods)

Previous lesson:

Prerequisite module:

Parallel modules: Starting a business, building and developing a brand

This is a broad specialized course for students in the Faculty of Agronomy, so this course helps students accumulate the foundation knowledge specialized in Plant

physiology, soil science, nutrition and fertilizers, plant diseases (general and specialization), major crops such as fruit trees, food crops.

The main contents include: Chapter 1: An overview of agronomy; Chapter 2: Introduction to Classification of Major Crops. Chapter 3: Assessing the importance of plants; Chapter 4: Research on plant biology; Relationship between plants and external conditions.

88. Construction and project management - 3 credits

Time distribution: 3 credits (45 theory periods/0 practice periods/90 self-study periods)

Previous lesson: No.

Prerequisite: No.

The module includes the following main contents: Basic concepts of project management; Building development project; Project analysis and appraisal; Project implementation; Project monitoring and evaluation.

89. Planning and implementation of animal disease prevention and control - 4 credits

Time distribution: 4 credits (0 theory period/240 practice periods/120 self-study periods)

Previous modules: Animal Anatomy, Veterinary Pharmacology, Veterinary Pathology, Technology for production and use of vaccines

Prerequisite Module: Diagnosis of Veterinary Diseases

Parallel modules: Skills to diagnose, prevent and treat animal diseases at the Veterinary Clinic

Summary of the course content: The module equips students with practical skills to approach and implement epidemic prevention for animals. At work, students will apply the knowledge learned at the university to effectively deploy work, perform proficient skills in vaccination such as: how to use and preserve vaccines, how to approach animals, vaccination techniques.

90. Access to career and build career profiles 1 - 1 credit

Time Allocation: 1 credit (0 theory periods/60 practice periods/30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

The content of Approaching Veterinary Medicine module includes two main parts: One is Visiting some facilities related to veterinary care (Veterinary medicine factory, Animal farm, Pet hospital, Conservation area wildlife, Animal husbandry Institute, Veterinary Institute, Regional Veterinary Center, Department of Livestock and Veterinary Medicine, Concentrated slaughter area, etc.), the other is to find out knowledge of professional records, competency profile of Veterinarians and outcome standards of Veterinary Medicine. The course equips learners with basic knowledge of organization,

management and production at work; having knowledge of career profiles, veterinarian competency profiles and outcome standards of the Veterinary Medicine profession. This knowledge help learners better understand the chosen profession and have a good orientation for their future learning and working, as well as provide them with some basic skills in communication, presentation and reporting. After completing this module, students can orient their working positions after graduation, identify goals and study methods to achieve higher efficiency. In addition, the module also helps students practice soft skills, independent and teamwork skills, and improve communication efficiency.

91. Vocational training: Accessing jobs and building career profiles 2

Time Allocation: 1 credit (0 theory periods/60 practice periods/30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

The content of the module on Vocational Access and Profiling 2 equips learners with basic knowledge about career profiles, competency profiles of veterinarians and outcome standards of the Veterinary Medicine profession. By the last semester, students will synthesize the results accumulated in knowledge, skills and extracurricular activities. Through the synthesis, learners will know their own level of completion in order to have a better orientation for their future learning and working, as well as have some basic skills in synthesizing results, writing reports. Along with the assessment of student achievement (based on student transcripts, soft skills training certificates, certificates of participation in extracurricular activities and volunteering), teachers will have consultation to promote student learning, encourage students to participate in fostering soft skills and be more active in extracurricular activities. In addition, the module also helps students practice more soft skills, independent working skills, teamwork, and improve communication efficiency.

92. Outline writing and thesis writing skills

Time Allocation: 1 credit (0 theory periods / 60 practice periods / 30 self-study periods)

Previous lesson: No.

Prerequisite: No.

Parallel learning: No.

The course outline writing and thesis writing skills includes 2 main parts. Part 1 Skills to write outlines. This section includes the following contents: 1. Raising problems the rationale of the research topic; Overview of domestic and foreign research results related to research issues; The rationale of research topics; The purpose and objectives of the research topic and the scientific significance of the research topic. 2. Scientific basis of research topic; Basic conditions for implementation; Overview of research results at home

and abroad. 3. Materials, content and research methods; An overview of the study site, time, materials, content and methodology. 4. Expected results achieved in the implementation of the Cabinet and monitoring targets. 5. Conclusions and recommendations after completing the internal study. Part 2 writing graduation thesis. On the basis of the developed outline, the contents were deployed, the collected research results were processed by biological statistics and interpreted through the graduation thesis.

93. Disease management and veterinary practice at the poultry farm - 5 credits

Allocation of study time: 5 credits (0 theory period / 300 practice periods / 150 self-study periods)

Prerequisite modules: Anatomy of animals; Embryo Organization, Animal Biochemistry, Animal Physiology

Previous modules: Veterinary Pharmacology, Veterinary Infectious Diseases, Technology for production and use of vaccines, Diagnosis of veterinary diseases

Parallel modules: Livestock hygiene, One health in veterinary medicine

Course content summary: The course equips students with skills in planning for prevention, diagnosis and treatment of poultry diseases on the farm. Applying knowledge and experience in veterinary management on farms to plan the prevention, diagnosis and treatment of poultry diseases on the farm. Being proficient in diagnosis, prevention and treatment skills for poultry in production facilities. Having skills in teamwork and cooperation in solving livestock and veterinary issues at the grassroots level. Having good health and professional ethics in performing patient sampling and performing animal welfare.

94. Disease management and veterinary practice at the pig farm - 5 credits

Allocation of study time: 5 credits (0 theory period / 300 practice periods / 150 self-study periods)

Previous courses: Veterinary parasites and parasitic diseases, Veterinary diseases, Veterinary surgery, Veterinary obstetrics, Animal hygiene...

Prerequisite modules: Veterinary pharmacology, Diagnosis of veterinary diseases, Veterinary infectious diseases

Parallel learning: no

Course content summary: The module on Disease Management and Veterinary Practice at the pig farm provides students with knowledge of methods of transmitting diseases to animals, indirect and direct methods of disease transmission; the regularity of the disease, the disease can manifest at different degrees, seasonal, regional and cyclical diseases; disease management procedures, disease prevention and treatment schedule for pigs, barns, food and drink, temperature of the barn, care, feeding, disinfection; disease treatment measures on livestock farms; methods of preventing diseases for pigs with

drugs and vaccines, and ways to introduce drugs and vaccines into poultry bodies; some medicines for prevention and treatment of poultry diseases and their usage; methods of preventing diseases for pigs by hygienic and antiseptic, methods of cleaning and disinfecting barns; a number of diseases commonly occurring in pigs and measures for prevention and treatment; measures to handle disease on the farm.

95. Disease management and veterinary practice on ruminant ruminants - 5 credits

Allocation of study time: 5 credits (0 theory period / 300 practice periods / 150 self-study periods)

Previous module: Veterinary pharmacology

Prerequisite modules: Diagnosis of veterinary diseases, Veterinary infectious diseases, Veterinary medical diseases, Veterinary obstetrics, epidemic vaccination...

Parallel Module: One Health in Veterinary Medicine, Animal Welfare

Summary of subject content: The course equips learners with skills to prepare conditions for raising buffaloes, cows, goats, sheep (barns, livestock tools ...); Rules of a ruminant farm ; Food for all kinds of ruminants; Characteristics of ruminants cultured in the farm; Techniques for selecting ruminants; ruminants breeding techniques (Sanitation, feeding, drinking, etc.); Checking and evaluating health status of ruminant herds; Implementing the process of disease prevention and treatment (Veterinary hygiene, prevention with vaccines, use of medicines for prevention and treatment ...); Waste treatment in ruminant livestock farm; Finding out about the farm's production plan through books /interviews; Knowing how to calculate the economic efficiency of raising ruminants/year.

96. Basic engineering manipulation in the laboratory - 3 credits

Time distribution: 02 credits (0 theory period/180 training periods/90 self-study periods)

Previous lesson: General microbiology

Prerequisite: No.

Parallel learning: No.

Course content summary: The module equips students with the basic skills of safety rules in the laboratory; knowing how to clean and disinfect tools and be proficient in operating laboratory machines and equipment, how to take specimens, cultivate and isolate strains of microorganisms, stain, read template and make antibiotic in microbiological laboratory, know procedures in making microscopic specimens and read some common templates.

97. Vocational training in Veterinary Hospital - 5 credits

Time distribution: 5 (0 theory period /300 training periods /150 self-study periods)

Previous lesson: Animal Anatomy, Veterinary Pathology...

Prerequisite module: Diseases in dogs and cats, Diagnosis of diseases Veterinary medicine, Diagnostic imaging, Diseases spread between human and human...

The Vocational training in Veterinary Hospital equips learners with skills in diagnosing and treating livestock diseases such as skills in prescribing, recording medical records, using some veterinary equipment and tools; diagnosis and treatment of a number of diseases in animals. After completing this vocational training course, learners will be able to perform operations in clinical diagnosis and treatment of livestock diseases; be proficient in manipulating drugs to enter the animal's body through different ways; be proficient in making medical records, prescribing and using drugs and vaccines in the prevention and treatment of diseases for livestock; know how to sample, package, preserve and test samples; perform some obstetric surgical procedures in animals.

98. Use of software to manage and trade veterinary drugs - 1 credit

Time distribution: 1 credit (0 theory period/60 training period/30 self-study period)

Previous lesson: Animal physiology

Prerequisite: no

Parallel modules: Veterinary pharmacology, Veterinary microbiology

Summary of subject content: The course equips learners with knowledge and skills to perform the steps of planning for veterinary medicine production; perform the veterinary drug business management on software.

99. Graduate internship - 10 credits

Allocation of study time: 10 credits (0 theory period / 600 practice periods / 300 self-study periods)

Previous modules: Veterinary Infectious Diseases, Veterinary Medicine Diseases, Veterinary Obstetrics, Parasitology and Veterinary Parasitic Diseases, Veterinary Surgery

Prerequisite modules: Veterinary disease diagnosis, Veterinary pharmacology, Planning and implementation of animal disease prevention and control, Disease management and veterinary practice at poultry farms, Diagnostic skills, prevention and treatment of domestic animals at Veterinary clinic

Parallel learning: No.

Course content summary: The graduation internship is the last module of the training program and plays an indispensable role in current education. The graduate internship module helps students access and grasp the reality of production, reinforce the learned knowledge, as well as apply the theory to production practice to enhance professional knowledge and master scientific research method. In addition, the graduation internship period is also the time when students practice and learn from their predecessors' experiences, in order to equip professional knowledge to become a scientist with professional qualifications and solid working skills after graduation.