# ACADEMIC HANDBOOK

## OF FACULTY OF VETERINARY MEDICINE
## UNIVERSITAS BRAWIJAYA
## 2022/2023

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# Academic Handbook

# Faculty of Veterinary Medicine

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# PREFACE

In order to provide Veterinary Medicine students at Universitas Brawijaya (FVM -UB) with a correct understanding of the educational system implemented at FVM -UB, we have compiled the Education Handbook for the 2020/2021 Academic Year. Adjustments are continually made to align with a system that better facilitates the achievement of veterinary professional competencies.

This Handbook is published annually to offer an overview and reference regarding the educational process through a competency-based curriculum, employing Problem-Based Learning (PBL) strategies. It is hoped that this approach will enhance students' intelligence in achieving the veterinary graduate profile in accordance with the competency standards established by the Indonesian Veterinary Medical Association (IVMA), and the Indonesian Association of Veterinary Medicine Faculties (IAVMF).

The coursework is presented in stages, starting with the foundational theories of veterinary medicine and then progressing to problem-based learning (PBL). Additionally, the educational process adheres to a Student-Centred Learning (SCL) approach. This strategy is employed to motivate students, foster independent learning, and enable the development of veterinary medical knowledge in practical settings.

In conclusion, it is hoped that this Education Handbook will be beneficial in aiding the students' learning process, enabling them to achieve the graduate profile and competencies of veterinarians who are competitive on both national and international scales.

Malang, September 2022

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# INTRODUCTION

## 1.1. The underlying rationale for establishing a Veterinary Medicine Program

The general increase in the availability of veterinarians in Indonesia is currently perceived as significantly insufficient. There is a wide range of employment opportunities in the veterinary sector, including roles as clinical veterinarians, lecturers, researchers, consultants, or health managers within the livestock industry. More importantly, there is a growing need for professionals in veterinary public health. This area is becoming increasingly complex with the re-emergence of various zoonotic diseases, the demand for a Program ensuring healthy meat availability by 2015, and the rising incidents of counterfeit animal-based food products due to intense economic competition. This situation clearly necessitates the support of the veterinary profession.

The current calculation suggests that approximately 500,000 veterinarians are needed to meet the ideal ratio of veterinarians to the population. Moreover, with the ASEAN Free Trade Area (AFTA) allowing the entry of foreign-trained veterinarians, it is crucial to increase both the quantity and quality of veterinary professionals to meet national needs. If this situation is not promptly addressed, it could lead to problems in the development of the veterinary field, particularly concerning animal diseases and public health. There is a risk that these issues may not be properly managed by professionals, or worse, may be handled by individuals without veterinary medical competence.

One effort to increase the number of veterinarians in Indonesia, and to meet the demand for veterinary professionals, is to expand veterinary education. The establishment of new Faculties of Veterinary Medicine is expected to incrementally meet the need for veterinary professionals. The current situation is starkly and ironically highlighted by the fact that Indonesia, with a population of approximately 240 million people, only has 11 institutions offering veterinary medical education, with a limited number of graduates.

A fundamental requirement for establishing a Veterinary Medicine Education Institution is the existence of a Faculty of Medicine at the university. This allows for the synergy of basic sciences, facilities, and teaching staff between the Veterinary Medicine Program and the Faculty of Medicine. Faculties such as Medicine, Animal Husbandry, and Mathematics and Natural Sciences (MIPA) are valuable for resource sharing in teaching and research processes. Laboratories that can be shared include the Central Laboratory of Life Sciences, Biochemistry, and Biosciences Institute. Additionally, collaboration with relevant institutions such as the Great Artificial Insemination Centre (BBIB), Safari Park, Village Unit Cooperatives (KUD), Local Government, and the Department of Animal Husbandry and Animal Health, supported by the Indonesian Veterinary Medical Association (IVMA), is crucial.

## 1.2. Background of the Establishment of the Faculty of Veterinary Medicine at Universitas Brawijaya (FVM-UB)

In pursuit of Universitas Brawijaya's vision to become a leading institution advancing towards World-Class University (WCU) status, the Faculty of Veterinary Medicine (FVM -UB) has expanded its role and function in developing a robust Veterinary Public Health system. This initiative began with the establishment of the Professional Education of Veterinary Medicine Study Program (PEVM) in 2008. A crucial aspect of this initiative involves addressing diseases related to the provision of healthy animal-derived food products, which supports the national food security Program. Achieving national food security and sufficient meat production by 2015 requires the assurance of a healthy food system that meets the criteria of Hazard Analysis and Critical Control Point (HACCP) and Aman, Sehat, Utuh, and Halal (ASUH) standards to compete in the global market. Animal health management is thus a strategic component in ensuring the health of livestock as a key source of animal-derived food.

This management includes the selection of breeding stock, rational feeding, and proper care—essential elements of a health Program. These efforts are not only crucial for supporting national food security but also serve as a strategic measure in preventing the spread of animal diseases, particularly zoonotic diseases. International guidelines from the World Organisation for Animal Health (OIE) emphasise the role of veterinary medicine in managing animal health and disease (veterinary function), which is closely tied to security assurances. This scope includes the application of medical sciences in promotive, preventive, curative, and rehabilitative care, along with adherence to the professional ethics of veterinary medicine, reinforced by the veterinary oath.

Data from the Directorate General of Animal Husbandry and Animal Health of the Ministry of Agriculture indicate that one veterinarian currently serves more than 2000 livestock animals per animal health centre (Puskeswan) in Indonesia. Despite various efforts, this ratio has not yet reached an optimal level. Ideal calculations suggest a significant need for additional veterinarians to fill veterinary medical positions proportionally across the nation. The Veterinary Medicine Profession Education is crucial for enhancing health services, particularly in response to strategic threats from emerging and re-emerging diseases.

Indonesia, with its dense population spread across numerous islands, requires a resilient supply of animal-derived food from healthy livestock, distributed evenly throughout the country. To achieve this, the number of veterinarians must be proportional to the livestock population and species in each region. Currently, Veterinary Medicine Education institutions in Indonesia produce approximately 450 veterinarians annually, which is insufficient to meet the growing demands in animal health, pharmaceutical industries, animal health laboratories, large artificial insemination centres (BBIB), multidisciplinary research centres, and veterinary research institutes (Balivet).

Therefore, the presence of FVM -UB as a Veterinary Medicine Education institution, equivalent

in status to a faculty under the Rector's office, is a vital step towards addressing this shortfall. In the coming years, the development of the Faculty of Veterinary Medicine at Universitas Brawijaya is expected to significantly contribute to meeting the national demand for veterinary professionals.

## 1.3. History of Veterinary Medicine Education at Universitas Brawijaya

Universitas Brawijaya was established in Malang, East Java, on 5 January 1963, as per the decree of the Minister of Higher Education and Science (PTIP) No. 1 of 1963, formalised by the Presidential Decree of the Republic of Indonesia No. 196 of 1963, dated 23 September 1963. Initially, Universitas Brawijaya was a private institution, with its origins tracing back to 1957. It began with two faculties: the Faculty of Law and the Faculty of Economics, which were branches of the private Sawerigading University in Makassar. Subsequently, on 10 May 1957, it became Universitas Kotapradja, and on 28 May 1957, the Malang Higher Education Foundation was established.

The Foundation inaugurated the Higher School of Law and Social Sciences (PT HPM) on 1 July 1957. Students and lecturers at PT HPM comprised former students and faculty from the Faculty of Law, Universitas Sawerigading. On 15 August 1957, another foundation, the Malang Higher Education Foundation for Economics, established the Higher School of Economics Malang (PTEM). PTEM later merged with PT HPM, and on 19 July 1958, the Malang City Council recognised PT HPM as a municipal institution. On the third anniversary of PT HPM on 1 July 1960, the name Universitas Kotapradja Malang was officially adopted. Subsequently, the Faculty of Business Administration (FAN) was established on 10 November 1960.

During the first anniversary celebration of Universitas Kotapradja Malang, the university was renamed Universitas Brawijaya by the President of Indonesia through a cable No. 258/K/1961 dated 11 July 1961. On 3 October 1961, PTEM was merged into a new foundation, Yayasan Universitas Malang. At that time, Universitas Brawijaya comprised four faculties: the Faculty of Law and Social Sciences (formerly PT HPM), the Faculty of Economics (formerly PTEM), the Faculty of Business Administration (FAN), and the Faculty of Agriculture (FP). To secure state university status, Universitas Brawijaya established a new faculty, the Faculty of Veterinary Medicine and Animal Husbandry (FVM P), on 26 October 1961.

With the Ministerial Decree No. 92 dated 1 August 1962, the Faculty of Agriculture and FVM P were granted state university status under Universitas Airlangga, effective from 1 July 1962. Meanwhile, in Probolinggo, the Probolinggo Higher Education Foundation established a Marine Fisheries Department on 28 October 1961, which later became part of FVM P under Ministerial Decree No. 163 of 1963 dated 25 May 1963. The Department of Fisheries has since evolved into the Faculty of Fisheries and Marine Sciences. On 5 January 1963, Universitas Brawijaya achieved state university status through Ministerial Decree No. 1 of 1963. The Faculty of Agriculture and FVM P, previously under Universitas Airlangga, were returned to Universitas Brawijaya, with the date marking the

official anniversary (Dies Natalis) of Universitas Brawijaya.

On 3 February 1972, the Probolinggo Marine Fisheries Department was incorporated into FVM P UB as the Department of Fisheries through Rector's Decree No. 229/Pend.5/25-72. The Department of Veterinary Medicine at FVM later transferred to Universitas Airlangga (UA) in Surabaya from August 1972, becoming UA's Faculty of Veterinary Medicine. Some faculty members from the Department of Veterinary Medicine transferred to UA, while others returned to IKIP Biologi Malang, the Animal Husbandry Department, and the Military Service, with some continuing to teach at UB's Faculty of Animal Husbandry. The transfer was partly due to UB lacking a medical faculty, despite Malang having the private STKM (Malang Medical School) in collaboration with IKIP Malang. In 1974, STKM merged into UB as the Faculty of Medicine under Decree 001/O/1974.

On 4 September 2008, Universitas Brawijaya's Veterinary Medicine Program (PKH-UB) received permission from the Directorate General of Higher Education No. 2953/D/T/2008 to conduct Bachelors of veterinary medical education (BVM). The establishment of the Professional Education of Veterinary Medicine Study Program (PEVM) is a joint responsibility between the university and the Indonesian Veterinary Medical Association (IVMA). The Professional Education of Veterinary Medicine Study Program is a professional course following the undergraduate veterinary degree, overseen by the Joint Committee for the National Veterinary Competency Examination. This committee organises competency exams for veterinary graduates to obtain veterinary medical authority, with the first exam conducted on 21 June 2010. On 11 April 2016, the Veterinary Medicine Program became the Faculty of Veterinary Medicine at Universitas Brawijaya.

## 1.4. Potential Teaching Staff and Educational Facilities

The Faculty of Veterinary Medicine began accepting students in the academic year 2008/2009. The faculty comprises permanent civil servant lecturers and permanent lecturers from Universitas Brawijaya who hold veterinary medical qualifications and postgraduate degrees (both master's and doctoral) in supporting fields. The faculty also includes professors who have served in various faculties within the university. Over time, the faculty has been strengthened with new lecturers who are authorised to teach and experienced practising veterinarians. To optimise teaching efficiency and laboratory facilities, the university has enlisted exceptional lecturers from Institut Pertanian Bogor (IPB) University, Gadjah Mada University, Universitas Airlangga, members of the Indonesian Veterinary Medical Association, the Animal Husbandry and Veterinary Health Service, and veterinarians from various major veterinary centres in East Java.

East Java is a region with significant potential in veterinary sciences, as evidenced by the numerous animal feed, veterinary drug industries, livestock companies, and both government and private institutions in animal husbandry that require veterinary professionals. These veterinary institutions can support the professional education of the Veterinary Medicine Program at Universitas

Brawijaya, such as the Animal Husbandry Service in Malang City, Malang Regency, the Type C Veterinary Health Laboratory, the Major Centre for Artificial Insemination (BBIB), the Major Centre for Agricultural and Animal Husbandry Training, Type B Animal Slaughterhouses (RPH), Village Unit Cooperatives (KUD), East Java Safari Park, Quarantine Services, Zoos, Private Veterinary Practices, Breeding Farms, Poultry Farms, Cattle Fattening Enterprises, Dairy Farms, and other related industries in East Java.

Another reason for the Veterinary Medicine education is to increase the number of veterinary professionals who play a crucial role in public health by ensuring the provision of safe food and anticipating the emergence of zoonotic diseases. In 2003, the emergence of Avian Influenza from a region in East Java exemplified a re-emerging disease. The existence of sea and air port quarantine facilities, with two units in East Java and proximity to Bali—a region threatened by Rabies, Jembrana, and chronic Taeniasis—significantly aids in achieving competency-based veterinary education with a focus on public health and in-depth molecular aspects.

With advances in science and technology, there is a need for further development in molecular and biotechnology fields. To this end, the Veterinary Medicine Program at Universitas Brawijaya is gradually equipping its laboratories and supported by the Central Laboratory for Life Sciences (LSIH), Biotechnology, Biomolecular, and Biomedical laboratories within Universitas Brawijaya as shared laboratory resources.

Collaboration with external parties is established through associations such as the Indonesian Association of Veterinary Medicine Faculties (IAVMF), the Tropical Diseases Centre (TDC) at Universitas Airlangga, the Inter-University Centre (PAU) for Biochemistry and Biotechnology at Gadjah Mada University, Institut Pertanian Bogor (IPB) University, Universitas Airlangga, the National Institute of Health Research and Development (LitBangKes), and the Major Centre for Artificial Insemination (BBIB) in Singosari for research, action studies, and laboratory testing.

The Veterinary Medicine Program at Universitas Brawijaya has received a 'B' accreditation rating from the National Accreditation Board for Higher Education (NAB-HE) in 2011. FVM UB received an "Excellent" accreditation from the national accreditation body, LamPTKes, in 2021. As part of Universitas Brawijaya, a public university with institutional 'A' accreditation, the Program has developed research and teaching initiatives aimed at achieving World-Class University (WCU) status. The Veterinary Medicine Program has initiated development towards WCU by benchmarking against Asian veterinary education and being a member of the South East Asia Veterinary School Association (SEAVSA) and the Asian Association of Veterinary Schools (AAVS).

## 1.5. Vision, Mission, and Objectives of FVM UB

### a. Vision

To become an institution of excellence in producing professional graduates in veterinary

medicine through the strengthening of education, research, and community service with an international perspective, in support of national development.

**b. Mission**

To achieve its stated vision, the Faculty of Veterinary Medicine has established the following mission:

1. To provide high-quality education that adheres to international standards, producing professional graduates.
2. To conduct research that supports the advancement of science and technology in veterinary medicine.
3. To engage in community service activities aimed at improving public welfare and supporting national development.
4. To establish and develop collaborations with various institutions, both domestic and international, to enhance the quality of education, research, and community service.

**c. Objectives**

The objectives of the Faculty of Veterinary Medicine at Universitas Brawijaya are:

To provide high-quality education that adheres to international standards, producing professional graduates.

To conduct research that supports the advancement of science and technology in veterinary medicine.

To engage in community service activities aimed at improving public welfare and supporting national development.

To establish and develop collaborations with various institutions, both domestic and international, to enhance the quality of education, research, and community service.

These objectives are linked to the technical tasks of veterinarians, including:

Diagnosing, preventing, controlling, eradicating, and treating infectious diseases in animals and zoonotic diseases comprehensively and multi-disciplinarily.

Conserving and utilising wildlife for human welfare, environmental conservation, and genetic preservation.

Ensuring the quality and safety of animal-origin food products to safeguard public health through food safety.

Monitoring and controlling the quality, usage, and distribution of veterinary drugs and biological materials.

Enhancing the nutritional quality of animal protein, public health, and environmental health.

Researching and developing science and technology in veterinary medicine.

### 1.5.1 Vision and Mission of Bachelor of Veterinary Medicine Study Program

**a. Vision**

To become a superior and international standard study program based on Pancasila morals which produces Bachelor of Veterinary Medicine with mastery of science and technology in the field of veterinary medicine to realize the welfare of animals, society and the environment.

**b. Mission**

1. Organizing educational learning at the undergraduate level in veterinary medicine which is superior and of international standard in accordance with developments in science and technology, including farm animals, pet animals, wild animals, exotic animals, aquatic animals and laboratory animals.
2. Play an active role in the development of science and technology in the field of sustainable health of farm animals, pet animals, wild animals and aquatic animals to answer the challenges of the dynamic world of veterinary medicine to support the realization of animal, community and environmental welfare.
3. Establish and develop cooperation with various agencies at home and abroad to improve the quality of education.

**c. Objectives**

1. Producing veterinary graduates in accordance with national and international competency standards, who have faith and devotion to God Almighty, have Pancasila morals and noble morals, are adaptive, communicative, and have an entrepreneurial spirit (OBJB-1).
2. Producing innovative work in the field of veterinary medicine that can support improving the welfare of animals, society and the environment (OBJB-2).
3. Producing innovative work in the field of veterinary medicine that is superior and of international standard through multisectoral collaboration to enrich the education process. (OBJB-3)

### 1.5.2 Vision and Mission of Professional Education of Veterinary Medicine Study Program

**a. Vision**

To become a superior and international standard professional study program based on Pancasila morals which produces competent and professional veterinarians to support the realization of animal, community and environmental welfare.

**b. Mission**

1. Organizing superior and international standard professional level educational learning in accordance with developments in science and technology in the field of veterinary medicine.
2. Play an active role in scientific and technological development to answer the needs of dynamic partners in the fields of livestock, pet animals, wild animals and aquatic animals.
3. Developing the competence and professionalism of veterinarians to support the realization of animal, community and environmental welfare.
4. Establish and develop collaboration with various agencies at home and abroad to improve the competency of graduates so they can compete at national and international levels.

**c. Objectives**

1. Producing veterinary graduates who comply with national and international competency standards, who have faith and devotion to God Almighty, have Pancasila morals and noble morals, are independent, professional, adaptive, communicative, and have an entrepreneurial spirit (OBJP-1).

2. Producing veterinary graduates who are able to adapt to scientific and technological developments and play an active role in responding to challenges in the field of veterinary medicine for the welfare of animals, society and the environment (OBJP-2).

3. To become a study program that is trusted by government and industry partners at home and abroad in the field of veterinary professional education (OBJP-3).

In line with the functions of veterinary medicine, the profession addresses issues concerning animals and their diseases (**veterinary function**), relating to security guarantees (**security**), and ensuring safety (**safety**) to prevent risks that may affect health, particularly from animals to humans. This includes ensuring human health, public health, and environmental health by adhering to international guidelines and information.

## 1.6 UB's Role as an Implementing Institution

Within the realm of higher education, the role of the organising institution is crucial in

participating in the provision of veterinary professionals. This includes enhancing Universitas Brawijaya's (UB) role as a leading university by offering opportunities and developing veterinary sciences, making better use of available software and hardware through resource sharing.

### 1.6.1. The Veterinary Medicine Program as an Educational Institution

To realise its vision and mission, Universitas Brawijaya has formulated a strategic plan for the next five years, detailed in the "Strategic Plan of Universitas Brawijaya (Renstra-UB) 2020-2024." By 2019, it is expected that Universitas Brawijaya will have achieved competitiveness at the Asian level in terms of graduate quality and the quality of educational processes, research, and community service. To achieve global competitiveness by the period of 2020-2024, it is necessary to enhance both the facilities and the mindset of the academic community and educational staff, incorporating action research with local wisdom.

The formulation of the Strategic Plan of Universitas Brawijaya 2020-2024 began with a self-evaluation to assess strengths, weaknesses, opportunities, and threats (SWOT), which were then used to develop strategic issues. There are four main issues in the Strategic Plan of Universitas Brawijaya 2020-2024: (1) improving the quality of education, (2) enhancing the quality of research and community service, (3) improving the quality of student and alumni affairs, and (4) enhancing institutional quality and cooperation. For each strategic issue, key performance indicators have been established, accompanied by UB's quality standards for each indicator. These key performance indicators are intended to be part of the evaluation of the successful implementation of the Strategic Plan, thus these indicators should be detailed into programs and activities in the Annual Work Program of the Rector and the Strategic Plan of the Faculty or Department.

The specific benefits of veterinary education at UB include:

1. Enhancing UB's role as a leading university.
2. Providing a resilient and competitive workforce of veterinary professionals, with a focus on local content in public veterinary health and a deep understanding of biomolecular aspects.
3. For the government, it will increase the number of competent and competitive veterinary professionals to meet national needs.
4. Providing opportunities for high school and vocational school graduates to pursue veterinary and professional veterinary education in an integrated manner.
5. Increasing the efficiency of using basic, medical, and clinical laboratories within UB.
6. Providing opportunities for extensive mono-disciplinary and interdisciplinary research on animal diseases related to human and environmental health, including new findings in the veterinary field such as diagnostic tools, prevention, control, treatment, zoonosis, food safety, and in-depth studies in biomolecular fields.

7. Enhancing veterinary health services through clinics, the provision of medicines and biological materials, animal feed, pet boarding, and pet care.

### 1.6.2. The Benefits of the Faculty of Veterinary Medicine for Society

Veterinary Medicine is a discipline that studies the mutual welfare aspects between humans, animals, and the environment, covering diseases, animal husbandry, the quality and safety of food products from livestock, and environmental awareness. The competence-based education offered aims to equip veterinary doctors with the skills to:

1. Prevent, control, eradicate, and treat infectious diseases in animals and zoonotic diseases.
2. Maintain and breed animals, and enhance livestock production and reproduction.
3. Conserve and utilise wildlife for human welfare, environmental conservation, and genetic preservation.
4. Ensure the quality and safety of animal-derived food products and animal by-products.
5. Improve the nutritional quality of animal growth, public health, and environmental health.
6. Monitor and control the quality, use, and distribution of veterinary drugs and biological materials.

Given the broad competencies of veterinary education, the benefits to the community include:

1. Participating in addressing national issues, specifically in maintaining public health by serving as a quality assurance body for healthy, proper, and safe animal-derived food products, and through the eradication and prevention of animal diseases that can be transmitted to humans.
2. The UB Veterinary Clinic is planned to serve as a consultation bureau, offering pet food and medication sales, health services, pet grooming, and boarding.
3. Providing professional veterinary expertise in various fields, such as in the military and police, diagnostic laboratories, abattoirs, the Department of Education, the Department of Agriculture, the Directorate General of Quarantine, the pharmaceutical industry, the conservation of protected animals, zoos, livestock enterprises, the animal feed industry, and related companies that require specific skills.

## 1.7. Student Candidate

The students of the Faculty of Veterinary Medicine are graduates from secondary schools specialising in natural sciences, including both general high schools (SMU) and relevant vocational schools (SMK).

## 1.8. Job Prospects Available for Graduates

The field of veterinary professions, as compiled by the OIE from 110 countries, is extensive,

ranging from veterinary authority roles to various other related fields, including public health. The findings from the OIE's research are detailed in Table 1.1.

**Table 1.1. Field of Work for the Veterinary Profession according to OIE (2007)**

| | | | |
|---|---|---|---|
| 1 | Food Technology | 18 | Livestock and Animal Products |
| 2 | Food Inspection | 19 | Aquaculture |
| 3 | Food Hygiene | 20 | Wildlife |
| 4 | Consumer Protection | 21 | Environmental Protection |
| 5 | Laboratories | 22 | Nutrition |
| 6 | Legislation | 23 | Parasitology |
| 7 | Artificial Breeding | 24 | Teaching |
| 8 | Zoos | 25 | Research and Development |
| 9 | Laboratory Animals | 26 | Livestock Marketing |
| 10 | Animal Welfare | 27 | Publications |
| 12 | Veterinary Medicine | 29 | Import Animal Production |
| 13 | Clinical Health Care | 30 | Livestock Industry Organizations |
| 14 | Disease Control | 31 | Organisations |
| 15 | Exotic Diseases | 32 | International Cooperation |
| 16 | Epidemiology | 33 | Professional Organizations |
| 17 | Quarantine | | |

### 1.8.1 Graduate Profile and Description

**Table 1.2: Graduate Profile and Job Description for Veterinarians**

| | |
|---|---|
| **Clinicians** | A veterinarian is skilled in diagnosing, treating, and preventing diseases in animals according to lege artis principles, with attention to animal welfare, public health, and environmental considerations |
| **Academicians** | A veterinarian who is capable of serving as a professional educator in fields related to veterinary medicine |
| **Researchers** | A veterinarian who have the ability to think critically and analytically, adapt and innovate in the advancement of veterinary medical sciences, and solve veterinary medical problems for the welfare of animals, society, and the environment |
| **Manager** | A veterinarian who is capable of planning, motivating, directing, controlling, and evaluating the execution of tasks for specific goals involving individuals within or between groups to address issues related to the health and welfare of animals, society, and the environment |
| **Entrepreneur** | A veterinarian who is capable of developing entrepreneurship in the field of veterinary medicine |

### 1.8.2 Graduate Learning Outcomes for the BVM Program

Learning outcomes for the undergraduate Program:

1. To accurately diagnose healthy and sick animal conditions through anatomical, physiological, clinical symptoms, pathological changes, and laboratory diagnostic capable of developing entrepreneurship in the field of veterinary medicine techniques according to established standards and practices (COGNITIVE).
2. To design health concepts that protect, secure, and ensure the health and welfare of animals, humans, and the environment through rejection, prevention, control, eradication, and treatment of animal and zoonotic diseases based on applicable legislation in the field of animal health management (COGNITIVE).
3. To propose alternative solutions to problems related to animal health, product quality, and safety, and animal welfare in order to advance animal health, public welfare, and environmental health through promotive, preventive, curative, and rehabilitative actions

(COGNITIVE).

4. To master veterinary sciences to conceptually conclude the conditions of healthy and sick animals (SKILL).
5. To master the concepts of animal health to protect, secure, and ensure the health of the public and the welfare of animals, humans, and the environment (SKILL).
6. To be able to academically justify the development of conceptual designs both independently and in group settings under supervision (AFFECTIVE).
7. To possess high ethical and moral standards, be independent, excel, be responsible, demonstrate leadership, and be able to communicate effectively for veterinary medical purposes both verbally and in writing (AFFECTIVE).
8. To be proficient in biomolecular analysis techniques (COGNITIVE).
9. To be capable of innovating within the field of veterinary medicine in alignment with advancements in biotechnology (COGNITIVE).
10. To establish and engage in interdisciplinary academic collaborations (AFFECTIVE).
11. To have a foundational understanding of technopreneurship (AFFECTIVE).

### 1.8.3 Program Learning Outcomes (PLO) for the PEVM

Learning outcomes for the Professional Education of Veterinary Medicine Study Program (PEVM):

1. To diagnose animal diseases, plan and execute medical and dietary nutritional interventions for animals (SKILL).
2. To oversee the safety and quality of animal products, and the quality control of veterinary medicines and biological materials, including their usage and distribution through the application of science and technology in veterinary medicine, product quality, animal welfare, and health systems (SKILL).
3. To make medical decisions, write prescriptions, prepare medical records, issue medical certificates, and engage in communication, education, and information sharing with clients, while applying veterinary legislation and regulations to ensure animal health (SKILL).
4. To have a thorough understanding of veterinary medicine concerning safety, security, assurance, and animal welfare, and to deliver healthcare through medical actions (promotive, preventive, curative, and rehabilitative) and integrative communication as a means of ensuring animal health, welfare, and food safety (SKILL).
5. To be accountable for medical actions according to established standards, both independently and in group settings, based on diagnostic decisions (AFFECTIVE).

6. To exhibit leadership and entrepreneurial skills, communicate effectively, work independently and in teams, adhere to veterinary ethics, oaths, and codes of conduct, and demonstrate high levels of professionalism (AFFECTIVE).
7. To be capable of applying biomolecular analysis techniques (SKILL).
8. To implement Good Manufacturing Practices (GMP) within veterinary-related industries (AFFECTIVE).
9. To undertake actions to safeguard the veterinary profession (AFFECTIVE).

## 1.9 Program Flexibility as a Role of Quality Assurance

Self-evaluation of the presence and function of veterinarians is assessed based on the achievement of graduate profiles and the competencies of the **Manusya Mriga** graduates, which have been established professionally through the following review:

**1.9.1 Medical Aspects** : Specialised veterinary skills for health interventions, obtained through education at veterinary schools with inherent authority.

**1.9.2 Medical Profession**: Veterinarians are categorised as a "noble profession" prioritising humanity above personal gain.

**1.9.3 Medical Ethics :** The values applied to medical actions that define malpractice and ethical conduct.

The review encompasses both animal and human aspects **(wildlife management)** which can be interpreted as follows:

**Animal Aspect**: Restoring the health of sick animals and ensuring that diseases carried by these animals do not pose a threat to other animal groups and the environment.

**Human Aspect**: Enhancing community welfare by mitigating health risks and losses caused by infectious and zoonotic animal diseases, whether originating from live animals or animal products.

One of the ways veterinarians demonstrate their role is by fulfilling the objective of saving animals as Earth's resources in every country. Therefore, the OIE views the involvement of government components, veterinary education communities, veterinary professional organisations, and other veterinary organisations as crucial. Even with the slogan "One World One Health," the veterinary profession continues to collaborate with both medical and health science disciplines.

As a reinforcement for establishing existence, new regulations from the OIE were introduced with the global agreement in 2006 concerning the Veterinary Statutory Board, defined as an autonomous authority for regulating the professional status of veterinarians and veterinary para-

professionals with formal legal standing. Nationally, this role is undertaken by IVMA as the Veterinary Statutory Board (Council) and the certification of professions recognised and agreed upon by Deans of Veterinary Faculties throughout Indonesia. Consequently, learning outcomes can be maintained as expected competencies.

## 1.10 Improvement of Higher Education Resource Utilization

Veterinary sciences are utilised to address issues related to animal care and their diseases (veterinary functions), concerning security guarantees and including the avoidance of risks that could compromise health (safety), both from animal-to-animal and, importantly, from animal-to-human, with the aim of ensuring human health, public health, and environmental health in accordance with international guidelines and information. This includes managing issues such as avian influenza, anthrax, Mad Cow disease, and various other threats to public well-being.

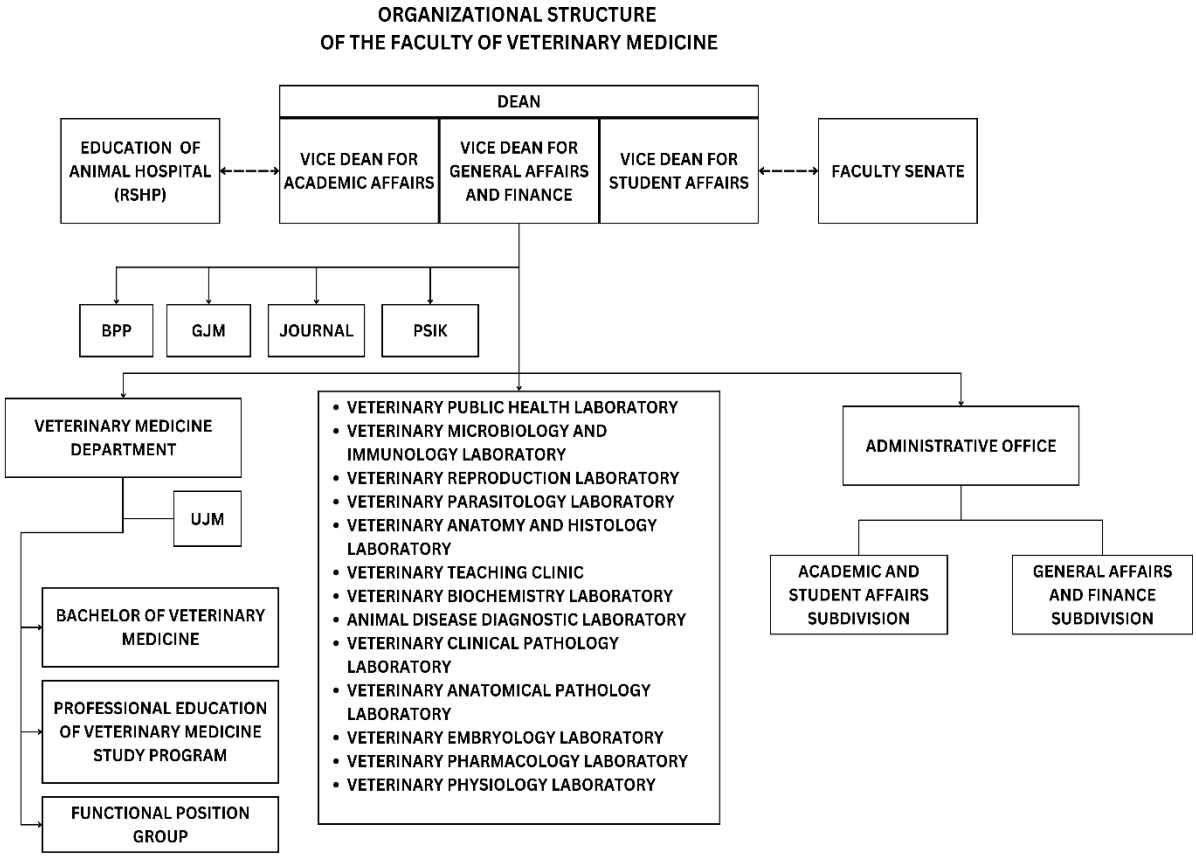
Regarding formal legality, the development and application of veterinary science in the context of national development in the Republic of Indonesia has been reinforced by Law No. 18 of 2009 on Animal Husbandry and Veterinary Health. Consequently, the strength of veterinary medical authority in the development and implementation based on higher education resources is further solidified.

# CHAPTER II
# RESOURCES

## 2.1. **Executive Elements and Organisational Structure of the FVM UB (2020-2024)**

| | |
|---|---|
| Patron | : Rector of Universitas Brawijaya |
| Advisors | : Vice Rector I<br>Vice Rector II Vice Rector III Vice Rector IV |
| Dean | : drh. Dyah Ayu Oktavianie AP., M.Biotech |
| Vice dean of | |
| Academic Affairs | : drh. Fajar Shodiq Permata, M.Biotech |
| Administration and Finance | : drh. Herlina Pratiwi, M.Si |
| Student Affairs and Alumni | : drh. Analis Wisnu Wardhana, M.Biomed |

### Organization Structure of FVM-UB




Based on the structure above, the principal duties and functions of each element are explained as follows:

(1) **The Faculty of Veterinary Medicine, Universitas Brawijaya (FVM-UB),** is an academic executive element responsible for carrying out some of the university's duties and functions.

(2) FVM-UB has the role of coordinating and implementing academic and professional education, as well as conducting research and community service activities.

(3) FVM-UB consists of two study Programs: the Bachelor's Veterinary Medicine Education Program (BVM) and the Veterinary Medicine Professional Program (PEVM), along with the Veterinary Clinic Service Unit.

(4) Faculty of Veterinary Medicine UB (FVM UB) is led by a Dean who is accountable to the Rector.

(5) In carrying out daily tasks, the Dean is assisted by the Vice Deans..

(6) If the Dean is temporarily unable to perform duties, the Vice Dean for Academic Affairs acts as the acting Dean.

(7) **The Senate of the Faculty of Veterinary Medicine** serves to establish and uphold academic ethical values, with the following roles:

a. Formulating academic policies and development plans for FVM-UB
b. Establishing policies for evaluating academic achievements, skills, and personal qualities of the academic community
c. Developing regulations for the implementation of academic freedom
d. Establishing norms, ethics, and benchmarks for FVM-UB's operations
e. Evaluating accountability and implementation of policies carried out by the Dean
f. Providing considerations and approvals for the proposed budget and expenditures of FVM-UB as submitted by the Dean
g. Selecting and providing considerations for faculty members proposed to be Dean, Vice Dean, Department Head/Secretary, and Program Coordinator
h. Upholding the norms applicable to the academic community
i. Providing considerations and approvals for the work Programs during the tenure period and annual work Programs of the Program Coordinators
j. Establishing the implementation details of performance-based management principles and governance
k. Formulating regulations for the implementation of academic integrity, academic freedom, and scientific autonomy at FVM-UB
l. Establishing the code of ethics for faculty members
m. Forming committees composed of Senate members, and if deemed necessary, additional members may be included.

**(8) The Dean's Duties Include:**

a. Formulating and implementing the Strategic Plan to be achieved during their term of office;
b. Preparing the Annual Work Program and Budget for FVM -UB;
c. Conducting the development of higher education according to their competencies;
d. Coordinating and monitoring educational activities;
e. Coordinating and monitoring research activities for the development of science, technology, and/or the arts;
f. Coordinating and monitoring community service activities;
g. Engaging in educational, research, and community service collaborations with other parties, both domestically and internationally;
h. Monitoring and evaluating the implementation of collaborations with other parties;
i. Proposing the awarding of honorary doctorates to individuals who meet the requirements, following the relevant regulations and after receiving Senate consideration;
j. Nurturing the academic community;
k. Managing administrative affairs;
l. Preparing and submitting the Annual Report to the Rector after receiving Senate evaluation.

(9) **The Vice Dean for Academic Affairs'** Duties Include:

a. Assisting the Dean in leading the implementation of academic or educational activities, teaching, research, and community service.
b. Planning, implementing, developing, and evaluating education, research, and community service activities;
c. Mentoring academic staff in academic matters;
d. Reviewing the establishment of new study Programs at various educational levels;
e. Inventorying educational, research, and community service activities;
f. Monitoring and evaluating the learning process each semester;
g. Monitoring and evaluating the student admission system;
h. Controlling the standardisation of academic and professional education quality;
i. Managing data administration in the academic field;
j. Coordinating functionally with the Assistant Rector for Academic Affairs;
k. Preparing and submitting the Annual Report to the Program Coordinator and the Senate in the academic field;
l. Serving as the Management Representative responsible for coordinating the implementation of the quality assurance system within FVM -UB.

**(10) Vice Dean for General Administration and Finance**

has some duties, as follows:

a. Assisting the Dean in leading activities in the areas of general administration and finance;
b. Coordinating with the General Administration and Finance Sub-division;
c. Coordinating and supervising tasks in administration (finance, staffing, and housekeeping);
d. Overseeing the career development and welfare of academic staff, supporting staff, and administrative staff;
e. Managing public relations;
f. Administering data management in general administration and asset management;
g. Coordinating the preparation of the Activity Proposal List, Project Activity List, and Activity List for each work unit;
h. Functionally coordinating with the Vice Rector for General Administration and Finance;
i. Preparing and submitting the Annual Report to the Dean.

**(11) Vice Dean for Student Affairs and Alumni** has some duties, as follows:

a. Assisting the Dean in implementing activities related to student welfare services;
b. Planning, implementing, developing, and evaluating student activities;
c. Promoting student welfare;
d. Enhancing and developing students' interests, talents, and reasoning;
e. Coordinating with the Alumni Association of Universitas Brawijaya;
f. Coordinating and overseeing the maintenance of a positive educational environment on campus and implementing Programs that foster national unity, cohesion, and religious harmony;
g. Functionally coordinating with the Vice Rector for Student Affairs;
h. Preparing and submitting the Annual Report to the Dean.

**(12) Quality Assurance Group (QAG)** is an independent element at FVM-UB that assists the Dean in quality assurance and the preparation of quality assurance documents.

**(13) Research and Community Service Agency (RCSA)** is responsible for developing and coordinating the implementation of research and community service activities at FVM -UB, as well as facilitating the dissemination of information and coordination of these activities.

**(14) Journal unit** at the Faculty of Veterinary Medicine is responsible for managing the Journal of Veterinary Medicine, which serves as a publication platform for research articles by lecturers and students both within and outside the Faculty of Veterinary Medicine.

**(15) Information Systems and Computer Unit (ISCU)** is responsible for coordinating information technology systems, computing, and data processing within the Faculty of Veterinary Medicine.

**(16) Department of Veterinary Medicine** is tasked with coordinating the implementation of education and teaching in the Veterinary Medicine Education Program and the Veterinary Medicine Professional Program in accordance with the prevailing regulations.

**(17) Head of Study Program** is responsible for implementing educational and teaching policies in accordance with the respective educational Programs and applicable regulations. The specific duties of the Program Coordinator include:

a. Developing and implementing educational and teaching Programs;
b. Organising and conducting examinations;
c. Supervising and evaluating the implementation of education and teaching;
d. Evaluating and developing the study Program curriculum;
e. Assigning Academic Advisors and Research Supervisors for students;
f. Providing monthly/annual reports to the Dean;
g. Developing staff training and development Programs.

**(18) Head of General Administration** is an operational leadership element responsible to the Program Coordinator, with duties including:

a. Studying and informing regulations in administration, academic, and student affairs to ensure compliance and implementation;
b. Managing administrative, academic, and student affairs data;
c. Planning the management of archives and correspondence at FVM -UB;
d. Developing housekeeping, equipment, and work plans for FVM -UB;
e. Scheduling and organising meetings and official ceremonies within FVM -UB;
f. Managing personnel and financial affairs;
g. Administering Education, Research, Community Service, Student Affairs, and Alumni Relations activities within FVM -UB.

**(19) Head of the Academic and Student Affairs Subdivision,** has the responsibilities include:

a. Operating the university's academic information and administration systems;
b. Monitoring and evaluating the implementation of academic activities;
c. Operating the university's student affairs information and administration systems;
d. Providing information services about job markets and acting as a service centre for employment opportunities;
e. Operating the university's alumni information and administration systems.

**(20) Head of the General Administration and Finance Subdivision,** has the responsibilities include:

a. Assisting leadership in the formulation of the Strategic Plan;
b. Preparing the implementation documents for the PKH-UB Budget;
c. Managing the income and expenditure of PKH-UB;
d. Administering PKH-UB's cash management;

e. Managing PKH-UB's accounts receivable and payable;
f. Formulating policies for the management of goods, fixed assets, and investments at PKH-UB;
g. Operating the PKH-UB financial management information system;
h. Conducting accounting and preparing financial reports for PKH-UB;
i. Operating the personnel information and administration systems at PKH-UB;
j. Managing equipment and buildings, including campus security, cleanliness, and aesthetics;
k. Procuring and maintaining fixed assets and goods at PKH-UB;
l. Operating the fixed assets and goods information and administration systems at PKH-UB.

**(21) Coordinator of the Veterinary Clinic** has the responsibilities include:

a. Coordinating and evaluating the implementation of medical and non-medical services for animals;
b. Developing the quality and range of services at the veterinary clinic, including house calls and inpatient care;
c. Enhancing the role of the veterinary clinic as a facility for education, research, and community service in the field of animal health

**(22) Head of the Laboratory** has the responsibilities include:

a. Providing laboratory services for practical activities for teaching staff and students, whether for educational, teaching, research, or community service purposes;
b. Preparing laboratory support facilities;
c. Developing practical manuals for students;
d. Formulating development Programs for laboratory facilities according to the needs and advancements in science and technology;
e. Being responsible for the maintenance of laboratory facilities;
f. Providing monthly reports to the direct supervisor.

## 2.2. Teaching Staff/Lecturers

As of the 2020/2021 academic year, the number of lecturers responsible for course instruction totals approximately 117 individuals. These lecturers hold qualifications ranging from Professorships, Doctorates, and Master's degrees to Veterinary Medicine professional qualifications. Among these, 43 are permanent lecturers at the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM UB), comprising both civil servants and non-civil servant permanent lecturers. The permanent faculty members at FVM UB include with 31 with Master's degrees (S2) and 12 with Doctorates (S3). The permanent faculty also includes staff members from various faculties within Universitas Brawijaya, such as the Faculty of Medicine, Faculty of Mathematics and Natural Sciences, and Faculty of Animal Husbandry. Additionally, support is provided by faculty members from FVM UA, FVM UGM, and FVM IPB, as well as from partner stakeholders.

The adjunct teaching staff comprises senior lecturers from Universitas Airlangga (UA), Universitas Gadjah Mada (UGM), and Institut Pertanian Bogor (IPB), as well as veterinarians from relevant government agencies, the Indonesian Veterinary Medical Association (IVMA), and veterinarians active in industry. In accordance with Law No. 20/2003 on the National Education System, the activities of the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM -UB), are based on the Tri Dharma of Higher Education, which encompasses education and teaching, research, and community service.

## 2.3. Administrative Staff

The operations of FVM -UB are supported by administrative staff according to their respective competencies. This includes graduates from high school (SMA), associate degrees (D3), bachelor's degrees (S1), and master's degrees (S2) in the following roles:

1. Head of Administrative Affairs, overseeing:
   a. Subdivision of Academic and Student Affairs and staff
   b. Subdivision of General and Financial Affairs and staff
2. Administrative Staff:
   General Administration
   Operational Staff
   Cleaning Staff for the Clinic and Animal Care

The administrative staff requirements will be met progressively according to the needs of the educational support staff.

## 2.4. Facilities and Infrastructure

The readiness of the facilities and infrastructure available for educational processes includes the following:

### 2.4. 1 Table 2.1. Facility Space Allocation

| No | Facility | Total |
|---|---|---|
| 1 | Lecture Room | 12 |
| 2 | Leadership Room | 4 |
| 3 | Administration Room | 4 |
| 4 | Lecturer Room | 25 |
| 5 | Waiting Room | 2 |
| 6 | Reading Room | 1 |
| 7 | Meeting Room | 3 |
| 8 | QAC and QAU Room | 1 |
| 9 | RCSA/Research and Community Service Agency Room | 1 |
| 10 | VBCJ Journal Room | 1 |
| 11 | Examination Room | 4 |
| 11 | Laboratory | 14 |
| 12 | Computer Room | 1 |
| 13 | Veterinary Clinic | 1 |

Each lecture room is equipped with supporting teaching and learning equipment, including LCD projectors, overhead projectors (OHP), laptops/computers, whiteboards, and other necessary tools.

### 2.4. 2 Table 2.2.Facilities of the Veterinary Teaching Hospital and Veterinary Teaching Clinic

| No | Facility | Veterinary Teaching Hospital | Veterinary Teaching Clinic |
|---|---|---|---|
| 1 | Examination Room | 4 | 3 |
| 2 | Operating Room | 2 | 1 |
| 3. | Sample Examination Room | 1 | 1 |
| 4 | Medication Preparation Room | 1 | 1 |
| 5 | *Grooming Room* | 1 | 1 |
| 6 | Inpatient Room | 6 | 6 |
| 7 | Open Field | 1 | 1 |
| 8 | Waiting Room | 2 | 1 |
| 9 | On-Duty Doctor's Room | 4 | 1 |
| 10 | Clinic Vehicle | 1 | 1 |

**Table 2.3. Laboratories (Dieng, Campus 2)**

1. Veterinary Public Health Laboratory
2. Veterinary Microbiology and Immunology Laboratory
3. Veterinary Reproduction Laboratory
4. Veterinary Parasitology Laboratory
5. Veterinary Anatomy and Histology Laboratory
6. Veterinary Teaching Hospital
7. Veterinary Biochemistry Laboratory
8. Animal Diseases Diagnostic (ADD) Laboratory
9. Veterinary Clinical Pathology Laboratory
10. Veterinary Anatomical Pathology Laboratory
11. Veterinary Embryology Laboratory
12. Veterinary Pharmacology Laboratory
13. Veterinary Physiology Laboratory

### 2.4. 3 Table 2.4. Field Laboratories

| No | Name of Supporting Laboratory | Collaboration with |
|---|---|---|
| 1 | Reproductive Technology | BBIB |
| 2 | Pregnancy Diagnosis | KUD, RPH |
| 3 | Artificial Insemination | KUD. BBIB, RPH |
| 4 | Wildlife Care | Taman Safari Indonesia, Prigen |
| 5 | Teaching Farm | Faculty of Animal Husbandry, Universitas Brawijaya |

# CHAPTER III
# CURRICULUM

The scope of veterinary science includes the application of medical sciences covering promotive, preventive, curative, and rehabilitative aspects, as well as the professional guidelines of medicine (code of ethics and the veterinarian's oath). The science and guidelines of medicine aim to prevent the misuse of knowledge and expertise (malpractice and unethical conduct) that could harm and disadvantage the public.

Veterinary sciences are used to handle matters concerning animals and their diseases (veterinary functions) related to security assurance. This includes avoiding risks that could compromise safety from animal to animal and, especially, from animal to human. The aim is to ensure human health, public health, and environmental health by adhering to guidelines/laws, the veterinary profession's code of ethics, and international information.

## 3.1 Standards of Competence for Indonesian Veterinarians

Competence is specifically one of the foundational elements for establishing the authority of the veterinary profession, which includes veterinary authority in protecting the community and all biological natural resources through the national animal health system (Siskeswanas).

The Faculty of Veterinary Medicine at Universitas Brawijaya (FVM -UB) is designed with the formulation of its vision, mission, and objectives, which are implemented into a competency-based curriculum. The educational system for the Veterinary Medicine Program operates similarly to other study Programs within the faculties of Universitas Brawijaya, conducting lectures through the Semester Credit System (SKS). This system is based on Law No. 20 of 2003 on the National Education System, Government Regulation 60/1999 on Higher Education, and the Decree of the Minister of National Education No. 056/U/1994 on Guidelines for the Implementation of Higher Education Processes under the Semester Credit System.

The curriculum for the Veterinary Medicine Program is based on the Decree of the Minister of National Education and Culture No. 232/U/2000 on Guidelines for the Development of Higher Education Curricula and Student Learning Outcome Assessment, and the Decree of the Minister of National Education of the Republic of Indonesia No. 045/U/2002 (Core Curriculum for Higher Education) on the nationally applicable curriculum. The Veterinary Medicine Education Program consists of an International Curriculum, which is the Standard Curriculum, the Supporting Curriculum, and Local Content that is tailored to the needs of stakeholders.

User needs align with the established vision and mission. These needs will be met through competency-based learning reflected in the curriculum structure. The Competency Standards for graduates of the Veterinary Medicine Study Program, as agreed upon at the Indonesian Veterinary Medicine Education Workshop on 4 February 2005 in Bogor, are as follows:

1. Having insight in the field of Veterinary Ethics
2. Having insight in the field of the national animal health system
3. Having skills to perform lege artis medical procedures
4. Having skills in handling various diseases in large animals, small animals, poultry, exotic animals, wildlife, aquatic animals, and laboratory animals
5. Having skills in performing:
    a. Clinical, laboratory, and epidemiological diagnosis of animal diseases
    b. Formulating nutrition for health and medical disorders
    c. Antemortem and postmortem examinations
    d. Pregnancy examination, handling reproductive disorders, and applying reproductive technology
    e. Supervision of the safety and quality of animal products
    f. Supervision and control of the quality of veterinary drugs and biological materials, including their use and distribution
    g. Assessment and supervision of animal welfare
6. Having professional skills and communication
7. Having the ability to manage control and rejection of strategic diseases and zoonoses, animal biosecurity, and environmental control.
8. Having the capacity in "therapeutic transactions," conducting anamnesis, medical records, informed consent, prescription writing, medical certificates, and client education.
9. Having basic knowledge of veterinary economic analysis and an entrepreneurial spirit.

## 3.2. Establishing Competence of UB Veterinarians as Quality Assurance

The competence of veterinarians is necessary to determine the minimum skill standards for Veterinary Medicine graduates. Therefore, it is necessary to evaluate prospective graduates, conducted by each Faculty of Veterinary Medicine (FVM), referring to the regulations of the FVM consortium throughout Indonesia and the professional organisation within the Veterinary Medicine Professional Education Council (MP2KH).

According to the Decree of the Minister of National Education No. 045/U/2002, competence is "a set of intelligent, responsible actions possessed by an individual as a requirement to be considered capable by society in carrying out their duties in a particular field of work." In other words, it must encompass knowledge, skill, and attitude to form professional capability (Tillman, 1996). Therefore, in developing a competency-based curriculum, it must reflect:

- Abilities that integrate intellectual, psychomotor, and behavioural skills (affective)
- Specificity for each profession, which can be observed and measured
- Dynamic nature in accordance with developments

Therefore, the Veterinary Medicine Education curriculum is designed to remain consistent with the four pillars of higher education: learning to know, learning to do, learning to be, and learning to live together.

Profile of UB Veterinary Graduates as Clinicians, Researchers, Academics, Managers, Entrepreneur. The five profiles of UB Veterinary Graduates meet the requirements: Cognitive (general foundation), Affective (underpinning the Professional Education of Veterinary Medicine (PEVM), and Psychomotor (PEVM, independent), with the aim that their scientific abilities meet the needs of stakeholders. As a specific effort which is the development of the National Curriculum by Council for Veterinary Medical Professional Education (CVMPE/MP2KH), including local content, FVM-UB has established the following competencies:

### 3.2.1 Table 3.1. Program Learning Outcome of the Undergraduate Program in Veterinary Medicine, Faculty of Veterinary Medicine, Universitas Brawijaya

| | |
|---|---|
| **Main Competencies** | |
| Work Capability | |
| 1. | Capability to conclude the condition of healthy and sick animals through anatomical, physiological descriptions, clinical symptoms, pathological changes, and laboratory diagnostic techniques accurately and lege artis to base the diagnosis of animal disease. |
| 2. | Capability to design animal health concepts to protect, secure, and guarantee the health and welfare of animals, humans, and the environment through rejection, prevention, control, eradication, and treatment of animal and zoonotic diseases appropriately based on statutory regulations in the field of animal health administration. |
| 3. | Capability to provide alternative designs for solving problems of animal health, quality, and safety of animal products, as well as animal welfare, to advance animal, community, and environmental health through promotional, preventive, curative, and rehabilitative actions. |
| Knowledge | |
| 4. | Proficient to master the veterinary sciences. In order to conceptually conclude the condition of healthy and sick animals. |
| 5. | Proficient to master the concept of animal health. In order to protect, secure, and guarantee public health and the welfare of animals, humans, and the environment. |
| Attitude | |
| 6. | Capability to be academically responsible for the composition of concept designs independently or in working groups under guidance |
| 7. | Proficient to have high ethics and morals, an independent spirit, excel and be responsible, have a leadership spirit, and be able to communicate for veterinary medical needs verbally and in writing. |
| **Supporting Competencies** | |
| 8. | Capability to become a graduate who masters biomolecular analysis techniques. |
| 9. | Proficient to innovate in the veterinary medical field in line with advances in biotechnology. |
| 10. | Capable of creating interdisciplinary academic collaboration.. |
| 11. | Capable of having the basics of entrepreneurial knowledge |

**Table 3.2. Program Learning Outcome of the Professional Program in Veterinary Medicine, Faculty of Veterinary Medicine, Brawijaya University**

| | |
|---|---|
| **Main Competencies** | |
| Work Capability | |
| 1. | Proficient to diagnose animal diseases, plan, and make decisions on implementing medical and dietetic nutritional procedures on animals. |
| 2. | Competent to supervise the quality safety of animal products and control the quality of animal medicines and biological materials, including their use and distribution, through the application of science and technology in the fields of veterinary medicine, product quality safety, and animal welfare, as well as animal and environmental health systems. |
| 3. | Competent to make medical decisions, write prescriptions, compile medical records, make doctor's certificates, communicate, educate, and provide information to clients, and be able to implement veterinary legislation through applicable laws and regulations to realise animal health. |
| Knowledge | |
| 4. | Mastering veterinary science in accordance with the veterinary profession, namely safety, security, assurance, and animal welfare, as well as health services through the ability to carry out medical actions (promotive, preventive, curative, and rehabilitative) and carry out integrative communication as an effort to guarantee animal health and welfare and quality food products of animal origin. |
| Attitude | |
| 5. | Proficient to take responsibility for medical actions as a lege artist, both independently and in groups, for the diagnostic decisions they make. |
| 6 | Competent to have a leadership and entrepreneurial spirit, be able to communicate, work independently or in groups, apply veterinary ethics, the oath and code of ethics for veterinarians, and demonstrate high professionalism. |
| **Supporting Competencies** | |
| 7. | Competent to apply biomolecular analysis techniques. |
| 8. | Proficient in implementing good manufacturing practices (GMP) in companies related to the veterinary sector. |

| | |
|---|---|
| 9. | Capability to take action to protect the veterinary profession. |

## 3.3. Curriculum of Bachelors of Veterinary Medicine (BVM)

In the establishment of new Bachelors of Veterinary Medicine (BVM) programs, it has been firmly decided that there are two critical aspects related to this field, alongside the roles and responsibilities of the Indonesian Veterinary Medical Association (IVMA) and the Professional Education of Veterinary Medicine Study Program (PEVM) as Program references:

1. Technical requirements for Program initiation adhere to government regulations set by the Directorate General of Higher Education, encompassing faculty quality and quantity, curriculum, physical facilities, and budget.
2. Professional substance requirements for veterinary medicine fall under the authority of the IVMA.

To implement agreements between IVMA and veterinary faculties across Indonesia, aimed at achieving standards and competencies in veterinary education, all veterinary faculties in Indonesia are required to apply the National Veterinary Medicine Curriculum of Indonesia. To enhance the quality of knowledge, skills, and competencies of students, each educational institution is granted the authority to incorporate local content into the curriculum. Graduates of the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM UB) are designed to possess specialised competencies, emphasising clinical education, research, academia, and technopreneurship with a focus on biomolecular insights .

To meet the nationally agreed competency requirements across all veterinary faculties in Indonesia, and to implement the redesigned curriculum updated every four years, FVM UB has commenced the application of a new curriculum for the 2019/2024 academic year. This new curriculum stipulates that to achieve the degree of Bachelor of Veterinary Medicine (BVM), students must complete 144 credit hours (SCU) over eight semesters. To attain the profession of Veterinarian, students are required to continue with the Professional Education of Veterinary Medicine (PEVM), which involves an additional 37 credit hours. For the Community Service (KKN), students must have accumulated at least 80 SCU (Semester Credit Unit) with a GPA greater than 2, and for the thesis, 120 SKS with a GPA greater than 2. The curriculum is structured according to prevailing regulations, with specific courses designed to achieve the following learning objectives:

### 3.1.1 Table 3.2. Course Material Map Based on Block Courses

**Semester 1**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Basic Veterinary Science I | Histology<br><br>Veterinary Basics I (Cytology and Basic Tissues) | PKH61111 | 2 (1/1) | - |
| | Anatomy (Osteology, Neurology, Angiology, Sensory Organs) | PKH61112 | 3 (2/1) | - |
| | Veterinary Embryology | PKH61113 | 3 (2/1) | - |
| | Basic Genetics and Cell Biology | PKH61104 | 2 (2/0) | - |
| | Ethology | PKH61107 | 1 (1/0) | - |
| | Biochemistry I (Macronutrients and Metabolism) | PKH61116 | 3 (2/1) | - |

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| *Character Building* I | Christian Protestant Religion | MPK60003 | | |
| | Christian Catholic Religion | MPK60002 | | |
| | Budhist Religion | MPK60005 | | |
| | Hindu Religion | MPK60004 | | |
| | Pancasila | MPK60008 | 2 (2/0) | - |
| Basic General Animal Science | General Animal Science | PKH61105 | 2 (2/0) | - |
| **Total Mandatory Course Credits for the Semester 1** | | | **20** | |

**Semester 2**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Basic Veterinary Science II | Anatomy<br><br>Veterinary 2 (Topographic Anatomy) | PKH62211 | 3 (2/1) | PKH61112;<br><br>PKH61113 |
| | Veterinary Physiology 1 | PKH62212 | 3 (2/1) | PKH61112;<br><br>PKH61116;<br><br>PKH61107 |
| | Veterinary Biochemistry II<br><br>(Transport and Signal Transduction Systems) | PKH 62203 | 2 (2/0) | PKH61111;<br><br>PKH61104;<br><br>PKH61116 |
| | Veterinary Histology II<br><br>(Systemic and Comparative) | PKH62215 | 3 (2/1) | PKH61111;<br><br>PKH61112 |
| Microbiology Veterinary I | Microbiology I (Bacteriology and Mycology) | PKH62214 | 3 (2/1) | PKH61111;<br><br>PKH61104 |
| Fundamentals of Animal Science II | Basic Animal Nutrition | PKH62216 | 2 (1/1) | PKH61105;<br>PKH61107 |

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| *Scientific Writing and Skill* I | Indonesian Language | MPK60007 | 2 (2/0) | - |
| *Character Building* II | Citizenship | MPK60006 | 2 (2/0) | - |
| **Total Mandatory Course Credits for the Semester 2** | | | **20** | |

***If eligible for 24 credits, it is recommended to take Entrepreneurship (2 credits) to support the UB Student Entrepreneurship Program (PMW) in February-March, and the elective course in Pet Animal Health Management (2 credits).**

## Semester 3:

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Basic Veterinary Science II | Veterinary Anatomy (Comparative Anatomy) | PKH61311 | 3 (2/1) | PKH62215;<br>PKH62211 |
| | Veterinary Physiology II | PKH61312 | 3 (2/1) | PKH62212;<br>PKH 62203 |
| Pre-Clinical Veterinary I | Basic Veterinary Pathology | PKH61313 | 3 (2/1) | PKH62215;<br>PKH 62203 |
| | Veterinary Immunology | PKH61314 | 3 (2/1) | PKH62214;<br>PKH62215 |
| Microbiology<br>Veterinary II | Microbiology II (Veterinary Virology) | PKH61305 | 1 (1/0) | PKH62214;<br>PKH 62203 |
| | Veterinary Parasitology I | PKH61316 | 3 (2/1) | PKH62212;<br>PKH62214 |

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Reproduction<br><br>Veterinary(3) | Physiology and Endocrinology of Reproduction | PKH61307 | 2 (2/0) | PKH62211;<br><br>PKH62212 |
| *Scientific Writing and Skill* II | English | UBU60004 | 2 (2/0) | - |
| **Total Mandatory Course Credits for the Semester 3*** | | | **20** | |

***if allocated 24 credits, it is recommended to take the Statistics course (2 credits) and the Research Methodology course (1 credit) to support the submission of the Student Creativity Program in October-November, as well as the Veterinary Communication and Leadership course (1 credit).**

**Semester 4:**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Veterinary Disease Science I | Veterinary Parasitology | PKH62411 | 3 (2/1) | PKH61316;<br><br>PKH61314 |
| | Bacterial and Mycotic Veterinary Diseases | PKH62404 | 2 (2/0) | PKH62214;<br><br>PKH61314 |
| | Viral Disease | PKH62408 | 2 (2/0) | PKH61305;<br><br>PKH61314 |
| Veterinary Pre-Clinical Science II | Systemic Veterinary Pathology | PKH62412 | 3 (2/1) | PKH61313;<br>PKH61314 |
| | Veterinary Pharmacology I<br><br>(Pharmacodynamics, | PKH62405 | 2 (2/0) | PKH62214;<br><br>PKH61305;<br><br>PKH61316; |

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| | Pharmacokinetics,<br>and Drug Interactions) | | | |
| Veterinary Public Health 1 | Veterinary Public Health and One Health | PKH62403 | 2 (2/0) | PKH62214; |
| *Scientific Writing and Skill* III | Experimental Animal Science | PKH62417 | 2 (1/1) | PKH61311; PKH61313 |
| *Character Building* III | Entrepreneurship | UBU60003 | 2 (2/0) | - |
| | Animal Welfare and Veterinary Bioethics | PKH62406 | 2 (2/0) | PKH61107;<br>PKH62417;<br>PKH62403 |
| **Total Mandatory Course Credits for Semester 4** | | | **20** | |

**Inter-Semester**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Community Service | Community Service Programs (CSP) | UBU60002 | 4 (0/4) | |
| **Total Mandatory Course Credits for Inter-Semester** | | | | |

**Semester 5:**

| Group Course/Credits | Course | Course Code | Credits (Lecture/Practical) | Prerequisites |
|---|---|---|---|---|
| Veterinary Pre-Clinical Science | Pharmacology II (Pharmacotherapy) | PKH61512 | 3 (2/1) | PKH62412; PKH62411; PKH62405 |

| Group Course/Credits | Course | Course Code | Credits (Lecture/Practical) | Prerequisites |
|---|---|---|---|---|
| Veterinary Clinical Science I | Clinical Diagnosis | PKH61511 | 3 (2/1) | PKH61112; PKH62211; PKH61311 |
| | Veterinary Radiology | PKH61515 | 3 (2/1) | PKH61112 PKH62111 |
| Veterinary Public Health II | Food Hygiene | PKH61513 | 3 (2/1) | PKH62403 |
| | Zoonoses | PKH61506 | 2 (2/0) | PKH62411 PKH62404 PKH62408 |
| Veterinary Reproduction II | Reproduction Technology and Artificial Insemination | PKH61514 | 3 (2/1) | PKH61307 |
| *Character Building* IV | Veterinary Legislation | PKH61507 | 1 (1/0) | PKH62403 |
| *Scientific Writing and Skill* IV | Statistics | PKH61508 | 2 (2/0) | - |
| | Research Methodology | PKH61509 | 1 (1/0) | - |
| **Total Mandatory Course Credits for the Semester 5*** | | | **21** | |

***If the Statistics course and the Research Methodology course have already been taken and 24 credits are available, it is recommended to take elective courses.**

**Semester 6:**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Veterinary Clinical Science II | Clinical Pathology | PKH62611 | 3 (2/1) | PKH61511 |
| | Pharmaceutical Science and Veterinary Receptors | PKH62612 | 2 (1/1) | PKH61512 |
| | General Veterinary Surgery | PKH62613 | 3 (2/1) | PKH61511; PKH61512 |

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| | Internal Diseases of Large Animals | PKH62605 | 2 (2/0) | PKH61511; PKH 61512 |
| | Veterinary Toxicology | PKH62604 | 2 (2/0) | PKH61512 |

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| Veterinary Reproduction III | Obstetrics, Reproductive Disorders, and Fertility | PKH62616 | 3 (2/1) | PKH61307; PKH61514 |
| Veterinary Public Health III | Veterinary Epidemiology and Economics | PKH62607 | 2 (2/0) | PKH61506 PKH61508; PKH61509; |
| Veterinary Forensics | Necropsy and Veterinary Forensics | PKH62618 | 2 (1/1) | PKH62412 |
| **Total Mandatory Course Credits for the Semester 6** | | | **19** | |

**Semester 7:**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Veterinary Clinical Science III | Veterinary Clinical Nutrition | PKH61701 | 2 (2/0) | PKH62216; PKH62604; PKH62605 |
| | Clinical Case Interpretation | PKH61702 | 1 (1/0) | PKH62611; PKH62604; PKH62605 |
| | Special Veterinary Surgery | PKH61713 | 3 (2/1) | PKH62613 |
| | Internal Medicine for Small Animals | PKH61704 | 2 (2/0) | PKH61511; PKH61512 |
| Final Project II | Thesis | UBU60001 | 6 (0/6) | Total Credits MK ≥ 120 |
| **Total Mandatory Course Credits for the Semester 7** | | | **14** | |

**Semester 8:**

| Group / Course Credits | Course | Kode MK | SCU/ Credits | Prerequisite |
|---|---|---|---|---|
| Final Project | Thesis | UBU60001 | 6 (0/6) | Total Credits Courses ≥ 120 |
| **Total Mandatory Course Credits for the Semester 8** | | | 6 | |

**Table 3.3. Recapitulation of Elective Course Distribution**

| Course Group/ Credits | Course | Course Code | SCU/ Credits | Prerequisites |
|---|---|---|---|---|
| Odd Semester | | | | |
| Character Building VI | PKH61321 | 1 (1/0) | 3 | MPK4001-5<br>MPK4006<br>MPK4007 |
| Veterinary Technology II | PKH61521 | 2 (2/0) | 5 | PKH61104;<br>PKH62203;<br>PKH62214 |
| | PKH61522 | 1 (1/0) | 5 | PKH62403 |
| | PKH61523 | 2 (2/0) | 5 | PKH61104;<br>PKH62203;<br>PKH62214 |

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| Character Building VII | PKH61524 | 2 (2/0) | 5 | PKH62406 |
| Veterinary Specialisation II | PKH61525 | 2 (2/0) | 5 | PKH61105;<br>PKH61107;<br>PKH62216 |
| | **Total** | **10 credits** | | |
| Even Semester | | | | |
| Field Specialisation Veterinary I | PKH62221 | 2 (2/0) | 2 | PKH61107<br>PKH61311 |
| | PKH62421 | 2 (2/0) | 4 | PKH61105;<br>PKH61107;<br>PKH62216 |
| | PKH62422 | 1 (1/0) | 4 | PKH61105;<br>PKH61107;<br>PKH62216 |
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| | Wildlife Health Management | | 2 (2/0) | 4 | PKH61107<br>PKH61311;<br>PKH62216 |

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| | Aquatic Animal Health Management | PKH62424 | 1 (1/0) | 4 | PKH61107 PKH61311; PKH62216 |
| Veterinary Technology I | Biomolecular Analysis Techniques | PKH62425 | 2 (2/0) | 4 | PKH61104; PKH62203; PKH61314 |
| Veterinary Public Health V | Animal Product Quality Assurance | PKH62621 | 2 (2/0) | 6 | PKH61513 |
| Veterinary Clinical Science IV | Alternative Veterinary Therapy | PKH62622 | 2 (2/0) | 6 | PKH61511; PKH61512 |
| Work Practice | Field Work Practice (FWP) | PKH62623 | 4(0/4) | 6 | Prerequisite: Completion of 110 credits |
| **Total** | | | **18 Credits** | | |
| **Total Credits of Elective Courses Offered** | | | **28 Credits** | | |

**Table 3.4. Description and Learning Outcomes of the PSKH-UB Course**

**A. Semester 1**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Veterinary Histology 1 (Cytology and Basic Tissues) | PKH61111 | 2 (1-1) | This course covers the structure of cells, intracellular and extracellular conditions, and the four basic tissues: epithelial, connective, muscle, and nervous tissues. Additionally, it includes explanations on the differentiation of connective tissues such as blood, cartilage, and bone. The course also includes practical sessions on basic tissues including simple and complex epithelium, connective tissue proper, blood cells, cartilage, bone, muscle, and nerve. The composition of lectures and practicals is 1:1 credits. | Upon completing the course Veterinary Histology 1 (Cytology and Basic Tissues), students will be able to:<br><br>Knowledge Area:<br>1. Understand the basic structure of cells, intracellular and extracellular environments, and the four basic tissues as well as their differentiation.<br>Skills Area:<br>1. Apply the correct techniques for using a microscope.<br>2. Observe various types of basic tissues and their differentiation.<br>Managerial Skills Area:<br>1. Complete assignments accurately and on time.<br>2. Understand histology textbooks.<br>Attitudes Area:<br>1. Recognise the grandeur of the |

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| | | | | | Creator in living organisms.<br>2. Collaborate effectively with peers. |
| 2 | Veterinary Anatomy 1 (Osteology, Neurology, Angiology, Sensory Organs) | PKH61112 | 3 (2-1) | This course provides an in-depth examination of bone structure (osteology), the anatomy of the nervous system (neurology), the circulatory system (angiology), and the anatomy of sensory organs. | After completing the courses in Osteology, Neurology, Angiology, and Sensory Organs (Veterinary Anatomy 1), students are expected to:<br><br>Knowledge Area:<br><br>1. Be able to understand the anatomical structure of bones, identify the various formations present, and their functions.<br>2. Be able to understand the anatomy of the nervous system, including its divisions, locations, and pathways.<br>3. Be able to understand the anatomy of the heart, its divisions, blood vessels, and the parts of the heart. |

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| | | | | | 4. Be able to distinguish between the anatomy of arteries and veins.<br>5. Be able to describe the sequential flow of arteries and veins, and the organs supplied by blood.<br>6. Be able to understand the anatomy of sensory organs, including Hearing, Smell, Taste, Touch, and Vision |
| 3 | Veterinary Embryology | PKH61113 | 3 (2-1) | This course covers the processes of fertilisation, the formation of the zygote, implantation, placentation, abnormalities in gestation, embryo development, and abnormalities in embryo development (congenital malformations). | After completing the course in Veterinary Embryology, students are expected to:<br><br>Knowledge Area: (1) Be able to explain the development (theories of embryology that have evolved) and the application of embryological knowledge.. (2) Be able to describe male gametes and spermatogenesis. (3) Be able to describe female gametes and oogenesis. (4) Be able to explain the female genital cycle (ovarian cycle and uterine cycle). (5) Be able to outline the processes of fertilisation, egg types, cleavage types, and zygote development in mammals, birds, and amphibians. |

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| | | | | | 6) Be able to describe the processes of implantation and placentation, including various types of placenta. (7) Be able to describe the extraembryonic membranes (amnion, chorion, and allantois) and the umbilical cord. (8) Be able to interpret pseudopregnancy, ectopic pregnancy, and multiple gestation. (9) Be able to explain the organogenesis of various organ systems in the body. (10) Be able to interpret teratogenesis and congenital malformations. |
| 4 | Fundamentals of Genetics and Cell Biology | PKH61104 | 2 (2/0) | This course covers topics related to proteins as one of the macromolecules constituting the cell, biological processes including anabolism and catabolism, types of signalling, intracellular receptors, cell surface receptors, initiation and amplification of intracellular signals, and transport systems, both active and passive. Additionally, the course discusses cell cycle, mitosis (karyokinesis), cytokinesis, | After completing the course in Animal Breeding (Animal Breeding Management), students are expected to:<br><br>Knowledge Area:<br><br>Be able to understand the basic theories of cells supported by evidence from cell evolution theories (Developmental Biology), and explain and differentiate various cell structures, types, and components of eukaryotic and prokaryotic cells. |

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| | | | | meiosis, basics of gene expression, the structure and function of plasmids in genetic engineering, and principles of recombinant product engineering in the pharmaceutical industry. | 2. Be able to understand the structure and function of cellular organelles.<br>3. Be able to understand the molecular mechanisms of membrane transport (endocytosis and exocytosis).<br>4. Be able to understand the mechanisms of transcription and translation, including elongation and termination, the function of transcription factors, and the role of transcription activators.<br>5. Be able to understand transcriptional control by DNA-protein binding, the action of transcription factors, gene regulation mechanisms, DNA methylation, and epigenetic mechanisms in gene expression regulation.<br>6. Be able to understand cell signalling principles, signalling through G protein-coupled receptors, signalling through enzyme receptors, alternative signalling through gene regulation, and signalling in animal cells. |

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| | | | | | 7. Be able to understand the cell cycle, how cells replicate, the requirements for cell replication, and the process of cell death.<br><br>Managerial Skills Area:<br><br>1. Be able to complete tasks accurately and punctually.<br><br>Attitude Area:<br><br>1. Be able to appreciate the greatness of the Creator in living beings.<br>2. Be able to enhance independent learning capacity.<br>3. Be able to collaborate effectively in groups. |
| 5 | Ethology | PKH61107 | 1 (1/0) | This course explores various aspects of animal behaviour, whether occurring individually or in groups, both in natural contexts and as adaptations to external factors that may alter such behaviour. It also examines the role and function of ethology in the field of veterinary medicine | After completing this course, students will be able to:<br><br>1. Understand and comprehend ethology.<br>2. Understand and comprehend the development of behaviour and the influencing factors. |

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| | | | | | 3. Understand and comprehend ethology in various types of animals, including aquatic wildlife, reptiles, amphibians, poultry, ornamental birds, birds of prey, ruminants, horses, pigs, cats, dogs, and laboratory animals. |
| 6 | Veterinary Biochemistry 1 (Macronutrients and Metabolism) | PKH61116 | 3 (2/1) | This course covers the study of biomolecular components (carbohydrates, proteins, lipids, and nucleic acids) in living organisms, as well as the chemical reactions that occur within these organisms. It addresses biochemical terminology, fundamental principles, and basic information on the chemical structure and properties of cellular components, along with the relationship between structure and function. The course also explores interrelationships in metabolic pathways (carbohydrates, proteins, lipids, nucleic acids, vitamins, minerals, and enzymes), biochemical reactions, and the evaluation of biochemical data. | After taking this course, students will be able to:<br>a. Understand and explain the principles of biochemistry and the role of subcellular organelles.<br>b. Understand and explain the definitions and classifications of chemical structures and the roles of carbohydrates, lipids, proteins, and nucleic acids in living cells.<br>c. Correctly explain the principles of biochemistry along with the related chemical structures.<br>d. Understand and explain the digestion and metabolism of carbohydrates, lipids, and proteins.<br>e. Understand and explain the process of bioenergetics in living cells.<br>f. Understand the processes of the electron transport chain and oxidative phosphorylation. |

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| 7 | Islamic Religion | MPK60001 | 2 (2/0) | The course Islamic Studies is a Personality Development Course (PDC) that examines Islamic teachings as a source of values and guidelines that guide students in the development of Islamic professions and personalities. | After completing the Islamic Studies course, students will be nurtured in faith and piety, knowledgeable and possessing noble character, and will use Islamic teachings as a basis for thinking and behavior in professional development. |
| | Christian Protestant Religion | MPK60003 | 2 (2/0) | The Christian Religion course is a Personality Development Course (MPK) that studies Protestant Christian Religious Education at higher education institutions. This course is aimed at Protestant Christian students, with the goal of solidifying their personality by living according to their religious teachings. Therefore, the Protestant Christian Religion Course serves as a guide for the personality of every Protestant Christian student in higher education. Protestant Christian students. | Through studying Protestant Christian Religious Education, students will come to know God accurately and correctly, opening their hearts to accept Him as their Lord and Savior, and becoming helpers, leaders, teachers, and those who discern truth and error. By fostering a relationship with our God, students will experience a "Transformation of Christian life values that can solidify their personality." As "Christian intellectuals," students will be able to embody religious values according to their faith and the truth of God's Word in their lives asProtestant Christian students. |
| | Christian Catholic Religion | MPK60002 | 2 (2/0) | The Catholic Religious Education Course is a Personality Development Course (PDC) that discusses the important points of Catholic faith and moral teachings with the aim that students will be able to maturely internalize and apply them in their personal lives, church lives, and social lives, as well as be able to respond to problems. actual problems of the time rationally, critically, and dynamically according to the teachings and example of Jesus Christ. | Students will be able to critically analyze and internalize key aspects of Catholic faith and moral teachings, applying them in personal, ecclesial, and social contexts. They will also develop the ability to respond to contemporary issues rationally, critically, and dynamically, in alignment with the teachings and example of Jesus Christ. |

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| | Buddhist Religion | MPK60005 | 2 (2/0) | The Hindu Religion Course is a Personality Development Course (PDC), which examines Hindu teachings as a source of values and guidelines that guide students in developing their Hindu profession and personality. | After taking the Hindu Religion course, students can develop their faith and Sraddha, gain knowledge, have noble character, and use Hindu teachings as a basis for thinking and behaving in professional development. |
| | Hindu Religion | MPK60004 | 2 (2/0) | Buddhist Religious Education competency aims to master the abilities of critical thinking, rational and dynamic attitudes, broad perspectives as Buddhist humans, intellectuals, and guide students as models of Buddhist religious intellectuals to become scientists with personalities that uphold humanity. | Students will be able to critically analyze and apply Buddhist principles with a rational and dynamic approach, demonstrating a broad perspective as Buddhist intellectuals. They will develop the ability to serve as role models, integrating Buddhist values into scientific inquiry while upholding humanitarian principles. |
| 8 | Pancasila | MPK60008 | 2 (2/0) | This course examines Pancasila as a fundamental value and state ideology, the system of governance of the Republic of Indonesia through historical, legal, and philosophical perspectives, and explores Pancasila as a paradigm and its application in societal, national, and state life. | After completing this course, students will be able to understand Pancasila as a fundamental value and state ideology, the constitutional system of the Republic of Indonesia through historical, juridical, and philosophical perspectives, as well as comprehend Pancasila as a paradigm and its actualisation in social, national, and state life. |

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| 9 | General Animal Husbandry | PKH61105 | 2 (2/0) | This course covers the types, domestication, characteristics, and productivity of various commercial livestock species. Additionally, it addresses typical housing and breeding practices for different types of livestock. The course comprises 2 credits. | After completing the General Animal Science course, students will be able to:<br><br>Knowledge Area:<br><br>1. Understand the types, domestication, productivity of various livestock animals, and typical housing conditions.<br><br>Managerial Skills Area:<br><br>1. Complete tasks accurately and on time.<br>2. Understand textbooks and PowerPoint presentations on General Animal Science.<br><br>Attitude Area:<br><br>Be able to work cooperatively in a team |
| | Total Credits Semester 1 | | 20 | | |

**B. Semester 2**

| No | Course Title | Course Code | Credits (Lecture/Practical Credits) | Course Description | Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Veterinary Anatomy 2 (Topographic Anatomy) | PKH62211 | 3 (2/1) | This course covers topographic anatomy for regions such as the head, neck, thorax, abdomen, cranial extremities, and caudal | After completing the course in Topographic Anatomy (Veterinary Anatomy 2), students will:<br>1. Be able to understand the topographic anatomy of the head.<br>2. Be able to understand the topographic anatomy of |

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| | | | | extremities | the neck.<br>3. Be able to understand the topographic anatomy of the thorax.<br>4. Be able to understand the topographic anatomy of the abdomen.<br>5. Be able to understand the topographic anatomy of the cranial extremities.<br>6. Be able to understand the topographic anatomy of the caudal extremities. |
| 2 | Veterinary Physiology 1 | PKH62212 | 3 (2/1) | Discusses the basic mechanisms of cell function and the concept of homeostasis, including various physiological systems such as cellular, organ, and systemic homeostasis, nervous system, sensory system, muscular system, endocrine system, body fluid physiology, osmoregulation, and thermoregulation | After completing the course in Veterinary Physiology 1, students will:<br><br>Knowledge Area (Affective):<br><br>Be able to master veterinary medical sciences conceptually.<br><br>Skill Area (Psychomotor):<br><br>1. Be able to deduce whether an animal is healthy or sick based on physiological descriptions to support the diagnosis of animal diseases<br><br>Managerial Skills Area (Leadership):<br><br>1. Demonstrate leadership qualities, effective communication skills, and the ability to work both independently and as part of a team.<br><br>Attitude Area:<br><br>1. Be able to take academic responsibility for conceptual designs both independently and in a group setting under supervision.<br>2. Exhibit high ethics and morals, be self-reliant, excel and be responsible, demonstrate leadership qualities, and be able to communicate effectively |

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| | | | | | for veterinary medical purposes both orally and in writing. |
| 3 | Veterinary Biochemistry 2 (Transport Systems and Signal Transduction) | PKH 62203 | 2 (2/0) | The course covers<br>The material in Veterinary Biochemistry 2 studies The course covers the components, properties, and functions of biological membranes. This material is provided to ensure that students have the competence in knowledge and understanding of membrane structure, function, and biosynthesis in relation to metabolite transport (traffic through membranes, such as hormones, ions, biomolecules) and cell communication via membranes. For competence in intellectual skills, students are expected to use the material provided to analyse the causes of problems or phenomena based on individual data and information. They should also be able to present and argue correctly, both verbally and in writing, about topics related | After completing this course, students will be able to:<br>a. Understand the structure and function of the components of biological membranes.<br>b. Understand the mechanisms of cell communication facilitated by membranes.<br>c. Understand the mechanisms of molecular/ion transport such as symport, uniport, and antiport, active transport, passive transport, facilitated transport, and ligand-receptor transport.<br>Understand the mechanisms of signal transduction, artificial biological membranes, and their applications in the field of veterinary science. |

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| | | | | to biological membranes and distinguish between various transport systems through membranes. | |
| 4 | Veterinary Histology 2 (Systematic and Comparative) | PKH62215 | 3 (2/1) | This course explains the tissue structures in various organ systems of different animal classes (comparative). The organ systems studied include the digestive system and accessory organs, cardiovascular system, lymphatic system, respiratory system, nervous system, integumentary system, endocrine system, male and female reproductive systems, and urinary system, comparing mammals, avians, reptiles, and fish. The course and practical sessions are structured with a 2:1 credit ratio | After completing the course in Systematic and Comparative Histology (Veterinary Histology 2), students will:<br><br>Knowledge Area:<br><br>1. Be able to understand the tissue structure in organs of each system and compare it across animal classes.<br><br>Skill Area:<br><br>1. Be proficient in using a microscope correctly.<br>2. Be able to observe various tissue structures in organs per system and compare them across animal classes (mammals, avians, reptiles, and fish).<br><br>Managerial Skills Area:<br><br>1. Be able to complete tasks accurately and on time.<br><br>2. Be able to understand histology textbooks. |

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| | | | | | Attitude Area:<br>1. Be able to appreciate the greatness of the Almighty God in living creatures.<br>2. Be able to collaborate effectively with peers. |
| 5 | Microbiology 1 (Bacteriology, Mycology) | PKH62214 | 3 (2/1) | The course covers the history of microbial development (bacteria and fungi) and their applications in veterinary medicine, fundamental life aspects (morphology, growth, metabolism, genetics, pathogenesis, and control methods, as well as types of treatment), including isolation and identification methods. | 1. Be able to explain the taxonomy of various types of bacteria and fungi, and perform simple determination based on morphology.<br>2. Be able to recognise microbes (bacteria and fungi) from the perspectives of metabolism, genetics, and growth characteristics.<br>3. Be able to explain the pathogenesis of infectious diseases caused by bacteria and fungi in general.<br>4. Be able to identify beneficial fungi and those that cause diseases.<br>5. Be able to list and explain methods for controlling microorganisms.<br>6. Be able to list antimicrobial agents.<br>7. Be able to recognise and prepare bacterial and fungal growth media.<br>8. Be able to perform isolation and identification of bacteria and fungi. |

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| 6 | Basic Animal Nutrition | PKH62216 | 2 (1/1) | The course covers various types of feed and their nutrient values. Additionally, it explains feeding standards for animals. | After completing the Basic Animal Nutrition course, students will:<br><br>Knowledge Area:<br><br>1. Be able to understand the nutrient values of various types of feed and feeding standards according to nutritional needs.<br><br>Managerial Skills Area:<br><br>1. Be able to complete tasks accurately and on time.<br>2. Be able to understand the textbook and PowerPoint presentations on Basic Animal Nutrition.<br><br>Attitude Area:<br><br>1. Be able to collaborate effectively within a team. |
| 7 | Indonesian Language | MPK60007 | 2 (2/0) | This course covers effective and correct communication in Indonesian, the implementation of structure and procedures in academic writing, and the preparation of national journal articles correctly | After completing this course, students will be able to communicate effectively and correctly in Indonesian, implement proper structure and procedures in academic writing, and prepare national journal articles. |
| 8 | Citizenship | MPK60006 | 2 (2/0) | This course examines aspects of human life from the perspectives of nationhood, archipelagic insight, national resilience, and the national defence system. | After completing this course, students will be able to understand aspects of human life from the perspectives of nationhood, archipelagic insight, national resilience, and the national defence system. |
| | Total Credits Semester 2 | | 20 | | |

**C. Semester 3**

| No | Course | Course Code | Credits (Lecture/Practical Credits) | Course Description | Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Anatomy Veteriner 3 (Comparative Anatomy) | PKH61311 | 3 (2/1) | This course covers comparative anatomy for horses, carnivores, pigs, fish, rodents, birds, and reptiles. | After completing the Comparative Anatomy course (Veterinary Anatomy 3), students will be able to:<br>1. Understand the anatomy of horses.<br>2. Understand the anatomy of pigs.<br>3. Understand the anatomy of carnivores.<br>4. Understand the anatomy of rodents.<br>5. Understand the anatomy of fish.<br>6. Understand the anatomy of reptiles.<br>7. Understand the anatomy of birds. |

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| 2 | Veterinary Physiology 2 | PKH61312 | 3 (2/1) | This course explores the mechanisms of basic cell function and the concept of homeostasis through the examination of various physiological systems in animals, including the gastrointestinal system, digestion, absorption and metabolism of nutrients, the respiratory system, blood and haemopoiesis mechanisms, cardiac physiology, the blood circulation system, the lymphatic circulation system, the uropoietic system, and the excretory system. | Upon completing the Veterinary Physiology 2 course, students will:<br><br>Knowledge (Affective):<br><br>1. Be able to master veterinary medical sciences conceptually.<br><br>Skills (Psychomotor):<br><br>1. Be able to deduce the health status of animals based on physiological information to underpin the diagnosis of animal diseases.<br><br>Managerial Skills (Leadership):<br><br>1. Exhibit leadership qualities, demonstrate effective communication skills, and be capable of working independently or in groups.<br><br>Attitudes:<br><br>1. Students will be able to account for their academic work both independently and in group settings under supervision.<br><br>2. Students will possess high ethical and moral standards, demonstrate independence, excellence, and responsibility, and will be able to communicate effectively for veterinary medical purposes both orally and in writing. |

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| 3 | Veterinary Basic Pathology | PKH61313 | 3 (2/1) | This course covers the knowledge of various forms of abnormal structural changes in organs, tissues, and cells within the body. The material discussed includes different types of changes observed in animal organs or tissues, including causes of diseases and circulatory disturbances the material discussed includes changes in cellular metabolism, inflammation, tumours/cancer, and environment-related diseases. Specifically, this course aims to prepare students for advanced courses such as Systemic Infectious and Non-Infectious Pathology. | Upon completing the Veterinary Basic Pathology course, students will:<br><br>Knowledge:<br><br>1. Be able to explain and understand the concept of anatomical pathology and general disease phenomena.<br>2. Be able to describe and understand, as well as identify, various types of disorders, anatomical pathology and general disease phenomena, including metabolic disorders, circulatory disturbances, inflammation, and cell death.<br>3. Be able to describe macroscopic and microscopic changes in tissues.<br>4. Be able to explain the pathomechanism of pathological changes caused by infectious and non-infectious agents.<br>5. Be able to describe examples of pathological changes characteristic of specific animal diseases.<br>Skill:<br>1. Be proficient in using a microscope correctly and effectively.<br>2. Be able to observe and identify various types of tissue changes in organs<br>Managerial Skills:<br>1. Be able to complete tasks accurately and on time.<br>2. Be able to understand textbooks on anatomical pathology<br>Attitudes:<br><br>1. Be able to appreciate the greatness of the Almighty God in living beings.<br>2. Be able to work cooperatively with others |

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| 4 | Veterinary Immunology | PKH61314 | 3 (2/1) | Discuss the immune system, including types, cytokines and complement, antigen-antibody reactions to infectious and non-infectious diseases; immunological diseases and their clinical applications; vaccines and vaccination, examination. | 1. Be able to identify and explain immune responses: innate immunity & adaptive immunity, antigens and antibodies.<br>2. Be able to identify and explain lymphoid cells and organs, lymphocyte maturation, activation & regulation.<br>3. Be able to understand and explain MHC, antigen processing & presentation to lymphocytes.<br>4. Be able to identify and explain cytokines and complement.<br>5. Be able to explain how microbes evade immune responses and immunity against microbes and parasites.<br>6. Be able to explain immunotolerance, autoimmunity, and immunodeficiency<br>7. Be able to explain the immunology of oncogenic diseases.<br>8. Be able to explain vaccines and vaccination, and immunotherapy.<br>9. Be able to explain the immunological mechanisms and applications of wound healing and hypersensitivity |

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| 5 | Microbiology 2 (Veterinary Virology) | PKH61305 | 1 (1/0) | Discusses the history of virus development and biotechnology; DNA and RNA virus replication as well as bacteriophages; DNA and RNA viruses in animals; oncogenic viruses in animals; methods of virus isolation, naming, and identification; and antiviral drugs and virus resistance patterns. | 1. Able to explain the history of virus development and biotechnology<br>2. Able to explain DNA and RNA virus replication as well as bacteriophages<br>3. Able to identify and explain the taxonomy, classification, and characterisation of DNA and RNA viruses in animals<br>4. Able to identify and explain the taxonomy, classification, and characterisation of oncogenic viruses in animals<br>5. Able to explain the methods of virus isolation, naming, and identification<br>6. Able to explain antiviral drugs and virus resistance patterns |
| 6 | Veterinary Parasitology | PKH61316 | 3 (2/1) | This course discusses the taxonomy and morphology, classification, and basic determination of various types of parasitic worms, protozoa, and arthropods, and their role as agents of diseases in animals and humans. The description includes the morphology, classification, and life cycles of parasites (helminths, protozoa, and arthropods). To support the lectures, parasitology practicals are also conducted, where students are expected to be able to perform and apply identification and examination techniques in parasitology effectively. | After completing the Veterinary Parasitology course, students will be able to:<br>1. Explain the fundamentals of parasitology, and the terminology of parasites and parasitism.<br>2. Explain the taxonomy and morphology, classification, and basic determination of various types of parasitic worms, protozoa, and arthropods.<br>3. Explain, understand, and relate their role as disease agents in animals and humans.<br>4. Explain, understand, and comprehend the life cycles of parasites. |

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| 7 | Physiology and Endocrinology Reproduction | PKH61307 | 2 (2/0) | This course explains the anatomy and physiology of male and female reproductive systems and discusses reproductive endocrinology in both male and female animals across various species (pets, livestock, birds, exotic animals, and wildlife). The course covers the anatomical structure and physiology of male and female reproductive systems, oogenesis and spermatogenesis, puberty in male and female animals, estrous cycles/phases, the ejaculation process, ovulation process, fertilisation process, pregnancy physiology, birth physiology and uterine involution, lactation physiology and mammogenesis, as well as endocrine aspects in male and female animals through feedback mechanisms, and the functions and roles of reproductive hormones | After completing the Physiology course, students will be able to<br><br>Physiology of Reproduction and Veterinary Endocrinology, students will be able to:<br><br>Knowledge Domain:<br><br>1. Understand the anatomical structure and reproductive physiology of male and female animals (pets, livestock, birds, exotic animals, and wildlife) at various reproductive stages.<br>2. Understand the concepts of reproductive endocrinology in male and female animals at various reproductive stages.<br><br>Skills Domain:<br><br>1. Distinguish the anatomical structures of male and female reproductive systems (pets, livestock, birds, exotic animals, and wildlife).<br>2. Differentiate feedback mechanisms. Observe and explain the concepts of reproductive physiology in male animals and female reproductive systems and discusses reproductive endocrinology in both male and female animals across various species (pets, livestock, birds, exotic animals, and wildlife).<br>3. Able to explain well, correctly, and accurately the concepts of animal reproductive physiology and endocrinology of animal reproduction |

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| | | | | | Managerial Skills:<br><br>1. Able to complete tasks accurately and on time, both in groups and individually.<br>2. Able to analyse the differences in reproductive physiology between male and female animals.<br>3. Able to understand and explain the textbook on Veterinary Reproductive Physiology and Endocrinology.<br><br>Attitude:<br><br>1. Able to comprehend the greatness of God Almighty in living creatures.<br>2. Able to work cooperatively with peers. |
| 8 | English Language | UBU60004 | 2 (2/0) | This course discusses communication and the implementation of structure and grammar in reading textbooks and international journals, as well as writing scientific papers and composing international journal articles. | After taking this course, students will be able to communicate and implement structure and grammar in reading textbooks and international journals, writing scientific papers, and composing international journal articles. |
| | Total Credits Semester 3 | | 20 | | |

**D. Semester 4**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
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| 1 | Veterinary Parasitic Diseases | PKH62411 | 3 (2/1) | This course covers an understanding of parasitic diseases, including infectious agents, epidemiology, modes of transmission, clinical symptoms, pathological changes, immunity, diagnosis, prognosis, control and prevention, and appropriate therapy. Additionally, it is reinforced with parasitology practicals students are expected to develop greater proficiency in identifying and applying proper examination techniques | Upon completion of the course, students will be able to:<br>1. Understand parasitic diseases caused by ectoparasites (knowledge).<br>2. Understand parasitic diseases caused by protozoa (knowledge).<br>3. Understand parasitic diseases caused by helminths (knowledge).<br>4. Skillfully comprehend the contents of textbooks (skills).<br>5. Able to communicate effectively in explaining parasitology (skills)<br>6. Able to identify and apply proper examination techniques (skills)<br>7. Able to demonstrate responsibility in seeking knowledge (attitude) |

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| 2 | Veterinary Bacterial and Fungal Diseases | PKH62404 | 2 (2/0) | Understand, explain, and analyse infectious diseases caused by bacteria and fungi that affect animals (large livestock, poultry, fish, and wildlife), including their etiology and characteristics, transmission, pathogenesis, disease symptoms, anatomical pathology, sample collection and laboratory examination, as well as prevention and control | Explain and analyse infectious diseases caused by bacteria and fungi that affect animals, including etiology and characteristics, transmission and pathogenesis, disease symptoms, anatomical pathology, differential diagnosis, sample collection and laboratory examination, as well as prevention and control of:<br>1. Acid-fast bacteria<br>2. Cocci bacteria<br>3. Gastrointestinal system bacteria<br>4. Reproductive system bacteria<br>5. Respiratory system bacteria<br>6. Strategic bacterial diseases<br>7. Fungal Diseases<br>8. Rickettsia and Chlamydia Diseases<br>9. Diseases affecting fish caused by bacteria and fungi |
| 3 | Viral Diseases | PKH62408 | 2 (2/0) | This course explains infectious diseases caused by viruses that affect animals (large livestock, poultry, fish, and wildlife), including their etiology and characteristics, transmission and pathogenesis, disease symptoms, anatomical pathology, differential diagnosis, sample collection and laboratory examination, as well as prevention and control | Students will be able to explain the etiology and characteristics, transmission and pathogenesis, disease symptoms, anatomical pathology, differential diagnosis, sample collection and laboratory examination, as well as the prevention and control of viral diseases in poultry, large animals, pets, and fish. |

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| 4 | Veterinary Systemic Pathology | PKH62412 | 3 (2/1) | This course explains the pathomechanisms of macroscopic and microscopic pathological changes in organs by system, including the digestive, respiratory, lymphatic, cardiovascular, nervous and sensory, integumentary, and locomotor systems. It is supported by comparative studies across different classes of animals, including poultry, reptiles, fish, laboratory animals, pets, and large animals, to support pathophysiological approaches to animal disease symptoms. | Upon completing this course, students will be able to:<br>1. Understand the pathomechanisms of macroscopic and microscopic tissue changes in organs by system with a disease approach.<br>2. Understand macroscopic and microscopic pathological changes across animal classes with a disease approach<br>3. Implement pathological diagnoses based on macroscopic and microscopic changes.<br>4. Work effectively in a team.<br>5. Demonstrate professionalism and responsibility |

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| 5 | Veterinary Pharmacology 1 (Pharmacodynamics) | PKH62405 | 2 (2/0) | This course explains the basic principles of pharmacology, drug classifications and types, pharmacokinetics, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs. The composition of lectures and practicals is 2:0 credits. | Upon completing the Veterinary Pharmacology 1 course, students will:<br><br>Knowledge Area:<br><br>1. Know and understand pharmacology, drug classifications, and types of drugs in veterinary medicine.<br>2. Know and understand the mechanisms of action, pharmacokinetic profiles, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs.<br><br>Managerial Skills Area:<br><br>1. Be able to complete assignments accurately and on time.<br>2. Be able to comprehend pharmacology textbooks.<br><br>Attitude Area**:**<br><br>1. Able to understand the principles of drug selection and administration<br>2. Able to determine therapy based on the mechanisms of action, pharmacokinetic profiles, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs. |

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| 6 | Veterinary Public Health and One Health | PKH62403 | 2 (2/0) | This course covers basic knowledge about public health science, community nutrition, healthy behaviour, environmental sanitation, and factors affecting public health. It discusses environments that support public health and quality of life to maintain public health. It includes knowledge of environmental, air, and water sanitation and their relationship to public health. The course also covers the One Health concept and the role of veterinarians in public health | Upon completing the Food Hygiene course, students will:<br><br>Knowledge Area:<br>1. Master and explain the principles of public health in general, apply healthy principles, understand the role of veterinarians in public health, and comprehend the One Health concept in ensuring and improving public health directly and indirectly related to work.<br><br>Skills Area:<br><br>1. Apply the principles of veterinary public health in everyday life in the community, enabling veterinarians to contribute to improving human health in the future.<br><br>Managerial Skills Area :<br><br>1. Able to complete tasks accurately according to instructions and finish them on time.<br><br>Attitude Area :<br><br>1. Able to work in a team while prioritising individual responsibility in group work.<br>2. Able to maintain high self-discipline by not being late to lectures or practical sessions |

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| 7 | Laboratory Animal Science | PKH62417 | 2 (1/1) | This course explains the care and use of various laboratory animals based on standards and animal welfare, the characteristics of different types of laboratory animals, handling techniques, blood collection techniques, administration of treatments, tissue sample collection techniques, and the classification of laboratory types based on the pathogens studied. | Upon completing the Laboratory Animal Science course, students will:<br><br>Knowledge Area:<br><br>1. Understand the care and use of various laboratory animals based on standards and animal welfare.<br>2. Understand the characteristics of various laboratory animals.<br>3. Understand handling techniques, administration of treatments, blood collection, euthanasia, and organ collection techniques in laboratory animals.<br>4. Understand the classification of laboratories based on the pathogens studied<br><br>Skills Area:<br>1. Apply proper handling techniques for laboratory animals.<br>2. Apply techniques for administering treatments to laboratory animals.<br>3. Apply blood collection techniques in laboratory animals.<br>4. Apply euthanasia techniques in laboratory animals.<br>5. Apply tissue/organ collection techniques.<br>6. Determine various purposes for using laboratory animals.<br>7. Design simple laboratory setups for levels 1, 2, and 3.<br><br>Managerial Skills Area :<br>1. Design the care processes for laboratory animals.<br>2. Complete tasks accurately and on time. |

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| | | | | | 3. Understand textbooks on laboratory animals and laboratories<br><br>Attitude Area:<br>1. Appreciate the greatness of God Almighty in living beings.<br>2. Collaborate effectively with peers |
| 8 | Entrepreneurship | UBU60003 | 2 (2/0) | The Entrepreneurship course is a mandatory subject for students of the Faculty of Veterinary Medicine. This course discusses the importance of entrepreneurship as an orientation, the ability to create business plans, creative and innovative thinking, risk calculation, understanding and having motivation, possessing leadership knowledge and qualities, and communication skills. The teaching and learning activities comprise 3 credits. | Upon completing the Entrepreneurship course, students will:<br>Attitude Area :<br>1. Be able to place themselves as religious individuals who understand the power of God Almighty as the giver and regulator of sustenance.<br>2. Be responsible for their tasks, both independently and in groups, and be able to collaborate with peers.<br><br>General Skills Area :<br>1. Understand the principles of entrepreneurship.<br>2. Understand entrepreneurship as a life choice (orientation) and the various types of entrepreneurs<br><br>Special Skills Area :<br>1. Think creatively and innovatively, analyse risks, have entrepreneurial motivation, possess leadership knowledge and qualities, and have communication skills.<br>2. Create business plans. |

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| | | | | | 3. Analyse and evaluate a business unit<br><br>Knowledge Area:<br>1. Understand the scope and perspectives of entrepreneurship.<br>2. Understand the principles of starting and running a business.<br>3. Understand entrepreneurship theories |
| 9 | Animal Welfare and Veterinary Bioethics | PKH62406 | 2 (2/0) | The Animal Welfare course is a mandatory subject for students of the Faculty of Veterinary Medicine. This course covers the concepts and terminology of animal welfare from the World Society for the Protection of Animals (WSPA) and its implications, Manusya Mriga Satwa Sewaka, the differences between animal welfare and conservation, animal welfare ethics related to the Five Freedoms (Freedom from hunger and thirst, Freedom from discomfort, Freedom from pain, injury and disease, Freedom to express normal behaviour, and Freedom from fear and distress), animal use, animal exploitation, animal control, animal rights, animal liberation, | Upon completing the Animal Welfare and Bioethics course, students will :<br>Knowledge Area :<br>1. Be able to explain the concept of animal welfare and its implications.<br>2. Be able to identify various issues in animal welfare for terrestrial and aquatic animals<br><br>Skills Area:<br>1. Be skilled in assessing animal welfare status.<br>2. Be able to apply ethics in the use of animals in education, research, and testing.<br><br>Managerial Skills Area :<br>1. Be able to complete tasks accurately and on time.<br>2. Be able to argue regarding the application of animal welfare concepts<br><br>Attitude Area:<br>1. Appreciate the greatness of God Almighty in living beings.<br>Be able to collaborate effectively with peers |

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| | | | | animal welfare and animal protectionism, and the importance of an ethics committee for the use of animals in research. The composition of lectures and practicals is 2:0 credits. | |
| | Total Credits Semester 4 | | 20 | | |

**E. Semester 5**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
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| 1 | Pharmacology II (Pharmacotherapy) | PKH61512 | 3 (2/1) | This course explains the basic principles of pharmacology, drug classifications and types, pharmacokinetics, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs. The composition of lectures and practicals is 2:1 credits. | Upon completing the Veterinary Pharmacology II course, students will :<br>Knowledge Area :<br>1. Know and understand pharmacology, drug classifications, and types of drugs in veterinary medicine<br>2. Know and understand the mechanisms of action, pharmacokinetic profiles, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs..<br><br>Skills Area:<br>1. Administer drugs to laboratory animals |

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| | | | | | 2. Observe the onset of drug action and the physiological reactions of laboratory animals post-administration.<br><br>Managerial Skills Area :<br>1. Complete tasks accurately and on time<br>2. Understand pharmacology textbooks<br><br>Attitude Area:<br>1. Understand the principles of drug selection and administration, fluid therapy, and vaccination<br>2. Determine therapy based on mechanisms of action, pharmacokinetic profiles, pharmacodynamics, indications, contraindications, interactions, and side effects of drugs.<br>3. Collaborate effectively with peers |
| 2 | Clinical Diagnosis | PKH61511 | 3 (2/1) | This course explains the procedures for physical examinations on various types of animals, conducted by organ system and body region. It begins with general physiology, anamnesis, and proceeds to | Upon completing the Veterinary Clinical Diagnosis course, students will :<br>Knowledge Area :<br>1. Know the procedures for handling and restraining animals during physical examinations.<br>2. Understand the procedures for conducting physical examinations on animals. |

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| | | | | more specific examinations based on initial signalment, all of which support the competence in making preliminary disease diagnoses. The composition of lectures and practicals is 2:1 credits. | 3. Know the steps that must be taken to establish a preliminary diagnosis<br><br>Skills Area:<br>1. Gather information used in recording the health status of animals<br><br>Managerial Skills Area :<br>1. Complete tasks accurately and on time<br>2. Understand veterinary clinical diagnosis textbooks<br><br>Attitude Area:<br>1. Appreciate the greatness of God Almighty in living beings.<br>2. Collaborate effectively with peers |
| 3 | Veterinary Radiology | PKH61515 | 3 (2/1) | The radiology course is a mandatory subject for undergraduate veterinary medicine students at the Faculty of Veterinary Medicine (FVM). This course covers the basics of radiology, operating radiology machines, | Upon completing the Veterinary Clinical Pathology course, students will be able to:<br><br>1. Understand normal and abnormal radiological images, including X-rays and ultrasonography, for various body areas in small animals, large animals, poultry, reptiles, and fish. |

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| | | | | positioning techniques for animals, taking radiographs, film processing, techniques for evaluating and interpreting radiographic results of various organs in small animals and some large livestock as well as exotic animals. Additionally, it includes the basics of ultrasonography, operating ultrasonography machines, and techniques for evaluating and interpreting ultrasonography results. | 2. Operate radiology equipment, including X-ray and ultrasonography machines<br>3. Perform specialised procedures in radiology<br>4. Analyse and interpret radiological images, including X-rays and ultrasonography |
| 4 | Food Hygiene | PKH61513 | 3 (2/1) | This course covers the hygiene of eggs, meat, and milk from production at the producer level to the consumer (lecture). It involves testing animal-derived food products by first discussing the health inspection procedures for animal-derived food (milk, meat, and eggs), including organoleptic tests, freshness tests, composition and quality tests, adulteration tests, and microbiological tests on animal-derived food. Activities at the cattle slaughterhouse and pig slaughterhouse include discussing animal welfare practices, ante-mortem inspection procedures, slaughtering processes, post-mortem | Upon completing the Food Hygiene course, students will be able to :<br>a. Knowledge Area :<br>1. Master and explain the concepts of hygiene of animal-derived food, including eggs, meat, and milk, to ensure the safety of animal-derived food that meets the criteria of Safe, Healthy, Wholesome, and Halal (ASUH)<br>b. Skills Area :<br>1. Conduct health inspections of animal-derived food (milk, meat, and eggs) to provide food safety assurance. Inspections are carried out both qualitatively and quantitatively to determine safety measures for animal-derived food.<br>c. Managerial Skills Area :<br>1. Complete module tasks and practical reports accurately and on time.<br>d. Attitude Area :<br>1. Collaborate effectively in a team, emphasizing |

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| | | | | inspections, and the basics of inspection decision-making and handling of halal and hygienic carcasses (practical). | individual responsibility in group work.<br>2. Maintain high self-discipline by not being late for lectures or practical sessions. |
| 5 | Zoonosis | PKH61506 | 2 (2/0) | This course discusses the transmission and veterinary public health aspects of zoonotic diseases caused by bacteria, viruses, fungi, protozoa, worms, rickettsia, and prions, as well as emerging and re-emerging zoonoses. It covers the epidemiology of zoonotic diseases and their prevention and control using a One Health approach. | Upon completing the Zoonosis course, students will be able to :<br>a. Knowledge Area :<br>1. Master knowledge about endemic, emerging, and re-emerging zoonotic diseases caused by bacteria, viruses, fungi, protozoa, worms, rickettsia, and prions, with a particular focus on those prioritised in Indonesia.<br>2. Understand the One Health approach in the control and prevention of zoonoses.<br>b. Skills Area :<br>1. Design control and prevention strategies for zoonotic transmission using a One Health approach.<br>c. Managerial Skills Area :<br>1. Complete module tasks and practical reports accurately and on time<br>d. Attitude Area :<br>1. Collaborate effectively in a team, emphasising individual responsibility in group work<br>2. Maintain high self-discipline by not being late for lectures or practical sessions |

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| 6 | Reproduction Technology and Artificial Insemination | PKH61514 | 3 (2/1) | This course explains various applications of animal reproduction technology for both males and females to enhance breeding development, selective breeding, and reproductive efficiency to increase the reproductive potential of animals. Topics include oestrus synchronisation, multiple ovulation, in vitro fertilisation, embryo transfer, embryo cryopreservation, embryo splitting, intracytoplasmic injection, cloning, semen evaluation and collection, semen dilution and storage techniques for various species (pet animals, livestock, wild animals), and artificial insemination techniques for different species. | Upon completing the Reproduction Technology and Artificial Insemination course, students will be able to :<br>Knowledge Area :<br>1. Understand various reproductive technologies and artificial insemination in various animals.<br>2. Grasp the concepts of reproductive technology and artificial insemination.<br>Skills Area:<br>1. Understand and apply various reproductive technologies as promotive actions in animal health and breeding<br>2. Apply artificial insemination techniques in livestock and poultry<br>Managerial Skills Area :<br>1. Complete tasks accurately and on time, both individually and in groups<br>2. Analyse the differences in the application and urgency of various reproductive biotechnologies<br>3. Understand and explain the textbook on Reproductive Technology and Artificial Insemination<br>Attitude Area:<br>1. Appreciate the greatness of God Almighty in living creatures.<br>2. Collaborate effectively with peers |

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| 7 | Legislation | PKH61507 | 1 (1/0) | This course discusses the applicable laws of the Republic of Indonesia, as well as Government Regulations and their derivatives, so that by the end of the course, students will understand the appropriate legal foundations for practising the veterinary profession. | Upon completing the Legislation course, students will be able to :<br>Knowledge Area :<br>1. Have understanding of the applicable regulations based on both the prevailing laws and Government Regulations, thereby comprehending the role of the veterinary profession<br>Skills Area:<br>1. Implement applicable regulations based on both laws and Government Regulations, thus understanding the role of the veterinary profession in livestock enterprises, ensuring the safety of animal-origin food, quarantine, breeding, and related pet issues. This forms the basis of veterinary medical practice in supporting veterinary public health<br><br>Managerial Skills Area :<br>1. Complete module tasks and practical reports accurately and on time as instructed<br><br>Attitude Area:<br>1. Collaborate effectively in teams, prioritising individual responsibility in completing group work.<br>2. Maintain a high level of self-discipline by not being late for lectures and practical classes |

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| 8 | Statistics | PKH61508 | 2 (2/0) | This course discusses the role of statistics in research, the definition of parametric and non-parametric statistics, types of statistical data, methods of data collection and presentation, normal distribution, standard distribution, probability, methods and tests of inferential statistics (correlation analysis, t-Test, F-Test, ANOVA, Chi-Square, regression analysis). | Upon completing this course, students will have mastered the basic concepts of statistics and will be able to apply basic statistical techniques, including various statistical tests, to perform quantitative data processing and presentation related to the field of veterinary medicine. |
| 9 | Research Methodology | PKH61509 | 2 (2/0) | This course studies the scientific philosophy of background preparation, reference searching, various research methods, result analysis techniques, and the creation and presentation of scientific work.<br>reference searching, various research methods, result analysis techniques, and the creation and presentation of scientific work. | Upon completing this course, students will be able to explain scientific philosophy, background preparation, reference searching, various research methods, result analysis techniques, and the creation and presentation of scientific work. |
| | Total Credits Semester 5 | | 21 | | |

**F. Semester 6**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
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| 1 | Clinical Pathology | PKH62611 | 3 (2/1) | The Veterinary Clinical Pathology course is a mandatory course for students of the Faculty of Veterinary Medicine. This course discusses the principles and techniques of examining biological samples, clinical pathology changes, and interpreting the results of haematology and clinical chemistry analyses of blood, urine, faeces, and other body fluids to support clinical diagnosis determination. The composition of the lecture and practical is 2:1 credits. | After completing the Clinical Pathology course, students will be able to:<br>Knowledge:<br>1. Understand the principles and techniques of biological sample examination.<br>2. Interpret the results of haematology and clinical chemistry analyses from various samples to support clinical diagnosis determination.<br>Skills:<br>1. Proficiently perform the examination and testing of biological samples related to haematology, clinical chemistry, urine, and faeces.<br>2. Conduct clinical sample collection, including blood, body fluids, faeces, and urine.<br>3. Analyse and interpret haematological and clinical chemistry abnormalities in animal sample testing.<br>Managerial Skills :<br>1. Complete tasks accurately and on time<br>2. Argue effectively regarding the application of sample materials used in testing and the interpretation of test results.<br>Attitude:<br>1. Understand the greatness of God Almighty in living beings<br>1. Take responsibility for group work and collaborate effectively with peers |

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| 2 | Pharmaceutical Science and Veterinary Prescriptions | PKH62612 | 2 (1/1) | This course explains: pharmaceutical preparations, dosage calculations, prescription writing, Good Veterinary Pharmaceutical Practices (CPOHB), and administration methods for animals. The composition of the lecture and practical is 2:1 credits. | After completing the Pharmaceutical Science and Veterinary Prescriptions course, students will be able to :<br>Knowledge:<br>1. Know and understand the types and preparation of veterinary drugs<br>2. Know and understand dosage calculation methods<br>3. Know and understand prescription terminology<br>Skills:<br>1. Administer medication to test animals<br>2. Read and write prescriptions accurately<br>3. Prepare quality veterinary drugs<br>Managerial Skills :<br>1. Complete tasks accurately and on time<br>2. Understand textbooks comprehensively<br>Attitude:<br>1. Understand the principles of correct prescription writing and drug preparation<br>2. Collaborate effectively with peers |
| 3 | General Veterinary Surgery | PKH62613 | 3 (2/1) | The course in general veterinary surgery is a compulsory subject for undergraduate students n the Faculty of Veterinary Medicine. This course covers various essential aspects that a veterinarian needs to know to perform surgical procedures, including pre-, peri-, and post- | **Student Knowledge :**<br>Understand and comprehend the fundamentals of general surgery and aseptic surgical principles. Understand surgical installation and the surgical team. Know surgical instruments, materials, medical biomaterials, and techniques for sterilisation and preparation. Understand fluid therapy and emergency veterinary care. Understand anaesthesia and patient monitoring. Understand wound healing and pain management. Understand suturing and closing surgical wounds. Understand infection control and prevention in surgical wounds. Understand post-operative care |

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| | | | | operative care. These procedures are conducted as a series of steps required for surgical intervention. The course includes topics such as fluid therapy in animals, veterinary emergencies, anaesthesia and patient monitoring, pain management in animals, suturing and closing surgical wounds, infection control and prevention in surgical wounds, post-operative care and nutrition management, biopsy and tissue sampling, bandaging, casting, splinting, and drains, as well as laparotomy and additional materials on oncological surgery. | and nutrition management in surgical patients. Understand biopsy and tissue sampling. Understand bandaging, casting, splinting, and drains.<br>**Skills :**<br>1. Ability to select and use surgical instruments, materials, and facilities<br>2. Ability to prepare the surgical team with all necessary requirements and responsibilities.<br>3. Ability to handle, restrain, position, and prepare surgical patients<br>4. Ability to select and use appropriate instruments, materials, and sutures for wound closure<br>5. Ability to perform bandaging, casting, splinting, and drain procedures<br>6. Ability to manage infection control and prevention in surgical wounds<br>7. Ability to determine and administer fluid therapy<br>8. Ability to select the type of anaesthesia, calculate dosages, and monitor patients<br>9. Ability to perform laparotomy<br>10. Ability to care for and provide nutrition to surgical patients<br>11. Ability to manage infection control and prevention in surgical wounds |
| 4 | Large Animal Internal Diseases | PKH62605 | 2 (2/0) | This course explains the methods for designing diagnostic steps for internal diseases to comprehensively understand the causes, clinical symptoms, and treatments related to both infectious and non-infectious internal diseases in large animals. The | Upon completing the Large Animal Internal Diseases course, students will be able to:<br>Knowledge :<br>1. Understand the methods for making diagnoses<br>2. Understand and explain pathogenesis.<br>3. Explain the causes of diseases<br>4. Determine appropriate treatments<br>Skills:<br>1. Comprehensively connect diagnostic results with the pathogenesis of disease progression to |

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| | | | | composition of lectures and practicals is 2:0 credit hours. | understand the causes and how to treat them<br>Managerial Skills :<br>1. Complete assignments accurately and on time<br>2. Understand the textbook on Large Animal Internal Diseases<br>Attitudes:<br>1. Appreciate the greatness of God Almighty in living beings.<br>2. Collaborate effectively with peers |
| 5 | Veterinary Toxicology | PKH62604 | 2 (2/0) | This course studies the definitions, classifications, types of intoxication, toxic metabolism, toxicokinetics, factors influencing toxicants, and the management of intoxication in animals. The composition of lectures and practicals is 2:0 credit hours. | Upon completing the Veterinary Toxicology course, students will be able to :<br>Knowledge :<br>1. Understand and comprehend toxicology, types of toxicity, dose-response relationships, toxicology classifications, Margin of Safety, Safety testing, toxicant classifications based on clinical symptoms, types of intoxication, toxicant metabolism (Absorption, Distribution, Metabolism, Excretion), toxicokinetics, mechanisms of toxicant action, and factors influencing toxicants<br>2. Understand and comprehend the general management of detoxification therapy and the selection of antidotes<br>Managerial Skills :<br>1. Complete assignments accurately and on time<br>2. Understand the toxicology textbook<br>Attitudes:<br>1. Identify types of intoxication and clinical symptoms caused by toxicants.<br>2. Determine detoxification therapy (antidotes) based on clinical symptoms, pathological changes, and mechanisms of toxicant action |

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| 6 | Obstetrics, Reproductive Disorders, and Infertility | PKH62616 | 3 (2/1) | This course discusses obstetrics in various animal species, including livestock, pet animals, wild animals, and exotic animals. The main topics in obstetrics include birth assistance, pregnancy diagnosis, and malposition in dystocia cases, among others. Additionally, the course covers infertility in both male and female animals, the factors causing infertility, reproductive disorders, and reproductive diseases, both zoonotic and non-zoonotic. The teaching methods include seminars (face-to-face), book reviews, case discussions using the PBL system, and case studies through multimedia (YouTube and field case videos) to enable students to understand obstetric cases, infertility, and reproductive disorders. | Upon completing the Veterinary Reproductive Technology and Artificial Insemination course, students will :<br>Knowledge :<br>1. Be able to conclude the reproductive health conditions and manage birth assistance in various animals<br>2. Understand the concepts of birth assistance and reproductive diseases and disorders caused by poor management practices<br>Skills:<br>1. Understand and manage various reproductive diseases and disorders as a form of promotive action in animal health and breeding<br>2. Apply correct and appropriate birth assistance techniques<br>Managerial Skills :<br>1. Complete assignments accurately and on time, both in groups and individually.<br>2. Analyse the differences in the application and urgency of various reproductive biotechnology forms<br>3. Understand and explain the contents of the Reproductive Technology and Artificial Insemination textbook<br>Attitudes:<br>1. Recognise the greatness of God Almighty in living beings<br>2. Collaborate effectively with peers |

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| 7 | Veterinary Epidemiology and Economics | PKH62608 | 2 (2/0) | 1. This course generally discusses the concepts of causes, diagnosis, control, and the economics of animal diseases in populations.<br>2. Student will study:<br>The development of disease causation concepts throughout human istory<br>The concept of distribution and spread of animal disease outbreaks within populations<br>Methods of observational epidemiological studies for investigating disease causes, including case studies, case-control studies, cross-sectional studies, and longitudinal cohort studies<br>Calculation of RR (Relative Risk) and OR (Odds Ratio) for epidemiological studies<br>Sampling techniques and sample size calculation for various study purposes<br>Interview techniques and questionnaire design for epidemiological studies | Upon completing the Veterinary Epidemiology and Economics course, students will be able to/have :<br><br>Knowledge:<br>Apply epidemiological concepts and techniques in outbreak investigations, diagnose. the causes and risk factors of outbreaks, perform economic analysis of disease outbreaks, and design animal disease control Programs at the farm or regional level under supervision.<br><br>Practical Skills:<br>Conduct interviews for epidemiological study purposes<br><br>Managerial Skills :<br>Manage population data for statistical analysis<br><br>Attitudes:<br>1. Show empathy towards the conditions of the surrounding community<br>2. Independently take responsibility for their work<br>3. Collaborate with various parties in conducting epidemiological studies |

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| | | | | Measuring the capability of diagnostic tools in detecting animal diseases in populations, including the calculation of sensitivity, specificity, and predictive values<br>Principles of disease control, including population vaccination, farm biosecurity, and economic analysis of animal diseases to determine the most economical disease control methods in different situations<br>Basic principles of risk analysis for the importation of animals and animal products | |
| 8 | Necropsy and Veterinary Forensics | PKH62618 | 2 (1/1) | This course explains the procedures for necropsy as an approach to veterinary forensics. Additionally, | Upon completing the Necropsy and Veterinary Forensics course, students will:<br><br>Knowledge : |

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| | | | | it equips students with knowledge related to veterinary forensics, including forensic examination and sample collection to confirm diagnoses of abnormalities in animals caused by disease, trauma, or poisoning. The composition of this course is 1:1 credit hours. | 1. Understand necropsy/biopsy techniques in animals and forensic veterinary approaches to confirm diagnoses or causes of abnormalities<br>Practical Skills:<br>1. Be proficient in performing necropsies or biopsies<br>2. Be capable of collecting information using forensic approaches<br>Managerial Skills :<br>1. Complete assignments accurately and on time<br>2. Understand veterinary forensic textbooks<br>Attitudes:<br>1. Appreciate the greatness of Almighty God in living creatures<br>2. Work collaboratively with peers |
| | Total Credits Semester 6 | | 19 | | |

**G. Semester 7**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Veterinary Clinical Nutrition | PKH61701 | 2 (2/0) | The Veterinary Clinical Nutrition course is a mandatory subject for students of the Faculty of Veterinary Medicine. It covers the composition and nutritional value of various feed ingredients and their roles in supporting the physiological mechanisms of animals. This forms the basis for discussing the nutritional requirements for basic living needs as well as for animals during illness and recovery periods across various species (therapeutic diet), and for formulating feed rations for animals during disease recovery. The course consists of 2 credit hours of lectures. | Upon completing the Veterinary Clinical Nutrition course, students will:<br>***Attitudes*** :<br>1. Be able to position themselves as future veterinary graduates who appreciate the importance of nutritional intake for animals, especially for therapeutic diets, similar to a feed formulator<br>***General Skills*** :<br>1. Possess skills in selecting types of feed for therapeutic diets in animals according to their respective species (poultry, ruminants, non-ruminants, and pets).<br>***Specific Skills***:<br>1. Be able to formulate rations for animals (poultry, ruminants, non-ruminants, and pets) according to their needs and special feeds for therapeutic diets in sick animals |

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| | | | | | ***Knowledge***:<br>1. Have knowledge of feed ingredients containing nutrients that can be used to formulate animal rations for therapeutic diets. |
| 2 | Clinical Case Interpretation | PKH61702 | 1 (1/0) | The Clinical Case Interpretation course is a compulsory subject for students of the Faculty of Veterinary Medicine. This course discusses disease cases and the interpretation of clinical cases related to changes in clinical pathology. It involves the interpretation of haematology and clinical chemistry analysis results of blood, urine, and faeces to support clinical diagnosis. The course comprises 1 credit hour of lectures and no practicals. | Upon completing the Clinical Case Interpretation course, students will :<br>Knowledge :<br>1. Be able to analyse clinical cases and interpret abnormalities in laboratory examinations.<br>2. Be able to evaluate and conclude the results of haematology and clinical chemistry analyses from clinical cases to support diagnosis and therapy.<br>Skills:<br>1. Be proficient in analysing data and providing guidance on clinical cases.<br>2. Be able to analyse and interpret haematology and clinical chemistry abnormalities in clinical cases |

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| | | | | | 3. Be able to explain the pathomechanisms behind haematology and clinical chemistry abnormalities.<br>Managerial Skills :<br>1. Be able to complete tasks accurately and on time<br>2. Be able to argue and provide guidance to the group.<br>Attitudes:<br>1. Understand the greatness of God Almighty in living beings<br>2. Be responsible for group work and be able to collaborate with peers |
| 3 | Special Veterinary Surgery | PKH61713 | 3 (2/1) | The Special Veterinary Surgery course is a compulsory subject for undergraduate veterinary students at FVM. This course studies surgical procedures per system in small animals, covering surgery on the eyes and ears, | **Student Knowledge :**<br>Understand and comprehend surgery on the eyes and ears, surgery of the integumentary and cosmetic systems, thoracic and respiratory system surgery, abdominal and digestive system surgery, reproductive and genital system surgery, urinary system surgery, musculoskeletal and |

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| | | | | integumentary and cosmetic systems, thorax and respiratory system, abdomen and digestive system, reproductive and genital systems, urinary system, musculoskeletal and orthopaedic systems, mouth and teeth. Additionally, it covers surgical procedures commonly performed on large livestock and exotic animals. | orthopaedic system surgery, oral and dental surgery, surgery on large livestock, and surgery on exotic animals.<br>**Student Skills :**<br>1. Be proficient and skilled in performing laparotomy, ovariohysterectomy, and castration on cats, dogs, and rabbits<br>2. Be proficient and skilled in performing dental cleaning on dogs and cats |
| 4 | Small Animal Internal Medicine | PKH61704 | 2 (3/0) | This course explains the methods for designing diagnostic steps for internal diseases to comprehensively understand the causes, clinical symptoms, and treatments related to infectious and non-infectious internal diseases in small animals. The composition of lectures and practical sessions is 2:0 credits. | After completing the Small Animal Internal Medicine course, students will be able to :<br><br>Knowledge :<br>1. Understand the methods for establishing a diagnosis<br>2. Understand and explain pathogenesis<br>3. Explain the causes of diseases<br>4. Determine appropriate treatments<br>Skills:<br>1. Comprehensively interpret diagnostic results with the pathogenesis of the disease to understand the causes and how to treat them |

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| | | | | | Managerial Skills :<br>1. Complete tasks accurately and on time<br>2. Understand the textbook on Small Animal Internal Medicine<br>Attitude:<br>1. Appreciate the greatness of God Almighty in living beings<br>2. Work collaboratively with peers. |
| 5 | Thesis | UBU60001 | 6 (0/6) | In this course, students produce a written scientific work that demonstrates their critical thinking, analysis, and synthesis skills regarding a phenomenon or problem, considering the development of science, technology, and arts from the perspective of veterinary medicine. This is achieved using data from activities such as literature review, research, internships, practical work/independent production innovation/entrepreneurship or other equivalent activities | Upon completing this course, students will be able to produce a written scientific work that reflects their critical thinking, analysis, and synthesis skills regarding a phenomenon or problem, considering the development of science, technology, and arts from the perspective of veterinary medicine. This is achieved using data from activities such as literature review, research, internships, practical work/independent production innovation/entrepreneurship, or other equivalent activities. |
| | Total Credits Semester 7 | | 14 | | |

**H. Semester 8**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Thesis | UBU60001 | 6 (0/6) | In this course, students produce a written scientific work that demonstrates their critical thinking, analysis, and synthesis skills regarding a phenomenon or problem, considering the development of science, technology, and arts from the perspective of veterinary medicine. This is achieved using data from activities such as literature review, research, internships, practical work/independent production innovation/entrepreneurship, or other equivalent activities. | Upon completing this course, students will be able to produce a written scientific work that reflects their critical thinking, analysis, and synthesis skills regarding a phenomenon or problem, considering the development of science, technology, and arts from the perspective of veterinary medicine. This is achieved using data from activities such as literature review, research, internships, practical work/independent production innovation/entrepreneurship, or other equivalent activities. |
| | Total Credits Semester 8 | | 6 | | |

## I. Elective Course Semester 2

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Pet Animal Health Management | PKH62221 | 2 (2/0) | This course explains the variety of animals commonly chosen and kept as pets. It covers how to appropriately select a pet based on animal type, breed, purpose of keeping, selection of quality stock, suitable housing and feed, as well as routine health care (grooming, vaccination, deworming). The composition of the course and practicals is 2:0 credits. | Upon completing the Pet Animal Management course, students will:<br>Knowledge :<br>1. Be able to explain the important benefits of pet animal management for both veterinarians and pet owners<br>Skills:<br>1. Be able to provide explanations (to clients) about pets<br>Managerial Skills :<br>1. Be able to complete tasks accurately and on time<br>2. Be able to understand textbooks about pets<br>Attitude:<br>1. Be able to understand the greatness of God Almighty in living beings<br>2. Be able to collaborate with peers |
| | Total elective course credits semester 2 | | 2 | | |

**Notes:** To graduate with a Bachelor's degree in the Veterinary Medicine Study Program, students must take a minimum of 6 credits of elective courses.

**J. Elective Course Semester 3**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Veterinary Communication and Leadership | PKH61321 | 1 (1/0) | This course explains and trains students in effective communication techniques regarding animal health, both personally with clients and broadly with the community. It also covers and trains students in the leadership aspects of a veterinarian, ensuring that students prioritise the interests of clients and the community in the field of animal health. | After completing the Veterinary Communication and Leadership course, students will :<br>Knowledge :<br>1. Understand the theory of personal and public communication techniques<br>2. Understand the leadership aspects of a veterinarian and the role of veterinarians in society<br>Skills:<br>1 Communicate effectively on a personal level and with the public<br>2 Demonstrate a commitment to leadership as prospective veterinarians<br>Managerial Skills :<br>1. Complete tasks accurately and on time<br>2. Understand the characteristics of individuals and communities Attitudes:<br>3. Appreciate the greatness of God Almighty<br>4. Cooperate effectively with peers |

**K. Elective Course Semester 4**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Management of Ruminant Livestock Health | PKH62421 | 2 (2/0) | This course educates students on the production systems of ruminant livestock and various efforts to enhance production, methods to estimate livestock production results for both meat and milk producers, understanding strategic diseases with zoonotic potential, as well as planning health maintenance programs and disease prevention. It also covers product quality and the behavior of productive livestock, and explains the planning, management, and monitoring of livestock business evaluations. | After completing the course in Management of Ruminant Livestock Health, students will:<br><br>Knowledge :<br>1. Understand the management of ruminant health in various aspects, including environment, reproduction, feed, housing, waste, and diseases.<br>Managerial Skills :<br>1. Complete tasks accurately and punctually<br>2. Comprehend textbooks and presentations on the Management of Ruminant Livestock Health<br>Attitudes:<br>3. Cooperate effectively within a team |

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| 2 | Management of Non-Ruminant Livestock Health | PKH62422 | 1 (1/0) | This course educates students on the production systems of non-ruminant livestock and various efforts to enhance production, methods to estimate livestock production results for both meat and milk producers, understanding strategic diseases with zoonotic potential, as well as planning health maintenance programs and disease prevention. It also covers product quality and the behavior of productive livestock, and explains the planning, management, and monitoring of livestock business evaluations. | After completing the course in Management of Non-Ruminant Livestock Health, students will : Knowledge:<br>1. Understand the management of non-ruminant health in various aspects, including environment, reproduction, feed, housing, waste, and diseases.<br>Managerial Skills :<br>1. Complete tasks accurately and punctually<br>2. Comprehend textbooks and presentations on the Management of Non-Ruminant Livestock Health<br>Attitudes:<br>1. Cooperate effectively within a team |
| 3 | Wildlife Health Management | PKH62423 | 2 (2/0) | The Wildlife Health Management course is an elective for undergraduate veterinary medicine students at the Faculty of Veterinary Medicine (FVM). This course studies the role of veterinarians as conservation medics, the application of animal welfare, management of care, quarantine, and biosecurity for wildlife, health management of various types of wildlife, management of feed and enrichment, and the use of wildlife as experimental animals. | **Student Knowledge and Understanding :**<br>1. Understanding the role of veterinarians as conservation medics and the management of care, quarantine, and biosecurity for wildlife<br>2. Understanding wildlife, including: carnivores, rodentia mammals, lagomorphs, and flying mammals<br>3. Understanding aquatic mammals, marsupial and monotreme mammals, primate mammals, herbivorous ruminant mammals including Camelidae, non-ruminant herbivorous mammals, insectivorous mammals, edentates, Dermoptera, Pholidota, edentates, and Turbulidentata, reptiles, amphibians, and birds<br>4. Understanding the management of feed for wildlife (application of allometric scaling).<br>5. Understanding enrichment management<br>Understanding ethics, sampling methods, and the use of wildlife as experimental animals. |

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| 4 | Aquatic Animal Health Management | PKH62424 | 1 (1/0) | The Aquatic Animal Health Management course is an elective for undergraduate veterinary medicine students at the Faculty of Veterinary Medicine (FVM). This course studies the role of veterinarians in the health of aquatic animals, management of care, quarantine, and biosecurity for aquatic animals, health management of various types of aquatic animals, and the management of feed and aquaculture related to the health of aquatic animals. | **Student Knowledge and Understanding :**<br>1. Understanding the role of veterinarians in the aquatic world<br>2. Understanding freshwater and marine fish<br>3. Understanding aquatic invertebrates<br>4. Understanding aquatic mammals<br>5. Understanding aquatic environment management<br>6. Understanding the prevention of diseases in fish, aquatic invertebrates, and aquatic mammals<br>7. Understanding the management of feed for aquatic animals<br>8. Understanding the management of quarantine and biosecurity for aquatic animals |
| 5 | Biomolecular Analysis Techniques | PKH62425 | 2 (2/0) | 1. Discusses genetic engineering in veterinary medicine, DNA cloning vectors, restriction enzymes, and reagents in biomolecular analysis techniques | After taking this course, students will be able to :<br>1. Explain the techniques for DNA/Protein isolation, Protein purification, cell & enzyme immobilisation, DNA hybridisation, and gene transformation |

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| | | | | 2. Discusses various techniques and equipment, as well as data processing in biomolecular analysis, including separation techniques, photometric methods, spectrophotometry, and electrochemistry<br>3. Discusses immunohistochemistry, immunoblotting, and ELISA techniques | 2. Explain DNA and protein electrophoresis analysis techniques<br>3. Explain the basic principles of spectrophotometry, photometry, electrochemistry, chromatography, SDS-PAGE, western blot, PCR, and RFLP methods<br>4. Explain immunohistochemistry, immunoblotting, and ELISA techniques |
| | Total elective course credits semester 4 | | 8 | | |

Note: To graduate with a Bachelor's degree in the Veterinary Medicine program, students must take a minimum of 6 elective course credits

**L. Elective Course Semester 5**

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Biotechnology and Genetic Engineering in Veterinary Medicine | PKH61521 | 2 (2/0) | This course covers the history and role of biotechnology, the basics of recombinant DNA techniques (genetic engineering), the application of gene cloning biotechnology in the production of hormones | After completing this course, students will understand and be able to explain the development and application of biotechnology and tissue engineering in veterinary medicine, related to the engineering of biological materials, cloning, cell culture, development of drugs, diagnostic tools, artificial tissues, and nanotechnology. |

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| | | | | medicines, animal-derived foods, recombinant vaccines, disease diagnosis, as well as transgenic animal techniques, tissue engineering, and nanotechnology. | |
| 2 | Biotechnology of Animal-Based Food Products | PKH61522 | 1 (1/0) | This course discusses the definition, history, concepts, and roles of biotechnology in the processing of animal-based foods; the basics of milk, meat, and egg processing technology; the use of biotechnology such as fermentation, and the use of enzymes to enhance the nutritional value of animal-based foods, thereby producing functional animal-based foods. | After completing the Biotechnology of Animal-Based Food Products course, students will: a. Knowledge :<br><br>Master the concepts and be able to explain the definition, history, concepts, and roles of biotechnology in the processing of animal-based foods; the basics of milk, meat, and egg processing technology; the use of biotechnology such as fermentation and the use of enzymes to enhance the nutritional value of animal-based foods, thereby producing functional animal-based foods.<br><br>Skills :<br>1. Be able to process animal-based foods by utilising developments in biotechnology in the processing of animal-based foods |

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| | | | | | c. Managerial Skills:<br>1. Be able to complete module assignments correctly as instructed and finish them on time<br>d. Attitude :<br>1. Be able to work effectively in a team, prioritising individual responsibility in group work<br>2. Maintain high self-discipline, ensuring punctual attendance in classes |
| 3 | Animal Breeding | PKH61523 | 2 (2/0) | This course discusses the importance of animal breeding in the veterinary medical authority, the selection of breeding stock, tracing breed purity, breeding management with the aim of crossbreeding, maintaining pure breeds, and discovering new breeds. | After completing the Animal Breeding course, students will :<br>Knowledge Area :<br>1. Be able to explain the development of animal and livestock breeding, the progress of breeding science, its relevance to the veterinary field, germplasm, and advancements in animal breeding in various countries. |

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| | | | | The course also includes approaches to increase productivity (production and reproduction traits) of livestock through the improvement of their genetic quality. | 2. Be able to explain the basic concepts of male and female breeding stock selection systems<br>3. Be able to explain the basic concepts of selection systems, including selection response and genetic progress due to selection<br>4. Be able to explain and describe the inbreeding and outbreeding mating systems.<br>5. Be able to explain and describe the concept of the recording system for ruminants and non-ruminants in breeding farms<br>6. Be able to explain and interpret various genetic parameters in the field of animal breeding.<br>7. Be able to explain the concepts of VBC, Open Nucleus Breeding Farm, and Close Nucleus Breeding Farm.<br>8. Be able to explain and describe the differences in breeding management of ruminant and non-ruminant livestock in tropical and subtropical regions. |

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| 4 | Veterinary Business | PKH61524 | 2 (2/0) | The Veterinary Business course is an elective course for students of the Faculty of Veterinary Medicine. This course discusses how veterinarians, with all their potential and authority, can choose to become entrepreneurs in fields related to veterinary medicine. It covers business planning, management, and the evaluation stages of a business unit, with a total of 2 credits. | After completing the Entrepreneurship course, students will :<br>***Attitude*** :<br>. Be able to position themselves as religious individuals who understand the power of God Almighty as the giver and regulator of sustenance<br>. Be responsible for their tasks, whether working independently or in groups, and be able to cooperate with peers<br>***General Skills***:<br>. Understand the principles of entrepreneurship, especially as a veterinarian<br>. Recognise entrepreneurship as a life choice (orientation) for veterinarians<br>***Specific Skills*** :<br>1. Be able to explain the operations of a veterinary business<br>2. Master communication and managerial skills<br>***Knowledge***:<br>. Understand the business opportunities and work domains available to veterinarians.<br>1. Grasp the principles of starting and running a business in fields related to the veterinary profession. |

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| 5 | Poultry Health Management | PKH61525 | 2 (2/0) | This course explains to students the poultry production system, poultry housing, various efforts to increase poultry production, methods to estimate poultry production for both meat and egg producers, understanding strategic poultry diseases with zoonotic potential, and the planning of health maintenance and disease prevention programs (vaccination, deworming, biosecurity, and biosafety), product quality, and the behaviour of productive poultry. It also explains the planning, management, and monitoring evaluation of poultry farming businesses. | After completing the Poultry Health Management course, students will :<br>Knowledge :<br>1. Understand poultry health management in various aspects, including environment, reproduction, feed, vaccination, hatchery, housing, waste, and disease.<br>Managerial Skills :<br>1. Complete tasks accurately and on time<br>2. Understand the textbooks and presentations on Poultry Health Management<br>Attitude:<br>1. Work effectively as part of a team |
| | Total elective course credits semester 5 | | 9 | | |

## M. Elective Course Semester 6

| No | Course | Course Code | Credits (Lecture Credits / Practical Credits) | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Animal Product Quality Assurance | PKH62621 | 2 (2/0) | This course discusses the procedures for implementing quality assurance and safety of animal products to prevent the transmission of foodborne zoonoses and ensure the safety of food products derived from animals and other animal-derived materials for public health purposes. | Upon completing the Animal Product Quality Assurance course, students will :<br>a. Knowledge :<br>1. Be able to understand and explain the concepts of hazards and risks in animal products, quality control methods, and the HACCP (Hazard Analysis and Critical Control Points) concept as outlined in the RKJM (Risk and Quality Management) document, as well as recognize certifications related to animal product quality assurance<br>b. Skills :<br>1. Be able to compile RKJM documents, thereby being able to implement quality control methods and the HACCP concept<br>c. Managerial Skills:<br>1. Be able to complete the task of compiling RKJM documents accurately and on time.<br>d. Attitude :<br>1. Be able to work cooperatively in a team while prioritizing individual responsibility in completing group tasks<br>2. Demonstrate high self-discipline by not being late to attend classes |

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| 2 | Alternative Veterinary Therapy | PKH62622 | 2 (2/0) | The course on alternative veterinary medicine is an elective that discusses alternative treatments in veterinary medicine, covering their history, definition, scope, controversies, clinical approaches, and applications to animals. The types of alternative treatments covered include acupuncture, manual therapy and massage, herbal medicine, integrated nutrition therapy, medical rehabilitation, and physiotherapy. | Students' knowledge and understanding will include:<br>1. Understanding the basics of alternative veterinary medicine<br>2. Understanding acupuncture, manual therapy and massage, herbal medicine, integrated nutrition therapy, medical rehabilitation, and physiotherapy |
| 3 | Field Work Practice | PKH62623 | 4 (0/4) | | |
| | Total elective course credits semester 6 | | 4 | | |

Note: To graduate with a Bachelor's degree in the Veterinary Medicine program, students must take a minimum of 6 elective course credits

## 3.4. Curriculum of the Professional Education of Veterinary Medicine Study Program (PEVM)

The Professional Education of Veterinary Medicine Study Program (PEVM) is an advanced educational stage following the Bachelor's degree, consisting of 37 credits. The PEVM program at the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM-UB), is a continuation of the Bachelor's degree in Veterinary Medicine, as stipulated by the Decree of the Minister of Education and Culture of the Republic of Indonesia Number 0311 of 1994, Government Regulation Number 60 of 1999, and the outcomes of the National Workshop on Higher Education in Veterinary Medicine held in Bogor from April 26-28, 1999. The PEVM program is under the Veterinary Medicine Program of UB, which has obtained operational permits No. 2953/DT/2008, with an extension decree No. 4668/DT/K-N/2010, and has been accredited with a grade of B by NAB-HE (The National Accreditation Body for Higher Education) on September 16, 2011, as per the NAB-HE Decree No. 0SO/BAN.PT/S1-x/DU2011. The Professional Education of Veterinary Medicine Study Program at Universitas Brawijaya was established by the Rector's Decree No. 314/SK/2012 regarding the Establishment of the Professional Education of Veterinary Medicine Study Program (PEVM) at the Veterinary Medicine Program of UB, dated July 12, 2012.

The professional education is undertaken after students graduate from the Bachelor's program with the title of Bachelor of Veterinary Medicine (BVM). The procedure followed by SKH graduates is to re-enroll in the Academic Section of the Professional Education of Veterinary Medicine Study Program to obtain the professional title of veterinarian (DVM) and take the veterinarian's oath. The curriculum for the Professional Education of Veterinary Medicine Study Program is as follows (Table 3.6):

**3.1.2 Table 3.5.** Courses in the Professional Edcucation Veterinary Medicine Program (PEVM) FVM – UB

| Course Group | Rotational Courses | Course Code | SCU |
|---|---|---|---|
| Veterinary Clinical Sciences | Surgery and Radiology | PDH70011 | 5 |
| | Small Animal Internal Medicine | PDH70012 | 5 |
| | Large Animal Internal Medicine | PDH70013 | 4 |
| | Receptur Science | PDH70002 | 2 |
| Veterinary Reproduction | Veterinary Reproduction | PDH70014 | 4 |
| Veterinary Pathology | Anatomical Pathology | PDH70015 | 3 |
| Laboratory Diagnostics | Microbiology, and Virology | PDH70016 | 2 |

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| | Parasitology | PDH70017 | 2 |
| | Clinical Pathology | PDH70018 | 2 |
| Veterinary Public Health | Veterinary Public Health | PDH70019 | 4 |
| Veterinary Ethics | Veterinary Ethics | PDH70003 | 1 |
| Veterinary Specialisation | Elective Rotational Courses | See Elective Table | 2 |
| Final Project | PEVM Final Project | PDH70001 | 1 |
| Credits for Mandatory and Elective Rotational Courses | | | 37 |

### 3.1.3 Table 3.6. Description and Learning Outcomes of Professional Education of Veterinary Medicine Study Program Courses

| Group of Rotational Courses | Elective Rotational Courses | Course Code | SCU |
|---|---|---|---|
| Veterinary Specialisation | Molecular Analysis | PDH70021 | 2 |
| | Industrial Processing of Animal Products | PDH70022 | 2 |
| | Poultry Industry | PDH70023 | 2 |
| | Fish Health and Aquaculture | PDH70024 | 2 |
| | Wildlife and Aquatic Conservation | PDH70024 | 2 |
| Elective Rotation Course Credits | | | 10 |

**Table 3.7. Description and Learning Outcomes of Professional Courses**

**A. Compulsory Rotational Courses for PEVM FVM UB**

| No | Course | Course Code | Credits | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Surgery and Radiology | PDH70011 | 5 | The Surgery rotation includes patient evaluation, diagnosis determination, discussions, pre-operative actions, patient surgery, and post-operative actions under the supervision of a mentor. PEVM participants actively participate in discussions conducted by the surgical team within the Department | - Perform independent laparotomy surgery (pre, operative, post) twice<br>- Correctly interpret soft tissue radiographs and ultrasounds four times<br>- Correctly interpret hard tissue radiographs four times<br>- Correctly insert an intravenous catheter (IV) three times<br>- Correctly catheterise male animals twice<br>- Assist and understand independent elective surgeries at least once (such as orthopaedics, tumour removal, ophthalmology, or dentistry)<br>- Perform inhalation anaesthesia twice<br>- Correctly catheterise female animals once. |
| 2 | Small Animal Internal Medicine | PDH70012 | 5 | The Internal Medicine rotation is conducted in animal hospitals, veterinary clinics, and in the field (teaching farms) to handle | - Accurately complete medical records twice (trace the medical history and demonstrate appropriate actions)<br>- Correctly determine therapeutic actions for diseases three times<br>- Correctly describe preventive measures for disease cases three times |

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| | | | | cases of internal diseases, including metabolic disorders, infectious and non-infectious diseases. Participants are evaluated on their diagnostic and treatment activities for internal diseases. | - Handle and/or diagnose a minimum number of cases per person, including :<br>a. Respiratory Disorders: 3 cases<br>b. Digestive Disorders: 4 cases<br>c. Urogenital Disorders: 3 cases<br>d. Circulatory Disorders: 1 case<br>e. Neurological Disorders: 3 cases<br>f. Musculoskeletal Disorders: 3 cases<br>g. Others (dentistry, ENT, ophthalmology): 4 cases |
| 3 | Large Animal Internal Medicine | PDH70013 | 4 | The Large Animal Internal Medicine rotation is conducted in animal hospitals, veterinary clinics, and in the field (teaching farms) to handle cases of internal diseases, including metabolic disorders, infectious and non-infectious diseases. Participants are evaluated on their diagnostic and treatment activities for internal diseases. | - Correctly determine therapeutic actions for diseases once<br>- Correctly describe preventive measures for disease cases once<br>- Handle and/or diagnose a minimum number of cases per person, including :<br>a. Respiratory Disorders: 1 case<br>b. Digestive Disorders: 1 case<br>c. Urogenital Disorders: 1 case<br>d. Skin Disorders: 1 case<br>e. Musculoskeletal Disorders: 1 case<br>f. Others (dentistry, ENT, ophthalmology): 1 case |

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| 4 | Reseptur Science | PDH70002 | 2 | The Prescription Science rotation is provided to PEVM students for one week. The material covers understanding prescription content, calculating maximum doses, compounding medications in prescriptions, and creating prescription copies in various forms such as powders, pills, capsules, ointments, suppositories, solutions, suspensions, emulsions, and galenic preparations. | Correctly create a prescription for a given case at least 10 times. |
| 5 | Veterinary Reproduction | PDH70014 | 4 | Rotation in Reproduction involves providing students with knowledge about animal reproductive physiology, techniques and practice of artificial insemination, pregnancy detection, birth assistance, and treatment for infertility in both large and small animals | LARGE ANIMAL REPRODUCTION<br>A. Physiology Reproductive<br>- Perform rectal palpation (anatomy of the uterus, ovaries, and estrus phase) correctly 5 times.<br>- Conduct vaginal swab examination for estrus determination correctly 5 times.<br>B. Artificial Insemination Science<br>- Collect and examine semen (ruminants and poultry) 3 times with 75% accuracy.<br>- Dilution of semen with various diluters (ruminant and poultry) 3 times with 100% accuracy |

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| | | | | | - Packaging and storage of fresh and frozen semen 2 times<br>- Insertion of the AI gun into the cervix of estrous and non-estrous cows at the 4th position 5 times correctly<br>C. Obstetrics<br>- Rectal palpation for the examination of normal and pathological pregnancies in demonstration cows at various stages of gestation, performed correctly 2 times<br>- Mastery of laboratory examination methods for determining the age of pregnancy, performed once<br>D. Parturition Assistance and Infertility<br>- Demonstration of dystocia assistance, performed correctly once<br>- Demonstration and execution of eutocia assistance, performed correctly 2 times<br>- Assistance with retained placenta or other pathological reproductive cases, performed once<br>- Understanding infertility cases in animals (3 cases)<br><br>SMALL ANIMAL REPRODUCTION<br>- Ultrasound examination for pregnancy in cats and dogs, each performed at least once |

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| | | | | | - Handling infertility in cats and dogs, with a minimum of 1 case per animal<br>- Assisting in the birth process in cats and dogs, each performed correctly at least once<br>Diagnosing pregnancy based on radiography, ultrasound, and/or Doppler, performed correctly twice |
| 6 | Anatomical Pathology | PDH70015 | 3 | The Veterinary Pathology rotation is provided to PEVM students for 3 weeks. The material includes proper techniques for euthanasia and necropsy, procedures for aseptic collection and submission of specimens, and determination of definitive/tentative diagnoses based on histopathological findings. | - Perform necropsy on poultry (pets, wildlife, livestock) in 6 case<br>- Perform necropsy on non-poultry (carnivores, ruminants, wildlife) in 6 cases<br>- Perform necropsy on aquatic/reptile animals in 3 cases<br>- Correctly interpret histopathology of poultry in 3 cases<br>- Correctly interpret histopathology of non-poultry in 3 cases<br>- Interpret histopathology of aquatic/reptile animals 1 time<br>- Participate in discussions, guest lectures, and visits related to pathology 1 time |
| 7 | Microbiology and Virology | PDH70016 | 2 | The Veterinary Laboratory Diagnostic rotation includes physical examinations, recording medical histories, analysing laboratory data, and understanding laboratory analysis techniques. | A. MICROBIOLOGY AND VIROLOGY<br>- Isolation and identification of viruses, 1 sample per individual<br>- Isolation and identification of bacteria, 1 sample per individual<br>- Conducted serological examination once per individual |

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| | | | | The Clinical Pathology course involves actions to identify, analyse, and resolve laboratory cases related to the examination and interpretation of haematology and clinical chemistry results of blood, urine, faeces, and other body fluids, supporting the establishment of clinical/laboratory diagnoses. | |
| 8 | Parasitology | PDH70017 | 2 | The Veterinary Laboratory Diagnostic rotation includes physical examinations, recording medical histories, analysing laboratory data, and understanding laboratory analysis techniques. | PARASITOLOGY<br>- Diagnosis and identification of parasites in cattle, goats, cats, dogs, and poultry, individually:<br>a. 2 ectoparasite samples for each animal<br>b. 2 protozoa samples (blood/digestive) for each animal |

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| | | | | The Clinical Pathology course involves actions to identify, analyse, and resolve laboratory cases related to the examination and interpretation of haematology and clinical chemistry results of blood, urine, faeces, and other body fluids, supporting the establishment of clinical/laboratory diagnoses. | c. 2 helminth samples for each animal |
| 9 | Clinical Pathology | PDH70018 | 2 | The Veterinary Laboratory Diagnostic rotation includes physical examinations, recording medical histories, analysing laboratory data, and understanding laboratory analysis techniques. The Clinical Pathology course involves actions to identify, analyse, and resolve laboratory cases related to the examination and interpretation of haematology and clinical chemistry results of blood, urine, faeces, and other body fluids, supporting the establishment of clinical/laboratory diagnoses. | CLINICAL PATHOLOGY<br>- Capable of interpreting blood and body fluid examination results accurately once per individual<br>- Able to perform laboratory examinations of blood and body fluid samples once per individual<br>- Capable of determining therapeutic actions based on laboratory examination results accurately once |

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| 10 | Veterinary Public Health | PDH70019 | 2 | The Veterinary Public Health rotation covers the quality and microbiology of animal-derived food products and their processed products related to food safety and public health. It includes the concepts and principles of epidemiology, sampling planning, sample size determination, and types of disease investigation studies. It also covers the administrative system and structure of the Department of Animal Husbandry and Animal Quarantine. | A. Laboratory<br>- Sampling and quality testing of milk samples (2 times)<br>- Sampling and quality testing of meat samples (2 times)<br>- Sampling and quality testing of egg samples (2 times)<br>B. Department of Animal Husbandry<br>Conduct an epidemiological study on one case of a strategic disease<br>C. Slaughterhouses (RPH) and/or Poultry Slaughterhouses (RPU)<br>- Perform 10 individual assessments of animal health status, ante-mortem, and post-mortem examinations<br>- Evaluate the feasibility of slaughterhouse design and waste management<br>D. Animal Quarantine<br>Understand the administrative activities of animal quarantine |

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| | | | | Evaluation is conducted by assessing the participants' ability to master the technical skills and knowledge within the scope of Veterinary Public Health. | |
| 11 | Veterinary Ethics | PDH70003 | 1 | The Veterinary Ethics rotation includes the professional code of ethics for veterinarians, the latest and applicable legislation related to the veterinary profession, and the development of communication skills. | (1) Understand the professional code of ethics for veterinarians<br>(2) Comprehend the latest legislation related to the veterinary profession<br>(3) Possess good communication skills |
| 12 | Final Project of PEVM | PDH70001 | 1 | The final project requires PEVM students to compile a written scientific work that demonstrates their critical thinking, analysis, and synthesis regarding a phenomenon or issue in animal health from the perspective of veterinary science. This project utilises data from various activities such as literature review, research, internships, practical work, or other equivalent activities. | Upon completion of this final project, students should be able to produce a written scientific work related to case studies, showcasing their critical thinking, analysis, and synthesis regarding a phenomenon or issue in animal health. This should be done using data gathered from literature reviews, research, internships, practical work, or other equivalent activities. |
| | Total Credits for Mandatory Rotation Courses in the PEVM | | 35 | | |

**B. Elective Rotation Courses in the Professional Education of Veterinary Medicine Study Program (PEVM) FVM UB**

| No | Course | Course code | Credits | Course Description | Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Molecular Analysis | PDH70021 | 2 | The molecular analysis rotation involves performing biomolecular-based sample analysis (DNA/RNA, Protein, Lipid, and Carbohydrate) with appropriate tests. Evaluation of participants includes the ability to perform and understand results based on instrument readings. | A. Each student performs one DNA analysis and masters<br>- Isolation and Purification<br>- Electrophoresis<br>- PCR/RFLP<br>B. Each student performs one Protein analysis<br>- IIsolation and Purification<br>- SDS PAGE<br>- WESTERN BLOT/ELISA<br>C. Each student must at least master the use of the following instruments:<br>- UV/VIS Spectrophotometer<br>- Centrifuge<br>- Autopipette<br>- DNA/protein Electrophoresis |

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| 2 | Animal-Based Food Processing Industry | PDH70022 | 2 | Co-assistant in the PPH industry enables the explanation of hygiene and sanitation assurance in the production process of animal products. | - Understanding hygiene and sanitation assurance requirements.<br>- Understanding the production process of animal products in companies.<br>- Understanding the distribution requirements of animal products from companies. |
| 3 | Poultry Industry | PDH70023 | 2 | Co-assistant in the poultry industry includes the organisation and administration of companies and operational activities in companies that produce veterinary medicines and vaccines, animal feed companies, animal-based feed processing companies, or livestock companies. | - Understanding company operations.<br>- Understanding the production processes in companies.<br>- Understanding the distribution process of company products.<br>- Understanding factors that influence production and distribution processes.<br>- Being able to explain quality control measures for non-conforming products.<br>- Being able to evaluate the veterinary medical aspects of production and distribution processes within the poultry industry. |
| 4 | Aquaculture Health | PDH70024 | 2 | Co-assistant in Aquaculture Health is an elective rotation in the Professional Education of Veterinary Medicine Study Program that studies animal health and welfare within the scope of fisheries, which is the domain of veterinarians. | - Understanding quality control, safety of fishery products, and biosecurity.<br>- Understanding animal health (quarantine and laboratory techniques) within the scope of fisheries, which is the responsibility of veterinarians.<br>- Understanding the supervision of marine and fishery resource management.<br>- Being able to explain the steps for fish health control. |

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| 5 | Wildlife and Aquatic Animal Conservation | PDH70025 | 2 | This rotation provides knowledge, understanding, and direct practice for PEVM students in the field of wildlife and aquatic animals. The implementation will take place in conservation institutions where veterinarians serve as conservation medics and undertake various roles, both medical and non-medical, in managing wildlife and aquatic animals. Students will follow the complete range of activities conducted by veterinarians and the medical team to understand and be expected to practice diagnostic techniques, treatment, other medical procedures, management of feed, housing, quarantine, biosecurity, and the handling of deceased wildlife and aquatic animals. | - To know and understand various procedures related to medical actions such as anaesthesia, relocation, weighing, and general check-ups, both preventive and curative.<br>- To know, understand, and practice diagnostic techniques for wildlife and aquatic animals.<br>- To know, understand, and practice treatment techniques for wildlife and aquatic animals.<br>- To know and understand procedures for handling deceased wildlife and aquatic animals.<br>- To know and understand the management of feed for wildlife and aquatic animals.<br>- To know and understand the housing management of wildlife and aquatic animals.<br>- To know and understand quarantine management.<br>- To know and understand biosecurity management. |
| | Total Credit Units for Elective Rotation Courses for PEVM | | 10 | | - |

The character of this professional education is skill/practical-based according to the allocated time and internship activities which encompass fieldwork/skills. This includes the introduction, understanding, determination, and ability to diagnose, prevent, and treat animal diseases in both individual and group settings; food safety; and administrative tasks that are either compulsory or elective.

### 3.4. Competency Certification Examination

Graduates of the Veterinary Professional Education will be affirmed with the Veterinarian's Oath as part of the affirmation of the Veterinary Medical Profession in accordance with professional ethics. For the purpose of veterinary professional services, a National Competency Examination is conducted. This National Veterinary Competency Examination is jointly organised by the Indonesian Veterinary Medical Association (IVMA), the Indonesian Veterinary Medical Education Council (MP2KH), and higher education institutions. The competency examination is implemented to ensure that a veterinarian obtains the legal authority to practise the veterinary medical profession.

Veterinarians who have passed the Competency Certification are required to continue improving their qualifications through the Continuing Veterinary Medical Education (PBKH) as stipulated in MP2KH IVMA Regulation No. 01-16/MP2KH/IVMA/V/2009 regarding PBKH management.

The National Veterinary Competency Examination is held one day after the PEVM PKH-UB students are inaugurated as veterinarians. The exam covers nine topics representing the competencies of an Indonesian Veterinarian, as outlined in the KDHI Examination Handbook, namely:

1. Veterinary ethics and understanding of the essence of the Oath and Professional Code of Ethics, as well as the Basic References for the Veterinary Profession.
2. National Animal Health System and Veterinary Legislation.
3. Lege-artis medical procedures.
4. Management of diseases in large animals, small animals, poultry, exotic animals, wildlife, aquatic animals, and laboratory animals.Knowledge in :
   a. Clinical, pathological, laboratory, and epidemiological diagnosis of animal diseases;
   b. Nutritional formulation for health and medical disorders;
   c. Antemortem and postmortem examination;
   d. Pregnancy examination, management of reproductive disorders, and application of reproductive technology;
   e. Monitoring the safety and quality of animal-derived food;
   f. Monitoring and controlling the quality of veterinary drugs and biological materials, including their use and distribution;
   g. Assessment and supervision of animal welfare.
5. Professional communication (professional dialogue).
6. Management of strategic disease and zoonosis control and rejection, animal biosecurity, and environmental control.
7. Therapeutic transactions, anamnesis, medical records, informed consent, prescription writing, medical certificates, and client education.
8. Veterinary economics and entrepreneurship.

# CHAPTER IV
# EDUCATION SYSTEM

The Faculty of Veterinary Medicine at Universitas Brawijaya, as part of UB's Education System, implements the Semester Credit System established by Rector's Decree No. 22/SK/1976 dated 3 May 1976. Considering Government Regulation No. 60/1999 on Higher Education, the Minister of National Education Decree No. 232/U/2000 on the Formulation of Higher Education Curriculum and Assessment of Student Learning Outcomes, Law No. 20/2003 on the National Education System, and the Guidelines for the Implementation of the Credit System for Higher Education, the Education Guidelines of the Faculty of Veterinary Medicine UB are published.

The Faculty of Veterinary Medicine UB, as a Higher Education Institution, must consider six factors:

1. Students, as learners, naturally have individual differences in talents, interests, and academic abilities.
2. The demand for professional veterinarians is increasing in line with the rapid development of science and technology.
3. The rapid development of science and technology.
4. Adequate educational and learning facilities such as lecture rooms, laboratories, and reading rooms.
5. Educational support staff who influence the smooth implementation of the educational process.
6. Lecturers, as the implementers of student-centred learning, are a crucial component affecting the educational process and outcomes
7. The development of the teaching and learning process refers to the higher education curriculum regulated by Presidential Regulation No. 8 of 2012, Law No. 12 of 2012, and Minister of Research, Technology, and Higher Education Regulation No. 44 of 2015.

## 4.1 Learning System in the Competency-Based Curriculum (CBC)

Learning system used in BVM and PEVM program using semester credit units (SCU) as a measure of student learning load, the learning load of a study Program, as well as the teaching load of lecturers. A semester is the smallest time unit to indicate the duration of an educational Program at a certain level of education. One semester is a time unit of learning activities of at least 16 (sixteen) weeks. The semester credit unit (SCU) is a unit used to indicate the amount of student study load, the amount of cumulative effort recognition for a certain Program, and the amount of effort to organise education for higher education institutions and particularly for lecturers.

The implementation of the Competency-Based Curriculum (CBC) with a student-centred

learning strategy (SCL) is arranged in the form of Block Courses. Block Courses are organised based.

1. Credit System
    a. The credit system is a system of recognition of student study load, lecturer workload, and the educational Program implementation load expressed in credits.
    b. A credit is a unit that quantitatively expresses the content of a course.
    c. Characteristics of credits are:
        i. In the credit system, each course is given a value called credit value.
        ii. The credit value for different courses does not need to be the same.
2. The credit value for each course is determined based on the amount of effort required to complete tasks, which are expressed in lecture activities, practicals, fieldwork, or other tasks. Semester System
    a. The semester system is an educational Program implementation system that uses a half-year time unit called a semester.
    b. A semester is the smallest time unit to indicate the duration of an educational activity within a certain level/Program of education. One semester is equivalent to 16-19 weeks of work, in terms of effective lecture weeks including final exams, or up to 22 weeks of work including re-evaluation and quiet weeks.
    c. The implementation of education in one semester consists of lectures, seminars, practicals, fieldwork, in the form of face-to-face interactions, as well as structured and independent academic activities.
    d. Each semester, a number of courses are presented in block form, and each course has a weight expressed in semester credit units (SCU), as stipulated in the Veterinary Medicine Program curriculum.
3. Semester Credit System
    a. This is a credit system implemented within a semester time unit.
    b. SCS has two very important purposes:
        i. General Purpose:

            To better meet the demands of development, universities need to offer varied and flexible educational Programs. This approach will provide wider opportunities for each student to determine and organise their curriculum and learning process strategy according to their plans and individual conditions.

ii. Specific Objectives

1. To provide opportunities for capable and diligent students to complete their studies in the shortest possible time.
2. To allow students to take courses that match their interests, talents, and abilities.
3. To facilitate the implementation of an education system with diverse inputs and outputs.
4. To ease the adaptation of the curriculum over time with the rapid development of science and technology.
5. To ensure that the system for evaluating students' learning progress can be conducted optimally.
6. To allow the transfer of credits between study Programs or faculties within a university or between universities.
7. To facilitate the transfer of students from one university to another or from one study Program to another within a university.

c. The semester credit unit (SCU) is used to indicate the student's study load in a semester, the recognition of their academic success, and the effort required for organising educational Programs in higher education institutions, especially for lecturers.

d. Each block, consisting of several integrated courses or other academic activities, is offered every semester with an assigned semester credit value that indicates the weight of the activities in those courses.

e. In each implementation of block courses, several modules have integrated SCS loads.

f. Each module's coursework includes independent group discussions among students with lecturer guidance. Following this, after students have prepared their reports, expert lectures are conducted. This approach allows students to actively improve their module reports.

## 4.2. Study Load Credit Value

1. Semester Credit Value for Lectures

For lectures, the value of one semester credit unit is determined based on the weekly activity load as follows:

a. For Students

i. 50 minutes of scheduled face-to-face meetings with lecturers, such as in the form of lectures, seminars, etc.

ii. 60 minutes of structured academic activities, which are unscheduled but planned by the

lecturer, such as homework or problem-solving tasks.

60 minutes of independent academic activities, which are activities that must be done to deepen, prepare for, or achieve other academic purposes, such as reading reference books.

b. For Lecturers
   i. 50 minutes of scheduled face-to-face meetings with students.
   ii. 60 minutes of planning and evaluating structured academic activities.
   iii. 60 minutes of lecture material development.

2. Semester Credit Value for Seminars

   For the organisation of seminars, where students are required to present in a forum, the value of one semester credit unit is the same as for lectures, which is 50 minutes of face-to-face activities per week.

3. Semester Credit Value for Practicals, Research, Thesis Writing, and Fieldwork

   The value of one semester credit unit is equivalent to completing activities for two to five hours per week over one semester, or a total of 32 to 80 hours per semester.

   a. For laboratory practicals, the value of one semester credit unit is the equivalent of two to three hours of laboratory tasks per week over one semester.
   b. For research, thesis, dissertation, and thesis writing, the value of one semester credit unit is the equivalent of three to four hours of research tasks per day for one month, with one month being equivalent to 25 working days.
   c. For fieldwork and similar activities, the value of one semester credit unit is the equivalent of four to five hours of field tasks per week over one semester.

## 4.3. Study Load in a Semester

A student's study load in one semester is determined based on the average daily working time and individual capability. Generally, people work an average of 6-8 hours for six consecutive days. A student is expected to work longer, as they study both during the day and at night. If we assume a normal student works an average of 6-8 hours during the day and two hours at night for six consecutive days, then a student is estimated to have 8-10 hours of study time per day or 48-60 hours per week. Since one semester credit unit is roughly equivalent to three hours of work, the student's study load for each semester will be equal to 16-20 SCS or around 18 SCS. When determining the study load for one semester, it is necessary to consider individual capabilities based on the student's performance in the previous semester, measured by the Grade Point Average (GPA).

$$\text{GPA} = \frac{SCS\ of\ course\ X\ course\ grade}{Number\ of\ SCS\ of\ courses\ taken}$$

$$\text{GPA} = \frac{K\ x\ N}{N}$$

GPA : Grade Point Average, which can be either the semester GPA or cumulative GPA
K : number of SCS for each course
N : final grade for each course

## 4.4. Assessment of Academic Ability

### 1. General Provisions

a. The assessment of academic ability in a course is carried out through structured assignments, quizzes, mid-term exams, final exams, and practical assessments.
b. Structured activities in the assessment of academic ability in a course during a semester are conducted at least twice in one semester.
c. Mid-term and final exams are conducted according to the schedule set in the academic calendar.

### 2. Weight and Final Grade

a. The weight of an assessment activity for a course is determined according to the proportion of the activity's material to the overall course material in one semester.
b. The final grade for the assessment of academic ability in a course is determined based on the applicable rules.
c. The final grade, as mentioned in point (b), is a numerical value and is converted to a letter grade according to the provisions.

| Numeric Value | Letter Grade | Weight |
|---|---|---|
| >80-100 | A | 4 |
| >75-80 | B+ | 3,5 |
| >69-75 | B | 3 |
| >60-69 | C+ | 2,5 |
| >55-60 | C | 2 |
| >50-55 | D+ | 1,5 |
| >44-50 | D | 1 |
| 0-44 | E | 0 |

d. In converting numeric values to letter grades as referred to in item (c), three alternative

assessment methods are used:

1) Using the Criterion-Referenced Assessment (CRA) system, which involves setting a passing grade,
2) Using the Norm-Referenced Assessment (NRA) system, which involves comparing a student's grade with those of their peers,
3) Using a combination of CRA and NRA, which involves setting a passing grade first, and then comparing the passing grades relative to the group. It is recommended to use the NRA or the combined CRA and NRA in assessments.

e. The final course assessment is expressed with a Grade Letter (GL) and a Grade Point (GP) as shown in the following table:

| Grade Letter | Grade Point | Ability Category |
|---|---|---|
| A | 4 | Excellent |
| B+ | 3,5 | Between Excellent and Good |
| B | 3 | Good |
| C+ | 2,5 | Between Good and Fair |
| C | 2 | Sufficient |
| D+ | 1,5 | Fair |
| D | 1 | Poor |
| E | 0 | Fail |

**2. Remedial and Special Examinations**

a. Remedial and special examinations are intended to improve the final grade of a Block course that has been taken previously by:
b. Attending all academic activities related to the course in the semester when the course is offered for improvement. Resit examinations are intended for courses with a grade up to the highest C, while the best final grade is taken.
c. Special examinations are for students who have accumulated credits equal to or greater than 144 credits and have completed their final project but obtained a GPA of less than 2.00.
d. Special examinations apply to courses with a maximum grade of C+

## 4.5. Evaluation of Bachelor's Degree Study Success

Student academic success is expressed with a grade point average (GPA), written as a number. Evaluation of student academic success is conducted at least at the end of each semester in the first year, second year, third year, and fourth year.

*a. End of Semester Study Evaluation*

Evaluation of end of semester study success is conducted at the end of each semester, covering the courses taken by students in that semester. The results of this evaluation are primarily used to determine the study load that can be taken in the following semester, based on the following provisions:

| GPA obtained in the semester | Study load in the following semester |
|---|---|
| >3,00 | 22-24 SCU |
| 2,50-2,99 | 19-21 SCU |
| 2,00-2,49 | 16-18 SCU |
| 1,50-1,99 | 12-15 SCU |
| <1,50 | <12 SCU |

*a. Evaluation of First Year Study Success*

At the end of the first year since students enrolled in the Veterinary Medicine undergraduate program, an evaluation is conducted to determine whether the student may continue their studies or not. Students are allowed to continue their studies if they meet the following requirements:

a. Accumulate at least 20 credits (SCU)
b. Achieve a GPA of at least 2.00, calculated from the best grades obtained from 20 credits of coursework.

*b. Evaluation of Second-Year Study Success*

Students are permitted to continue their studies beyond the second year if they meet the following criteria:

a. Accumulate a minimum of 48 credits (SCU).
b. Achieve a Grade Point Average (GPA) of at least 2.00, calculated from the best 48 credits of courses taken.

*c. Evaluation of Third-Year Study Success*

Students are permitted to continue their studies beyond the third year if they meet the following criteria:

a. Accumulate a minimum of 72 credits (SCU).
b. Achieve a Grade Point Average (GPA) of at least 2.00, calculated from the best 72 credits of courses taken.

*d. Evaluation of Fourth-Year Study Success*

Students are permitted to continue their studies beyond the fourth year if they meet the following criteria:

a. Accumulate a minimum of 96 credits (SCU).
b. Achieve a Grade Point Average (GPA) of at least 2.00, calculated from the best 96 credits of courses taken.

e. ***Evaluation of Final Undergraduate Study Success***

To complete the undergraduate Program, a student must accumulate a minimum of 144 credits (SCS), including the thesis or equivalent final project. The minimum credit requirement is defined within these bounds. A student who has accumulated at least the minimum number of credits will be considered to have completed the undergraduate Program provided the following conditions are met:

- A Cumulative Grade Point Average (CGPA) of at least 2.00.
- Grades of D/D+ do not exceed 10% of the total credit load, except for specific courses where D/D+ grades are not permitted.
- No grades of E.
- If the GPA is below 2.00, the student must retake courses to improve their grades within the allotted study period. Retakes must be completed in the subsequent semester when the course is offered. For each retaken course, the highest grade achieved will be used for evaluation.

***f. Withdrawal of Excess Courses***

Students are not permitted to withdraw from excess courses that have been Program and appear on their Academic History (KHS), except in special circumstances with the approval of the Vice Rector for Academic Affairs.

***g. Study Period Limits***

The undergraduate Program must be completed within a maximum of seven years from the time of initial enrolment. If a student does not complete their degree within this timeframe, they will be deemed unable to continue their studies. The seven-year period does not include academic or terminal leave, but periods of non-registration without rector's permission are counted as part of the study period.

## 4.6. Final Examination for Undergraduate Program

To complete the undergraduate Program, students must follow the Semester Credit Unit and conclude their studies with a final project examination.

1. Final Project Examination

   For the final project examination, a student is required to produce a final project in the form of a thesis. This thesis is an academic work in the student's field of study, written based on research findings, literature review, and fieldwork practice, or other assignments as determined by their faculty

   a. Requirements for the Final Project

A student is permitted to undertake the final project if they meet the following conditions:

i. Registered as a student in the relevant academic year.
ii. Accumulated a minimum of 110 credits for fieldwork and 120 credits for the thesis.
iii. Achieved a Grade Point Average (GPA) of at least 2.00
iv. Grades of D do not exceed 10% of the total credits, and no grades of E. Met other requirements specified in the UB Education Guidelines.

b. Procedure and Methodology for the Final Project
The procedure and methodology for the final project are outlined in the Fieldwork and Thesis Procedure Manual.
c. Credit Value for the Final Project
The credit value for the final project is 4 credits for fieldwork and 6 credits for the thesis.
d. Completion Time for the Final Project
i. The final project must be completed within 6 months from the time it is Programd in the Academic Schedule (KRS).
ii. Any extension must be approved by the Program Chair in accordance with the prevailing regulations.
e. Supervision of the Final Project
i. Supervisor Requirements
The requirements for final project supervisors are specified in the Fieldwork and Thesis Procedure Manual.
ii. Determination of Supervisors
The determination of supervisors for the final project is governed by the Fieldwork and Thesis Procedure Manual.
iii. Duties and Responsibilities of Supervisors
The duties and responsibilities of final project supervisors are detailed in the Fieldwork and Thesis Procedure Manual

2. Nature and Objectives of the Final Examination
The nature and objectives of the final examination for the undergraduate Program are outlined in the Fieldwork and Thesis Procedure Manual.
3. Requirements for the Final Examination
The requirements for undertaking the final examination are specified in the Fieldwork and Thesis Procedure Manual
4. Application Procedure for the Final Examination
The application procedure for the final examination is described in the Fieldwork and Thesis Procedure Manual.
5. Examination Committee for the Final Examination
The composition of the examination committee for the final examination is outlined in the Fieldwork and Thesis Procedure Manual.
6. Timing of the Final Examination
The timing of the final examination is regulated by the Fieldwork and Thesis Procedure Manual.
7. Assessment

The assessment of the final project, including both fieldwork and thesis components, is detailed in the Fieldwork and Thesis Procedure Manual.

8. Undergraduate Graduation
   a. Graduation is determined based on the date the student has completed all academic requirements and is declared at the end of their study period.
   b. The academic requirements for graduation include:
      - The student must pass the final project examination within the maximum study period of 7 years.
      - Submission of an academic journal in accordance with the regulations and upload to the UB website.
      - Passing the TOEIC exam according to the regulations administered by an official institution designated by UB.
   c. Graduation Classification**.** Graduation classification consists of three levels: satisfactory, very satisfactory, and with honours.

      The classification for graduation is indicated on the academic transcript. The Grade Point Average (GPA) used to determine the graduation classification is as follows:

      i. GPA 2.00-2.75: Satisfactory
      ii. GPA 2.76-3.50: Very Satisfactory
      iii. GPA 3.51-4.00: Cum Laude (With Honours)

      The Cum Laude classification also considers the maximum study period, which is five years for the undergraduate Program.
   d. Undergraduate Degree
      The degree of Bachelor of Veterinary Medicine (BVM) is governed by the Decree of the Minister of Education and Culture No. 036/U/1993 dated 9 February 1993

## 4.7. Final Project Administration

### a. Fieldwork Practice

x **Requirements for Fieldwork Application**

Students are eligible to apply for fieldwork if they meet the following criteria:

1. Registered as a student for the relevant academic year.
2. Accumulated a minimum of 110 credits.
3. Achieved a GPA of at least 2.00.
4. Conducted a site survey and submitted a fieldwork title to the Head of the Veterinary Medicine Study Program.
5. Met other requirements specified by the Faculty of Veterinary Medicine (FVM) UB.

x **Procedure and Methodology for Proposal and Fieldwork Report**

The procedure and methodology for preparing the proposal and report for fieldwork are detailed in the Fieldwork Proposal and Report Writing Guidelines of the Veterinary Medicine Study Program.

x **Credit Value for Fieldwork**

The credit value for the fieldwork Program is 4 credits.

- **Completion Time for Fieldwork**

1. Fieldwork must be conducted over 30 active working days.
2. The total time for completing the fieldwork, including proposal preparation, fieldwork execution, examination, and report compilation, is 4 months, with a maximum of 6 months from the time it is Programd in the Academic Schedule.
3. Fieldwork exceeding 1 year post-application requires repeating the fieldwork with a different title.

- **Fieldwork Supervision**

A student is supervised by two lecturers: Supervisor I and Supervisor II.

- **Procedure for Fieldwork Application and Examination**

1. Informally survey potential fieldwork sites aligned with veterinary medicine interests and ensure the site has a veterinary practitioner.
2. Once a site is confirmed, the student should visit the Academic Office to request the fieldwork registration form, accompanied by the KRS.
3. Submit the fieldwork application to the Head of the Veterinary Medicine Study Program, providing details about the planned fieldwork activities.
4. The Head of the Veterinary Medicine Study Program proposes supervisors and examiners for the student's fieldwork to the Vice Dean I.
5. The academic administration staff obtain the names of the supervisors and examiners, process their consent, and inform the student of their assigned supervisors and examiners.
6. Prepare the fieldwork proposal with guidance from the supervisors and obtain their approval within 2 months of being assigned supervisors. If this deadline is missed, a new fieldwork title must be proposed.
7. The academic administration processes the request for fieldwork permission at the intended institution, including the proposal prepared by the student.
8. Conduct fieldwork for 30 active working days.
9. Submit and report the fieldwork, guided by the supervisors, within 2 months after completing the fieldwork. If this deadline is missed, the fieldwork must be repeated with the initial title.
10. Process the fieldwork examination based on supervisor approval.
11. The academic administration processes the examination documentation and the Supervisors' and Examiners' Appointment Letters.
12. Conduct the fieldwork examination.
13. Revise the fieldwork report based on feedback from the examiners and supervisors within 1 month of the examination. Failure to meet this deadline requires re-examination.
14. Submit the finalised fieldwork report to:
    a. Fieldwork Supervisors (2)
    b. Fieldwork Institution
    c. FVM UB Reading Room
    d. FVM UB Academic Office

e. Relevant parties

15. The academic administration processes the fieldwork grades as submitted by the supervisors and announces them through SIAM website.

**b. Thesis**

The undergraduate Program at Brawijaya University is conducted under a semester credit system and concludes with a final examination. For the final examination, students are required to complete a thesis, which is an academic work based on research and literature review in their field of study.

x Requirements for Submitting a Thesis

A student may submit a thesis if they meet the following requirements:

1. Enrolled as a student in the relevant academic semester and has included the thesis in the Semester Credit System.
2. Accumulated a minimum of 120 Credit Points.
3. Achieved a Grade Point Average (GPA) of at least 2.00.
4. Adhered to the academic calendar for final assignments set by the Faculty of Veterinary Medicine (FVM) at Universitas Brawijaya (UB).
5. Fulfilled additional requirements specified by the Faculty of Veterinary Medicine (FVM) at UB.

x **Procedure and Methods for Preparing a Thesis**

The procedures and methods for preparing a thesis are outlined in the Thesis Writing Guidelines Book of the Veterinary Medicine Education Program at FVM UB

x **Thesis Credit Value**

The credit value for a thesis as a final undergraduate project is a minimum of 6 Credit Points (SCS).

x **Thesis Completion Time**

1. The thesis must be completed within 6 months from its inclusion in the Semester Credit System.
2. Extensions are permitted with the approval of the Head of the Study Program, following procedures set by FVM UB

x **Thesis Supervision**

During the thesis process, a student is supervised by two faculty members: a Principal Supervisor and a Co-Supervisor.

x **Thesis Proposal Seminar**

The thesis proposal seminar is a compulsory oral presentation required for the implementation of the thesis research. The seminar aims to evaluate the feasibility of the thesis proposal.

A student may schedule a thesis proposal seminar if the following conditions are met:

1. The thesis is included in the KRS for the relevant academic year.

2. Application for the thesis seminar is submitted to the academic office of FVM UB.
3. Accumulated a minimum of 120 Credit Points (SCS).
4. Achieved a Grade Point Average (GPA) of at least 2.00.
5. The seminar proposal must be conducted within 2 months after the announcement of the thesis supervisors. If this deadline is missed, the student must reapply to the Head of the Study Program.
6. Fulfilled additional requirements specified by the Faculty of Veterinary Medicine (FVM) UB.

x **Thesis Results Seminar**

The thesis results seminar is a mandatory oral presentation required for the final undergraduate examination (comprehensive exam). The seminar aims to evaluate the results of the thesis research and the student's understanding of the material.

A student may schedule the thesis results seminar if the following requirements are met:

1. The thesis is included in the KRS for the relevant academic year.
2. The thesis proposal has been completed.
3. Attended at least 10 open seminars.
4. Completed the thesis research.
5. Accumulated a minimum of 120 Credit Points (SCS).
6. Achieved a Grade Point Average (GPA) of at least 2.00.
7. Completed the practical work (FWP).
8. The results seminar must be conducted within 3 months after the thesis proposal seminar. If this deadline is missed, the student must repeat the proposal seminar.
9. Achieved a Grade Point Average (GPA) of at least 2.00.
10. Fulfilled additional requirements specified by the FVM UB

x **Comprehensive Examination**

The final undergraduate examination (comprehensive exam) is the final test required for obtaining the Bachelor of Veterinary Medicine degree. The exam is comprehensive, oral, and aims to assess the student's mastery of knowledge and application of technology in veterinary medicine. It also aims to address any weaknesses identified.

A student may undertake the comprehensive examination if the following conditions are met:

1. Enrolled as a student and has included the thesis in the KRS for the relevant academic year.
2. Passed all courses taken (total SCU excluding the thesis).
3. No final grades of E.
4. Achieved a Grade Point Average (GPA) of at least 2.00.
5. Completed the thesis results seminar.
6. Submitted a hardcover of the practical work report (FWP) and received the FWP grade.
7. The comprehensive exam must be conducted within 1 month after the thesis results seminar. If this deadline is missed, the student must retake the thesis results seminar.
8. Fulfilled additional requirements specified by the Faculty of Veterinary Medicine (FVM ) UB.

## 4.8. Inter-Semester Program

a. Definition

The Inter-Semester Program is a Program offered between the even and odd semesters. Practical courses are not offered during the Inter-Semester Program

b. Objective

To provide students with an opportunity to improve grades for previously taken courses to enhance their cumulative Grade Point Average (GPA) and to prevent academic discontinuation.

c. Implementation

Includes face-to-face activities, structured assignments, independent work, and final exams. The schedule and implementation are managed by the organising study Program

d. Curriculum and Academic Regulations

The curriculum and academic regulations for the short semester follow the current curriculum and academic regulations in force.

e. The highest grade for the inter-semester program is B+.
f. The maximum number of credits that can be taken is 10 SCS.
g. The minimum number of participants per course is 20.

## 4.9. Professional Education of Veterinary Medicine Study Program (PEVM)

To achieve clinical competency, a competency-based curriculum is designed for the Bachelor of Veterinary Medicine (BVM) degree, requiring 144 SCU over 8 semesters. This is followed by the Professional Education of Veterinary Medicine Study Program (PEVM), which constitutes a part of the Veterinary Medicine education

The advanced education following the Bachelor's degree is the Professional Education of Veterinary Medicine Study Program (PEVM) with 37 SCU. This Program is undertaken after graduation with the Bachelor of Veterinary Medicine degree. The character of professional education involves practical skills with allocated time for internships covering field skills, including disease recognition, diagnosis, prevention, treatment of individual and group animal diseases, food safety, and administrative duties, both compulsory and elective.

The PEVM Program must be completed within 1.5 years from enrolment. If a student cannot complete the Program within this period, they are considered unable to continue their studies. The study period does not include academic leave, but non-enrolment without the rector's permission is still counted as part of the study period.

### 4.9.1 Final Professional Examination

To complete the PEVM, education is conducted using the Semester Credit System and concludes with department-specific final examinations and the veterinary profession examination.

1. Veterinary Profession Examination

   The Veterinary Profession Examination is conducted after a student has passed all PPVM rotations and is a prerequisite for graduation. The technical details of the Veterinary Profession Examination are outlined in the Veterinary Profession Examination Procedures Manual

2. Assessment

   The results of the PEVM and Veterinary Profession Examination are assessed using a

Benchmark Assessment System (BAS) with eight grades (A, B+, B, C+, C, D+, D, and E). The minimum passing grade is B. If this grade is not achieved, a retake may be required until the minimum grade is attained, following the time limits and regulations in effect.

3. Veterinary Graduation
    a. Graduation is determined based on the date the student completes all academic requirements, with procedures outlined in the PEVM Graduation Procedures Manual.
    b. Academic Requirements for Graduation
        - Completion of the entire PEVM Program, evidenced by submission of the PEVM Report, PEVM Academic Control Book, and PEVM grades (from both academic and individual rotations).
        - Completion of the Veterinary Profession Examination
    c. Graduation predicates are as follows: Pass, Very Satisfactory, and With Honour, as stated on the academic transcript. The GPA ranges for graduation predicates are:
        - GPA 2.00-2.75: Pass
        - GPA 2.76-3.50: Very Satisfactory
        - GPA 3.51-4.00: With Honour (Cum Laude)

        The With Honour (Cum Laude) predicate also considers the maximum study period.
    d. Degree

        Upon completion of the graduation process, graduates of the PEVM Program are awarded the title of Doctor of Veterinary Medicine (drh.)

## 4.10. Competency Exam for Veterinary Professional Program Students (CEVPPS)

A veterinary professional certificate is a document of recognition to practice the profession obtained by graduates of the veterinary professional program after passing the Competency Exam for Veterinary Professional Program Students (CEVPPS), to obtain a professional certificate then. A veterinary professional certificate is used as a substitute for a veterinary diploma which is valid for life. The Competency Exam for Veterinary Professional Program Students (CEVPPS) is the only exam organized by the state, namely the National Committee of CEVPPS for prospective Indonesian veterinarians to obtain their medical degrees. The main requirement to be able to take the UKMPPDH is that every medical student must complete preclinical and clinical education, and be declared to have passed by their respective medical faculties. This exam consists of 2 parts, namely the Computer Based Test (CBT) and the Objective Structured Clinical Examination (OSCE). In one year, each student participant can take the UKMPPDH up to 4 times, usually held in January, April, July, and October, with a time interval of every 3 months. UKMPPDH participants are declared to have passed and received a medical degree if they successfully pass both tests (CBT and OSCE). CEVPPS aims to maintain the quality of medical education graduates and is a form of protection for the community and users of medical services.

To practice medicine, a veterinarian must obtain a Practice Licence from the Indonesian Veterinary Association (IVMA), which represents PB IVMA. This license must be renewed every 3 years, with continuous professional development activities conducted jointly by IVMA and other institutions, and must meet the minimum criteria for practising veterinarians as stipulated in the Minister of Agriculture Regulation No. 02/Permentan/OT.140/1/2010.

# CHAPTER V
# EDUCATIONAL ADMINISTRATION

To meet the demands of curriculum management within a Semester Credit System, it is necessary to implement educational administration in a systematic manner. This will be centrally organized and managed with the aid of PPTI-UB, including the use of the SIAKAD Program for integrated online registration and the online Study Plan Card (KRS) systems.

## A. Credit System Administrative Requirements

To effectively implement the credit system, several requirements must be met, including:

### 1. Educational Guidelines

The UB educational guidelines are provided prior to the commencement of a specific academic year's lectures and include:

a. An academic calendar outlining:
   i. The start and end dates for lectures, exams, re-registration, and other academic activities for both odd and even semesters
   ii. The schedule for dies natalis, graduation ceremonies, and other ceremonial events
   iii. Student activities
b. An explanation of the Semester Credit System
c. An explanation of educational objectives
d. An explanation of academic regulations related to lectures, exams, study evaluation, student transfers, and more
e. An explanation of educational administration management
f. An explanation of counselling and academic advising
g. An explanation of campus etiquette

### 2. Functions and Roles of Academic Advisors

(Explanation according to UB Educational Guidelines 2016/2017, Chapter VI

### 3. Student Identification Number

The management of Student Identification Numbers is governed by regulations in accordance with the UB Educational Guidelines 2016/2017 on Educational Administration.

To manage the credit system administration, several stages must be completed each semester, including:

1. Registration Preparation
   The materials required for registration preparation include:
   a. A list of Academic Advisors and their advisees
   b. Instructions for completing various cards, including:
      I. Study Plan Card (KRS)
      II. Study Plan Change Card (KPRS)
      III. Course Withdrawal Card (KPM)
      IV. Study Results Card (KHS)

2. Completion of the Study Plan Card
   Initially, students must visit the Academic Subdivision of FVM UB to collect registration materials by presenting a valid Student Identity Card (SIC) for the semester.

a. Semester Study Plan Determination

The semester study plan is determined with the guidance of the assigned PA. For new students, the first semester study plan must comply with the prescribed study load. Subsequent semester study plans are based on academic performance from the previous semester. The permissible study load for the following semester is determined by the academic index approved by the PA and submitted to the Academic Subdivision of FVM -UB.

b. Study Plan Changes

Study plan changes involve substituting one course for another within the same semester. Changes must be made by the end of the first week and require approval from the Vice Dean of Academic Affairs.

c. Course Withdrawal

Course withdrawal refers to cancelling a course plan so that it is not examined during the semester. Withdrawal requests must be submitted by the end of the second week and require PA approval before being reported to the FVM UB Administration Subdivision.

d. Study Results

Study results refer to the grades received by students for all courses listed in the KRS and recorded on the Study Results Card (KHS). These activities are conducted online following PA approval.

3. Lectures, Seminars, Practicals, and Similar Activities

Students are required to attend lectures, seminars, practicals, and other academic activities in an orderly and timely manner according to the KRS and prevailing regulations. Class and practical schedules are managed by FVM -UB and may occur from 06:00 to 16:00.

4. Examination Organisation

Key stages for organising examinations include:

a. Planning the examination schedule:

According to the academic calendar, mid-semester (UTS) and end-of-semester (UAS) exams must be planned carefully and announced to students and faculty at least one week in advance to allow adequate preparation. The exam schedule should be coordinated with the lecture and practical schedules. UTS and UAS are administered by a committee appointed by the Program Chair.

b. Conducting the examination

Students eligible for exams must have attended at least 80% of the semester's classes and meet other requirements. Exam results, including final grades and component scores (such as UTS, practicals, quizzes, etc.), must be announced to students

5. Grade Administration

a. Study Results Card (KHS)

Examination results must be promptly submitted to the Academic Subdivision to facilitate the preparation of the KHS and KRS for the next semester. The KHS for each semester is prepared in five copies: for the PA, the student, the student's parents/guardians, the Academic Subdivision of FVM , and the University Computer

Centre.

b. Storage of Examination Results

Examination results are stored by the Academic Subdivision of FVM and the University Computer Centre. Stored data includes:

i. Lists of student exam results for each course
ii. KHS including cumulative exam results and academic index
iii. Cumulative grades for all courses from the start of the Program to the current semester

## B. Student Registration

6. Purpose
   a. To organise academic activities each semester
   b. To monitor the size of the student body and the number of actively participating students each semester
   c. To obtain data on student activities and status
7. Types of Student Registration
   a. Administrative Registration

   Administrative registration is the process of obtaining status as a student of the UB Veterinary Medicine Program. All students must complete administrative registration at the start of each semester according to the academic calendar.

   i. New Student Administrative Registration (as per UB Educational Guidelines)
   ii. Returning Student Administrative Registration
      1. Returning students must personally complete administrative registration by submitting:
         a. Completed registration forms
         b. Previous semester Student Identity Card (KTM)
         c. Proof of payment of SPP for the previous academic year
         d. Proof of payment of SPP for the current semester/academic year
         e. Two 3x3 cm passport-sized photos
         f. Students not registered or on academic leave in the previous semester must obtain permission from the Rector to re-register.

      2. Sanctions
         a. Returning students who fail to complete administrative registration for a given semester without the Rector's approval will not be considered students for that semester and it will be counted towards their study period.
         b. Late administrative registration by returning students, regardless of the reason, will result in the student being marked as not registered for that semester at Universitas Brawijaya.
         c. Returning students who are not registered as per the above point may apply for academic leave to the Rector no later than one week after the administrative registration deadline.
         d. Returning students who are not registered for more than two cumulative semesters will be considered to have withdrawn from Universitas Brawijaya.
         e. No extension is permitted for administrative registration.

x Academic Registration

Academic registration is the process of enrolling to participate in academic activities for a specific semester. It includes;

i. Academic registration activities include, among others::
   1. Filling out and validating the Study Plan Card (KRS)
   2. Filling out the Study Plan Change Card (KPRS)
   3. Course cancellation
ii. Completion and validation of the Study Plan Card (KRS)
iii. Completion of the Study Plan Change Card (KPRS)
iv. Course withdrawal
v. Consultation on the study plan, which must be conducted with the Academic Advisor according to the academic calendar.

## C. Regulations on Payment of Tuition Fees

The regulations concerning the payment of tuition fees for both new and continuing students are outlined in the University of Brawijaya Education Guidelines. These include details on the types of fees that must be paid, payment requirements, and the amount of study fees imposed as per the Rector's Decree

## D. Student Identification Card (KTM)

Registered students are issued a Student Identification Card (KTM), which is a physical plastic card with a barcode number and registration endorsement marked with a hot stamp.

- KTM is given to students who have completed their administrative registration fully.
- In cases where there is an error in the KTM details, students must report it to the Academic Administration Office (BAAK) to obtain a corrected KTM.
- The KTM serves as proof of registration as a student at the University of Brawijaya for the relevant semester.

## E. Student Status Changes

Student status changes refer to alterations in both academic and administrative status. These changes can be classified as follows.

- **Academic Leave**
  a. Academic leave is the postponement of administrative registration for a specified period with the rector's approval.
  b. A student may apply for academic leave for up to two cumulative years.
  c. The period of academic leave is not counted towards the study period, except for students who fail to re-register without the Rector's permission, who will still have it counted towards their study period.
  d. Students are eligible to apply for academic leave after completing at least one semester of study.
  e. Applications for academic leave must be submitted to the Rector with strong justifications and must be acknowledged by the Dean and the student's parents/guardians or relevant institution, no later than one week after the academic registration deadline.

- **Study Assignment**

The University of Brawijaya accepts students on study assignments from government or private institutions under the following conditions:

a. Must hold a diploma from a higher education institution.
b. Must meet the academic and administrative requirements stipulated.
c. Must be from a faculty or study program relevant to the intended program.
d. The acceptance of students on study assignments is done by the Rector based on the Dean's recommendation and is subject to the availability of space. Students on study assignments must submit a written application to the Rector with a copy to the relevant Dean at least one month before the start of the new academic year.

- **Transfer to Other Institutions**

a. Students from the University of Brawijaya who wish to transfer to another institution must submit a request to the Rector with a copy to the Dean, including reasons for the transfer.
b. Students who have transferred to another institution cannot be re-admitted to the University of Brawijaya

- **Withdrawal from Studies**

A student is considered withdrawn if they do not meet the evaluation criteria for the first, second, third, fourth, or final year of the undergraduate program and do not re-register for more than two cumulative semesters.

a. The number of students withdrawing each semester is reported by the Dean to the Rector
b. The rector will issue a decree regarding the withdrawal of the student.

- **Deceased Students**

In the event of a student's death, the Dean must report it to the Rector.

- **Termination as a University of Brawijaya Student**

A student may be permanently or temporarily terminated if they violate the Rector's Decree No. 044/SK/1985 concerning the Code of Conduct for the University of Brawijaya community or other applicable regulations at the University.

## F. Student Transfers to the University of Brawijaya

- **Requirements**

a. Students eligible for transfer must:
    i. For undergraduate programs, have completed at least 2 semesters but no more than 3 semesters and have accumulated:
        1. For 2 semesters: at least 40 credits with a minimum GPA of 3.00.
        2. For 3 semesters: at least 60 credits with a GPA of 3.00 or above

- **Procedure for Transfer Application**

The procedure for applying for a transfer is as follows:

a. Submit a written application with strong justifications to the Rector of the University of Brawijaya, with a copy to the Head of the Veterinary Medicine Program.
b. The application must be accompanied by
   i. An original transcript from the previous institution, including GPA.
   ii. A transfer letter from the previous institution.
   iii. Parental/guardian/institutional approval.
   iv. A certificate stating no violations of regulations at the previous institution.

- **Timeframe for Transfer Application**

a. Transfer applications must be received by the University of Brawijaya no later than one month before the start of the new academic year (odd semester).

b. Applications received after this deadline will not be considered.

### 5.1.1 H. Inter-Faculty Transfers within UB

(1) Requirements

a. Students eligible for inter-faculty transfer must:
   a. For undergraduate programs, have completed at least 2 semesters but no more than 4 semesters and have accumulated:
      (1) For 2 semesters: at least 24 credits with a minimum GPA of 2.75.
      (2) For 4 semesters: at least 48 credits with a GPA of 2.75 or above.
b. Not be withdrawn due to failure to meet academic requirements at the previous faculty
c. Have no record of violating the regulations of the previous faculty.
d. Obtain approval from the previous faculty.
e. The Dean of FVM must provide written confirmation of willingness to accept the student.
f. Inter-faculty transfers are only permitted once during a student's time at the University of Brawijaya.

(2) Procedure for Transfer Application

a. The transfer application should be submitted in writing with strong justifications to the Rector of the University of Brawijaya, with a copy to the Dean of FVM UB.
b. The application must include:
   (1) An original transcript from the previous faculty, including GPA.
   (2) A transfer letter from the previous faculty.
   (3) Parental/guardian/institutional approval.
   (4) A certificate stating no violations of the regulations at the previous faculty.

(3) Timeframe for Transfer Application

a. Transfer applications must be received by the Rector no later than one month before the start of the semester.
b. Applications received after this deadline will not be considered.

## G. Graduation from Undergraduate Program

- Students who pass the undergraduate examination are entitled to receive a diploma during the graduation ceremony. The graduation process will be regulated by the UB Education Guidelines and related regulations.
- In the event that a UB diploma is lost, damaged, or destroyed, it cannot be duplicated or replaced; instead, a certificate of diploma replacement will be issued.

## H. Veterinary Profession

A person who has been declared graduated by FVM-UB after completing the Professional Education of Veterinary Medicine Study Program (PEVM) and obtaining the veterinary professional title must first take an oath according to their respective beliefs before receiving the professional diploma. The practice license must be obtained through the National Certification Examination for Veterinary Competency organized by the university with MP2KH.

## I. Registration for PEVM

The PEVM Program is held twice a year with a maximum of 40 participants per registration wave. While FVM has not yet fully conducted PEVM internally at the Faculty of Veterinary Medicine, the schedule will adjust to the universities or institutions hosting the program.

- Academic Requirements

  Participants of the PEVM Program must be graduates of veterinary medicine from Indonesian higher education institutions or equivalent foreign institutions and must have passed the entrance selection.
- Administrative and Registration Requirements
  a. Submit a Certificate of Graduation (SKL) or Veterinary Medicine degree.
  b. Complete the PEVM registration form for FVM-UB.
  c. Pay the tuition and operational costs as determined by the Rector for UB graduates.
  d. Submit proof of selection and payment for the PEVM operational costs
- Pass the PEVM selection examination.

## J. PEVM Registration Number

Each PEVM participant will receive a new registration number in accordance with the regulations of the University of Brawijaya.

## K. Implementation of PEVM

The Veterinary Professional Education Program is conducted according to the PEVM schedule issued by the Academic Division of PKH UB. The clinical rotation activities are assigned to each department/rotation, considering the time span, credit hours, and minimum competencies required as per the PEVM Procedure Manual. Clinical rotations in departments are carried out according to the specified time frame.

### b. Evaluation of Academic Competency (PEVM Examination)

To sit for the PEVM Examination, participants must complete clinical rotation activities and submit a PEVM report as a primary requirement for the examination in each

department/rotation.

Requirements for PEVM Report (General for all Rotations/Departments)

A participant may prepare a PEVM report if they:

i. Are registered as a PEVM participant in the relevant rotation/department.
ii. Complete clinical activities in the rotation/department within the specified time frame.
iii. Have 100% attendance during PEVM.
iv. Pass the final examination, which will be conducted orally with the procedure managed by the PEVM Coordinator for each rotation/department.
v. Meet other requirements specified by the relevant rotation/department.

Timing of PEVM Rotational Examination

i. The PEVM Examination for rotations conducted within the Faculty of Veterinary Medicine at the University of Brawijaya must be completed within the rotation period.
ii. For rotations conducted outside the FVM UB (such as PDHB 24 Hours and FVM Unair), the examination must be held within two weeks after the end of the external rotation or according to the schedule set by the academic division.
iii. Any delay beyond this timeframe must be approved by the Coordinator of PEVM.
iv. Retakes can be conducted anytime within the remaining period during PEVM Program.

PEVM Examiners

i. Examiner Requirements
The requirements for PEVM examiners are outlined in the PEVM Procedure Manual.
ii. Determination of Examiners
The determination of PEVM examiners is governed by the PEVM Procedure Manual.
iii. Duties and Responsibilities of Examiners
The duties and responsibilities of PEVM examiners are specified in the PEVM Procedure Manual.

## L. Veterinary Doctor Graduation

- Students who pass the veterinary professional examination are entitled to receive a diploma, which will be awarded during the graduation ceremony. The conduct of the graduation ceremony is regulated in the UB Education Guidelines and other relevant regulations
- Should an alumni's diploma be lost, damaged, or destroyed, it cannot be duplicated, replaced, or reissued. Instead, a Certificate of Diploma Replacement will be issued.

## M. Academic Sanctions

Academic sanctions are imposed on students who violate academic regulations

a. Students who attend less than 80% of classes are not permitted to take the final exam for the respective course

b. Students who withdraw from a course after the mid-term examination will still have that course counted in their GPA calculation

c. Students caught cheating during exams will have their entire semester's study plan cancelled

d. Students who take an exam on behalf of another student, or have someone else take their exam, will face the cancellation of all their exams for that semester.

e. Students who make unauthorized changes to their study plan (KRS) will have their entire semester's KRS cancelled.

f. Students who fraudulently alter grades will be suspended for up to two semesters, and the suspension period will not be counted towards their study duration.

g. If such violations are accompanied by threats of violence, bribery, promises, or deceit, the student will be expelled from the faculty.

h. Students found to have engaged in fraudulent practices in their thesis will have their entire semester's study plan cancelled.

i. Students convicted of a criminal offence, as confirmed by a court ruling, will face academic sanctions as follows:

1) Suspension if sentenced to less than one year.
2) Expulsion from UB if sentenced to more than one year.

# CHAPTER VI

# GUIDELINES FOR IMPLEMENTING OUTCOME BASED EDUCATION (OBE)

## INTRODUCTION

The quality of human resources is a benchmark for a country's success in competing to produce superior products in various fields and creating innovations and works that can be utilised globally. To achieve this goal, there is a need to increase awareness about improving the quality of education in Indonesia. Historically, our human resources have mainly innovated to follow developments made by developed countries to avoid falling further behind. This nation must be able to become a pioneer and reference in various sectors. To realize this, the government introduced the Indonesian National Qualifications Framework (CSPI) in 2012, aimed at equating the abilities of Indonesian human resources with those of other countries across various professional and skill sectors with a minimum standard of learning outcomes.

Efforts have been made to achieve these learning outcome standards, which undoubtedly require significant effort from all stakeholders, particularly higher education. Universitas Brawijaya and its Faculty of Veterinary Medicine (FVM UB) have adopted a paradigm of achieving and surpassing existing standards (CSPI and SNPT) by implementing Outcome Based Education (OBE). OBE focuses on moving from the classroom or learning activities to determining what students must achieve (Graduate Learning Outcomes) and ensuring lifelong learning capabilities in the real world, benefiting themselves, their environment, and the world.

Outcome-Based Education (OBE) adopts an educational system approach by integrating three elements: educational theory, a systematic educational structure, and a specific approach in its practice. The focus on outcomes is evident in the learning process results. OBE clearly focuses and organises everything in the educational system around what is crucial for all students to succeed at the end of their learning experience. Additionally, OBE emphasises what students can achieve after completing courses, known as Student-Centred Learning. Implementing this paradigm requires a well-structured system approach.

The first approach is to have a clear understanding of what is essential for students to achieve specific abilities. This involves organising the curriculum, ins tructions and designing assessments to ensure that the learning process has occurred and can be measured and demonstrated at the end of the learning process.

The Faculty of Veterinary Medicine, Universitas Brawijaya, adheres to the National Standards of Higher Education, comprising eight educational standards:

1. Graduate competency standards
2. Learning content standards
3. Learning process standards
4. Learning assessment standards
5. Standards for lecturers and educational staff

6. Learning facilities and infrastructure standards
7. Learning management standards
8. Learning funding standards

Efforts to implement outcome-oriented learning (OBE) involve surpassing these standards to achieve excellent accreditation and even international accreditation

LEGAL FOUNDATION

The implementation of the OBE paradigm within the curriculum at FVM UB refers to the following regulations:

a. Law No. 12 of 2012 on Higher Education
b. Presidential Regulation of the Republic of Indonesia No. 8 of 2012 on the Indonesian National Qualifications Framework
c. Minister of Education and Culture Regulation No. 73 of 2013 on the Implementation of the Indonesian National Qualifications Framework in Higher Education
d. Minister of Education and Culture Regulation No. 3 of 2020 on National Standards of Higher Education
e. Universitas Brawijaya Regulation No. 1 of 2017 on the Quality Standards of Universitas Brawijaya
f. Guide to Curriculum Development in Higher Education in the Industry 4.0 Era, Ministry of Research, Technology, and Higher Education, 2019
g. Guide to Independent Learning – Independent Campus, Ministry of Education and Culture, 2020
h. ASEAN Qualifications Reference Framework, 2014.

Based on these regulations, FVM UB implements learning based on Outcome Based Education (OBE).

## 6.1. OBJECTIVES

The enactment of higher education laws is partly to increase national competitiveness in facing globalisation in all fields. Higher education is required to develop science and technology and produce intellectuals, scientists, and/or professionals who are cultured, creative, tolerant, democratic, resilient, and courageous in upholding the truth for the nation's interest. Therefore, FVM UB must play a role in realising these aspirations.

The Higher Education Law states that higher education aims to:

a. Develop students' potential to become individuals who believe in and are devoted to God Almighty, possess noble character, are healthy, knowledgeable, capable, creative, independent, skilled, competent, and cultured for the nation's benefit.
b. Produce graduates who master branches of science and/or technology to meet national interests and enhance national competitiveness.
c. Produce science and technology through research that considers and applies humanitarian values, benefiting national progress, civilisation, and human welfare.
d. Realise community service based on reasoning and research works that are beneficial in advancing public welfare and educating the nation's life.

To achieve goals (a) and (b), the SNPT sets educational standards by meeting the eight existing standards. The OBE paradigm is used to fulfil these objectives effectively.

FVM UB has established Programs to achieve higher quality standards than SNPT. Both academic and professional Programs at FVM UB have established Program Learning Outcomes (PLOs) set during the 2019 Curriculum Redesign Meeting. The Main Program Learning Outcomes refer to the 2013 Higher Education Field Revitalisation document for Veterinary Professional Education. In addition to the Main Program Learning Outcomes, there are Supporting Program Learning Outcomes as a unique characteristic of UB and FVM UB graduates

### 6.2. CONCEPT OF OBE

The OBE concept prepares students to recognise their potential and be ready to live and work in line with their personal development processes.

There are three main aspects in achieving OBE:

a. Course Learning Outcomes (CLOs) are specific learning outcomes for a course, covering attitudes, skills, and knowledge formulated based on several PLOs assigned to the course.
b. Graduate Profile (GPs) are the abilities possessed by each graduate of a study Program, representing the internalisation of attitudes, mastery of knowledge, and skills according to the study Program level, acquired through the learning process.
c. Program Educational Objectives (PEOs) are statements describing the career and professional achievements the study Program prepares its graduates to achieve within a few years after graduation and must be measurable.

The consequences of current science and technology discussions must be prepared to achieve OBE goals. Lecturers and all academic staff must be aware of this. If lecturers recognise their roles, the scope of the knowledge discussed must be able to prepare students for future academic perspectives, at least five years after graduation, or continuously for about ten years from the start of their studies. Currently, FVM UB is striving to meet the highest level of OBE implementation, as shown in Table 4. Achieving levels 4 or 5 is necessary for excellent accreditation or international accreditation.

Table 4. OBE implementation level

| OBE | Outcomes | Curiculum | Assesment Planning | Assessment Outcomes | Continuous Quality Assurance Improvement in OBE Curriculum |
|---|---|---|---|---|---|
| Level 1 | √ | | | | |
| Level 2 | √ | √ | | | |
| Level 3 | √ | √ | √ | | |
| Level 4 | √ | √ | √ | √ | |
| Level 5 | √ | √ | √ | √ | √ |

## 6.3. **OBE CURRICULUM**

In the current era of globalisation, the education sector faces the challenge of producing human resources capable of contributing globally. The impact of globalisation is marked by changes in lifestyle, information, technology, capital, ideas, and imagery. This situation leads to shifts in societal values and changing demands in the job market for university graduates. Graduates must possess competencies that align with the advancements in science, technology, and the arts, as well as the demands of the job market, professional requirements, and personal development with cultural distinctiveness. As national higher education institutions strive to meet these evolving competency demands, particularly in the face of global competition, graduates must be equipped to excel in a free-market era.

Higher education institutions, as key components of a nation's graduate output, are increasingly required to enhance the quality of higher education by developing Competency-Based Curriculum (CBC) systems aligned with the Indonesian National Qualifications Framework (CSPI), as stipulated by Presidential Regulation No. 8 of 2012. This regulation emphasises graduates' potential to compete in both national and international job markets. This Presidential Regulation is further articulated in the Minister of Education and Culture Regulation No. 73 of 2013 on the Implementation of CSPI in Higher Education; Regulation of the Ministry of Research, Technology, and Higher Education No. 44 of 2015 on National Standards for Higher Education, revised to Minister of Education and Culture Regulation No. 3 of 2020.

These regulations are in line with the OBE curriculum. The difference between the curriculum design based on Regulation No. 44 of 2015 and the OBE curriculum lies in the establishment of Learning Outcomes (LO) for study Programs. Initially, these were based on CSPI principles, setting study Program LOs in terms of (1) attitude, (2) knowledge, (3) general skills, and (4) specific skills. The OBE curriculum, however, extends these considerations to include learning outcomes commonly

set by international accreditation bodies.

The Faculty of Veterinary Medicine at Universitas Brawijaya (FVM UB) has developed an OBE-based curriculum for its study Programs to achieve measurable Program objectives and high-quality, globally competitive graduate profiles, following the OIE Core Curriculum and OIE One Day Competencies for Veterinary Medicine Education, aligned with international standards. The learning outcomes for both academic and professional levels refer to the CSPI document, with academic levels achieving learning outcomes at level 6 and professional levels at level 6. The Program's learning objectives at each level are also adjusted based on the 2013 Higher Education Field Revitalisation Document for Veterinary Medicine Education. Furthermore, the professional curriculum is aligned with the 2017 Indonesian Veterinary Competency Standards Academic Document, totalling 37 credits.

The FVM UB curriculum has been developed following the curriculum development process referenced by UB. By aligning with national standards for Veterinary Medicine Education in Indonesia and integrating the OIE core curriculum with OIE One Day Competencies, the curriculum aims to provide an international standard learning experience. When the Program Learning Outcomes (PLO) are established and broken down into Course Learning Outcomes (CLO), the curriculum is expected to achieve the Program's initial objectives.

The curriculum serves as an instrument to shape students' scientific thinking, skills, and personality. Thus, the curriculum must promote the fulfilment of Program learning outcomes in terms of knowledge and understanding, cognitive skills, specific skills (including practical or professional skills), transferable skills, employment or further study needs, and personal development. In detail, the implementation of education at the study Program level adheres to the 2017 UB Quality Standards Document, FVM UB Strategic Plans 2015-2019 and 2020-2024, FVM UB Quality Manuals, Rector's Regulations on OBE, and UB and FVM UB Academic Guidelines. These references ensure that the educational implementation at the study Program level achieves the set learning outcome targets.

The curriculum development stages of the study rogram are illustrated in **Figure 1.**

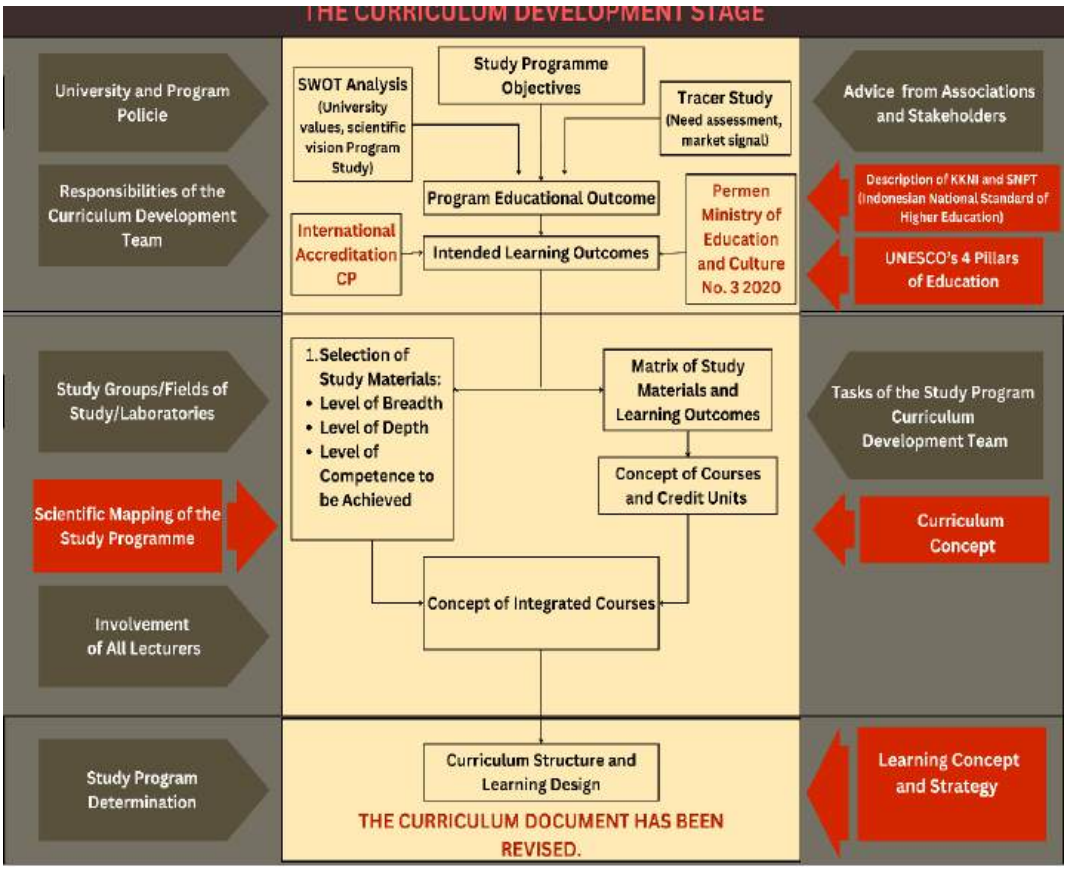


**Figure 1**. Curriculum Development Process Stages (Modified from Endrotomo, DIKTI Curriculum Team)

To achieve each of the above standards, the Faculty of Veterinary Medicine at Universitas Brawijaya, as the Study Program Management Unit, is committed to implementing strategies to achieve the eight National Standards for Higher Education, including:

1. Establishing and optimising the roles of Quality Assurance Groups and Quality Assurance Units to ensure academic and laboratory service quality.
2. Providing and maintaining learning facilities and infrastructure to ensure the achievement of study Program learning outcomes at FVM UB, with a dedicated procurement team overseeing the process.
3. Preparing competent educational support staff across all service areas to facilitate the learning process, along with budget provisions for staff development to enhance their competencies.
4. Allocating budgets for research and community service for each lecturer, enriching course materials and involving students in these activities to enhance their final project research and soft skills.
5. Mapping and planning lecturers' expertise and further study plans, along with providing budgets for lecturer self-development through training.

6. Conducting planning meetings at the beginning of the year, and mid-year and end-of-year evaluation meetings involving all UPPS components (leadership, lecturers, and support staff) to gather suggestions for quality improvement and inform the progress of FVM UB and its study Programs annually.
7. Providing annual learning quality improvement grants through the PSIK unit, including grants for online learning videos or the use of online education platforms.
8. Recognising student achievements in academic and extracurricular activities for equivalency in final projects or course credits.

## 6.4. CHARACTERISTICS AND PLANNING OF OBE LEARNING PROCESSES

In line with Ministerial Regulation No. 03 of 2020 on National Standards for Higher Education, FVM UB must adhere to learning process standards that are the minimum criteria for implementing learning in study Programs to achieve graduate learning outcomes. These standards include: (a) characteristics of the learning process; (b) planning of the learning process; (c) implementation of the learning process; and (d) student workload.

The characteristics of the learning process comprise interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centred approaches.

The planning of the learning process must be prepared for each course and presented in the Semester Learning Plan (RPS), developed by lecturers independently or collaboratively within a specific field of knowledge and/or technology in the study Program. The RPS preparation at FVM UB follows an OBE-based curriculum, with CLOs further broken down into sub-CLOs, and the determination of study materials for each session, integrating lecturers' research and community service outcomes into course content as an ongoing strategy to meet content standards.

Lecturers have prepared course materials/study content and practical Handbooks to ensure the learning process standards. Strategies to support the achievement of these standards include routine provision of research and community service grants for lecturers, contributing to enriched course content in each session. Universitas Brawijaya (UB) and FVM UB also maintain a strong commitment by regularly providing textbook grants to lecturers, ensuring that they produce teaching materials that incorporate theoretical and research-based insights. Additionally, UB, FVM UB, and each course teaching team continuously expand their collections of printed books, e-books, and subscriptions to national and international journals, facilitating students' access to learning resources. Consequently, students can meet the content standards in each course through the addition of innovative knowledge from lecturers, textbooks, and expanded book/journal collections in the reading room.

Learning planning related to student research must adhere to UB's Research Standards in the Quality Standards Document. Similarly, planning related to community service by students must align

with UB's Community Service Standards in the Quality Standards Document. Each faculty manages student research and community service planning according to their specific scientific characteristics.

Both academic and professional level learning characteristics are implemented through Student-Centred Learning (SCL) and OBE, focusing on outcome-based education. The academic atmosphere is built using eight learning principles:

1) **Interactive:** Facilitating easy interaction and discussion between students and lecturers on learning materials during and outside lecture hours.
2) **Holistic:** Ensuring that learning outcomes for each meeting (sub-CLO) focus on the Course Learning Outcomes (CLO), and CLOs for each course focus on the Program Learning Outcomes (PLO), guaranteeing that every course supports a single holistic goal – graduate competency based on the Program's learning outcomes.
3) **Integrative:** Incorporating lecturers' research and community service outcomes into learning materials to enrich and update knowledge conveyed to students.
4) **Scientific:** Ensuring each course/rotation includes study materials sourced from national and international veterinary textbooks and lecturers' research and community service outcomes, detailed in each course's RPS. Lecturers must base course materials on prescribed textbooks available in e-book or print form in the reading room/laboratory.
5) **Contextual:** Designing learning materials based on study topics aligned with learning outcomes. Exam questions, assignments, and quizzes must aim to assess sub-CLO achievement, so final grades reflect the extent of CLO attainment by students.
6) **Thematic:** Basing learning in academic and professional levels on the national veterinary curriculum revitalisation document and the OIE One Core Curriculum, ensuring that FVM UB graduates meet national and international veterinary standards. FVM UB's unique theme is molecular biology and biotechnology, reflecting current technological advances, as an additional PLO characteristic, enabling graduates to understand molecular biology and biotechnology and their applications in veterinary medicine.
7) **Effective:** Implementing the learning process in each FVM UB Program efficiently to achieve the Program's learning objectives within the specified timeframe. The academic Program aims for 3.5-4 years, while the professional Program aims for 1.5-2 years.
8) **Collaborative** The learning process at both the academic and professional levels within the study Program is carried out collaboratively, involving both lecturers and students, as well as external parties. At Universitas Brawijaya (UB), the 3-in-1 principle is implemented, where lectures are delivered by three different sources: lecturers from the Faculty of Veterinary Medicine (FVM UB), stakeholders/partners, and lecturers/professors from international universities. Stakeholders involved in the learning process include veterinary clinics, industries,

conservation agencies, governmental departments, quarantine services, and universities both in Indonesia and abroad. Collaboration with external parties encompasses guest lectures, expert lectures, internships at stakeholders, and extramural rotations in Veterinary Medicine Education Professional Training facilities.

## 6.5. IMPLEMENTATION OF OBE LEARNING

The implementation of Outcome-Based Education (OBE) learning processes typically involves interaction between lecturers, students, and learning resources within a properly designed learning environment. The OBE-based learning process for each course must also be conducted in accordance with the Semester Learning Plan (RPS). The curricular learning process must be systematic and structured through various courses with measurable learning loads. A distinctive feature of OBE is the assessment process by lecturers of students' abilities. Similar to regular learning processes, OBE-based learning also involves mandatory curricular activities using effective teaching methods tailored to the course characteristics to achieve the specified learning outcomes.tu yang ditetapkan dalam mata kuliah dalam rangkaian pemenuhan capaian pembelajaran lulusan.

Various OBE-based learning methods can be selected for course delivery, including group discussions, simulations, case studies, collaborative learning, cooperative learning, project-based learning, problem-based learning, and other methods that effectively facilitate the achievement of Program Learning Outcomes (PLO). Each course may employ one or a combination of several learning methods, which can be accommodated in different forms of learning, such as:

a. Lectures;
b. Response and tutorial sessions;
c. Seminars;
d. Practicals, studio practice, workshop practice, field practice, work practice;
e. Research, design, or development;
f. Military training;
g. Student exchanges;
h. Internships;
i. Entrepreneurship; and/or
j. Other forms of community service.

Research, design, or development activities involve students under lecturer supervision to develop attitudes, knowledge, skills, authentic experiences, and enhance community welfare and national competitiveness

In contrast, community service learning is mandatory for four-year diploma, undergraduate, professional, and specialist Programs. Like research learning, community service learning also involves students under lecturer supervision to utilise science and technology for community welfare

and national advancement.

These learning forms can be conducted within or outside the study Program. Learning outside the study Program includes:

a. Learning in another study Program at the same university;
b. Learning in the same study Program at a different university;
c. Learning in another study Program at a different university; and
d. Learning in non-university institutions.

Currently, learning outside the study Program is implemented only for undergraduate and applied undergraduate Programs outside the health field, in line with the Ministry of Education and Culture's independent learning policy.

At the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM UB), academic level learning is divided into three forms: classroom lectures, laboratory practicals and research, and industry internships. Professional level learning consists of laboratory practice, FVM UB Animal Clinic and UB Veterinary Teaching Hospital as primary professional education venues, and extramural professional education at institutions such as the Department of Conservation, zoos/conservation centres, quarantine facilities, poultry industry, and veterinary practices focusing on large animals.

Monitoring and evaluating the education implementation at both academic and professional levels follow the same methodology. Planning begins with the Head of Study Program assigning lecturers to courses or rotations based on their expertise and considering their teaching load (EWMP). The Course Coordinator and the teaching team then prepare the RPS as a guide for each course, which is uploaded to the website for student access. Learning implementation is monitored by the Program Head through SIMPEL, ensuring that each course meets the requirement of 14 face-to-face sessions plus mid-term and final exams. The learning process adheres to the UB academic calendar, ensuring exam schedules and final grade submissions are timely. Achievement of sub-course learning outcomes (subCLO) is monitored by lecturers, with the Program suggesting quizzes at the end of sessions to evaluate subCLO achievement. Exam questions from the teaching team for midterms and finals are validated by the Coordinator and the Quality Assurance Unit (QAU) to ensure they evaluate course learning outcomes (CLO). Post-exam, each Course Coordinator compiles a course portfolio as an evaluation of the learning process, reported and submitted during the subsequent semester's RPS workshop. Students also fill out Teaching and Learning Process questionnaires when downloading their academic transcripts (KHS), providing feedback on course and lecturer performance. The QAU-QAG team processes these questionnaires and presents the results during the next semester's RPS workshop.

## 6.6. OBE ASSESSMENT

Assessment involves one or more processes to identify, collect, and prepare data to evaluate students' achievement of learning outcomes. Effective assessments typically use relevant direct, indirect, quantitative, and qualitative measurements. Appropriate sampling methods may also be used as part of the assessment process. Assessment is the systematic collection, review, and use of information about educational Programs to enhance student learning and development.

In accordance with the Ministry of Education and Culture Regulation No. 03 of 2020, FVM UB must adhere to learning assessment standards, which are the minimum criteria for evaluating students' learning processes and outcomes to meet graduate learning outcomes. These standards include:

(a) Assessment principles;
(b) Assessment techniques and instruments;
(c) Assessment mechanisms and procedures;
(d) Assessment implementation;
(e) Assessment reporting; and
(f) Student graduation.

UB lecturers must follow assessment principles that are educational, authentic, objective, accountable, and transparent, integratedly conducted. **Educational assessment** motivates students a) to improve their planning and b) improve learning methods and achieve learning outcomes. **Authentic assessment** focuses on continuous learning processes and learning outcomes reflecting students' abilities during the learning process. **Objective assessment** is based on agreed standards between lecturers and students, free from the influence of subjectivity. Accountable assessment follows clear, agreed-upon procedures and criteria understood by students at the course's outset. **Transparent assessment** allows all stakeholders to access its procedures and results. Lecturers may use various assessment techniques, including observation, participation, performance demonstration, written tests, oral tests, and questionnaires. Assessment instruments consist of process assessments in the form of rubrics and/or outcome assessments in the form of portfolios or design works. Attitude assessment may use observation techniques, while knowledge, general skills, and specific skills assessments use a combination of techniques and instruments. The final assessment results integrate various used techniques and instruments.

The assessment mechanism includes: (a) Preparing, presenting, and agreeing on stages, techniques, instruments, criteria, indicators, and weights of assessment between the assessor and the assessed, in line with the learning plan; (b) Conducting the assessment process according to the agreed principles; (c) Providing feedback and allowing students to question the assessment results; and (d) Documenting the assessment process and learning outcomes accountably and transparently.

Lecturers' assessment procedures encompass planning, task or question assignment, performance observation, feedback provision, and final grading. Planning stages may involve phased assessments and/or reassessments. Assessment implementation measures Course Learning Outcomes (CLO), an aggregation of Sub-Course Learning Outcomes (Sub-CLO). Assessment can be conducted by: (a) the course lecturer or teaching team; (b) the course lecturer or teaching team with student involvement; and/or (c) the course lecturer or teaching team with relevant stakeholder involvement. Various forms of assessment are detailed in Table 5.

Table 5. Example of Learning and Assessment form

| **Assessment Forms** | **Forms of Assessment and Assessable Learning Activities** |
|---|---|
| **Essay Forms** | |
| Essay Exam | Evaluation of the student's ability to construct structured responses. |
| Open Book Exam | Similar to essay exams but relies on limited student memory and covers a broader range of topics |
| Take-Home Assignment | Requires extensive reading, connecting, organising, and synthesising information |
| **Evaluation Forms** | **Forms of Assessment and Assessable Learning Activities** |
| | Implementation |
| **Objective Test** | |
| Multiple choice | Measures recognition, strategy, and comprehension abilities. |
| Directed outcomes | Assesses the hierarchy of understanding. |
| **Performance Assessment** | |

| | |
|---|---|
| Practical work | Evaluates skills in real-world tasks. |
| Seminars and Presentations | Assesses communication skills |
| Poster | Focuses on relevance and application of information. |
| Interview | Evaluates interactive responses |
| Critical Incident Interview | Reflects on application, relevance, and emotional responses. |
| Project | Measures application and research skills |
| Review Journal | Reflects on application, relevance, and emotional responses. |
| Case Study | Assesses professional skills and application |
| Portofolio | Evaluates reflection, creativity, and desired outcomes |
| **Rapid Assessment (for large groups)** | |
| Concept Map | Assesses coverage and connections. |
| Venn Diagram | Measures relationships |
| One- or Three-Minute Paper | Evaluates level of understanding and relevance selection. |
| Short Answer | Recalls information and assesses coverage |
| Note to a Friend | Evaluates holistic understanding, application, and reflection. |

Each course learning outcome is aggregated by the Program to measure the achievement of Program Learning Outcomes (PLO), reported annually to the Dean. However, assessments for sub-specialist, doctoral, and applied doctoral Programs must include external assessors from different universities..

The appropriate form of assessment should be based on indicators of Course Learning Outcomes (CLO) achievement. Lecturers and students should have a shared understanding of the assessment models used. Thus, aligning perceptions of the desired CLO should occur from the outset, enabling students to organise independent learning models that suit their learning styles. Examples of assessment forms and assessable learning activities can be found in Table 4.

When designing questions, assignments, and exams, lecturers should consider the following characteristics:

a. Clarity and Precision: Ensure that questions and tasks are clear and precise, avoiding ambiguity.
b. Relevance: Align assessments with the learning outcomes and course objectives.
c. Variety: Use a variety of assessment methods to address different learning styles and skills.
d. Fairness: Ensure assessments are fair and unbiased, providing equal opportunities for all students to demonstrate their learning.
e. Feedback: Provide timely and constructive feedback to support student learning and improvement.

The evaluation of student performance in each study Program adheres to five principles in accordance with the National Standards for Higher Education:

**a) Educational:** The Veterinary Medicine Education Program and the Veterinary Professional Education Program have implemented assessments to achieve the Course Learning Outcomes (CLOs) targets in each course, thereby supporting the Program Learning Outcomes (PLOs) and graduate profiles. The presence of the Semester Learning Plan (SLP) for each course motivates students regarding the objectives of each meeting.

**b) Authentic:** The Veterinary Medicine Education Program and the Veterinary Professional Education Program conduct evaluations oriented towards processes and outcomes, beginning after each face-to-face session, mid-semester, and end-of-semester. Lecturers administer quizzes before and after sessions to assess prior knowledge and learning outcomes. Structured assignments and classroom behaviour assessments are also conducted to analyse the achievement of the attitude component of learning outcomes. Mid-semester exams and end-of-semester exams are given to evaluate students' comprehensive understanding from the first to the fourteenth meeting. Practical sessions are evaluated using the Final Practical Exam.

**c) Objective:** The Veterinary Medicine Education Program and the Veterinary Professional Education Program prepare the RPS at the beginning of each semester and communicate it to students during the first meeting of each course. The SLP includes CLOs and sub-CLOs, meeting weights, and assessment formats. Lecturers conduct evaluations based on the RPS agreed upon by the teaching team and communicated to students.

**d) Accountable:** The Veterinary Medicine Education Program and the Veterinary Professional Education Program follow the academic guidelines of UB and the FVM UB as stated in the SLP. The evaluation procedure adheres to the scheduled academic calendar, with final grades inputted by lecturers through the SIADO system in a timely manner, allowing students to view their grades via the SIAM system

e) **Transparent:** Students in the Veterinary Medicine Education Program and the Veterinary Professional Education Program can easily access their grades transparently through the SIAM system or by inquiring with the course coordinator. Lecturers provide direct and transparent feedback to students

## 6.7. PORTOFOLIO DOCUMENTATION OF OBE

The full implementation of OBE requires continuous improvement, which necessitates regular feedback mechanisms. Feedback is used by lecturers to evaluate the course, as outlined in the creation of course portfolios.

These portfolios are compiled by the course lecturers at the end of each semester, serving as a tool to assess the extent to which CLOs has been achieved by students, and are aggregated at the Program level to evaluate the achievement of PLOs. This assessment informs Program evaluation and necessary improvements.

The course portfolio format includes:

1. Introduction and course objectives
2. Course description
3. Learning methods used
4. Learning media
5. Learning evaluation with assessment tools
6. Class condition statistics
7. Student feedback
8. Brief course syllabus
9. Semester Learning Plan
10. Reflection and solutions to encountered problems
11. Necessary appendice

The continuous evaluation of the learning process throughout the semester is necessary to determine (1) the alignment of course content with the RPS, (2) lecturer and student participation levels, (3) grade distribution percentages, (4) achievement of quality targets for course completion, and (5) evaluation per study unit to explain the learning mechanism.

## 6.8. LEARNING INNOVATIONS IN OBE

The learning process characteristics created by lecturers must be interactive, holistic, integrative, scientific, contextual, thematic, effective, collaborative, and student-centred. Lecturers need to prepare themselves and the materials to incorporate these characteristics into the learning process.

Lecturers at FVM UB are encouraged to use various learning methods for course delivery, which can include innovative research findings as enrichment material for students. The dynamic nature of the learning process and the methods used should be reflected in the course portfolio after implementation, and should not be fixed, as they must adapt to developments occurring during the learning process, thus necessitating continuous innovation.

## 6.9. QUALITY ASSURANCE IN OBE

The Internal Quality Assurance System (IQAS) is a systematic activity for higher education quality assurance conducted autonomously by each university to control and improve higher education delivery in a planned and sustainable manner. The purpose of quality assurance is to maintain and enhance the quality of higher education continuously, internally achieving the university's vision and mission, and meeting stakeholder needs through the implementation of the university's three missions (education, research, and community service). SPMI is crucial in achieving a high-quality university. This process is carried out internally by the university and audited externally through accreditation activities conducted by the National Accreditation Board (BAN) for Higher Education or other agencies, ensuring the objectivity of continuous academic quality maintenance and improvement.

UB has implemented quality assurance since the establishment of the Quality Assurance Centre in 2005, initially adopting the quality assurance cycle known as OSDAT (Figure 2). To implement SPMI, UB follows the steps called the "quality assurance cycle," OSDAT, which stands for:

1. Organising quality assurance (O)
2. Developing the System (policies, IQAS documents, IQAS standards manual, IQAS forms) (S)
3. Implementing the System (socialisation and as a reference for work) (D)
4. Conducting internal quality Audits (A)
5. Follow-up actions (T)

However, with the issuance of the Minister of Research, Technology, and Higher Education Regulation No. 62 of 2016 on the Higher Education Quality Assurance System, UB revised its quality assurance cycle to follow the cycle consisting of five stages (Establishment, Implementation, Evaluation, Control, and Improvement of Standards), commonly referred to as the PPEPP Cycle (Figure 3). Based on the Internal Quality Assurance System Guidelines issued by the Ministry of

Research, Technology, and Higher Education, the PPEPP cycle consists of:

1. Establishment: Setting standards by the university.
2. Implementation: Activities conducted to meet the standards.
3. Evaluation: Comparing the outcomes of implementation with the established standards.
4. Control: Analysing causes of non-achievement and/or deviations from standards and implementing corrective actions.
5. Improvement: Enhancing standards to be higher than the established standards.


Figure 2. Implementation of IQAS cycle before 2016 (OSDAT) (Source : website of PJM UB, http//pjm.ub.ac.id)


Figure 3. Implementation of the IQAS Cycle at UB Starting in 2016 (PPEPP) Source: Presentation titled "Improving Higher Education Quality through the Implementation of the Quality Assurance

System (SPMI and SPME)" by Prof. Dr. Mansyur Ramly at Univ Wiraraja Sumenep (2015).

The quality assurance in the OBE curriculum primarily aims to conduct continuous quality improvement (CQI) monitoring. As illustrated in Figure 4, each study Program is established with defined missions and visions, which then form the basis for setting the Program Educational Objectives (PEO). These objectives underpin the establishment of Program Learning Outcomes (PLO), which are subsequently detailed in Course Learning Outcomes (CLO). Consequently, each study Program at UB must set CLO each semester, then evaluate, analyse, and improve them to refine the CLO. Similarly, study Programs must evaluate, analyse, and improve the PLO based on alumni tracer study results, perfecting the PLO. Furthermore, each study Program should at least once every four years evaluate, analyse, and improve the Program Educational Objectives (PEO), usually after conducting alumni tracer studies 5-10 years post-graduation.

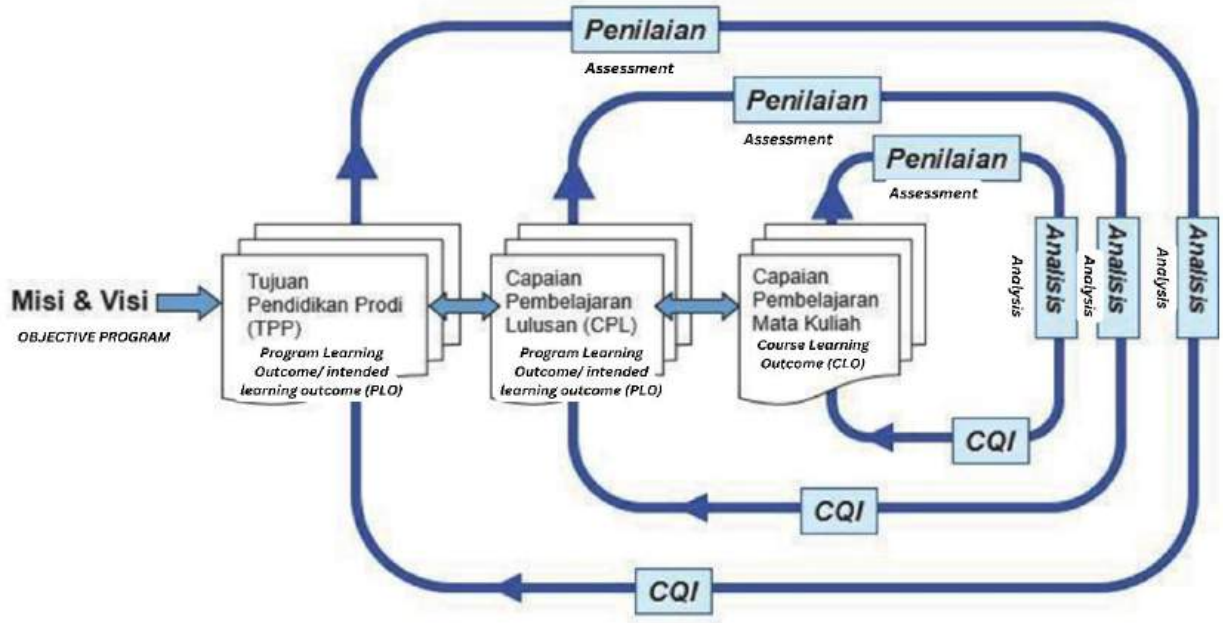


Figure 4. Implementation of the Quality Assurance Cycle in the OBE Curriculum Source: Haris Wahyudi and Ignatius Agung Wibowo (2018), "Innovation and Implementation of Outcome-Based Education (OBE) and Washington Accord in the Mechanical Engineering Study Program at Universitas Mercu Buana," Journal of Mechanical Engineering Vol. 07, No. 2, June 2018.

The detailed improvement actions outlined above can be seen for course refinement and study Program accreditation, with the steps illustrated in Figures 5 to 7.


Figure 5. Implementation of the Quality Assurance Model at the Course Level Source: Presentation titled "Outcomes Based Education Quality Assurance" by Dr. Ir. Pepen Arifin (SPM ITB) at the Workshop on Curriculum Development with an Outcomes Based Education Paradigm, Aula Barat ITB, 16-17 July 2018.


Figure 6. Implementation of the Quality Assurance Model at the Program Level Source: Presentation titled "Outcomes Based Education Quality Assurance" by Dr. Ir. Pepen Arifin (SPM ITB) at the Workshop on Curriculum Development with an Outcomes Based Education Paradigm, Aula Barat ITB, 16-17 July 2018.


Figure 7. Implementation of the Quality Assurance Model at the Program Level for Accreditation Purposes Source: Presentation titled "Outcomes Based Education Quality Assurance" by Dr. Ir. Pepen Arifin (SPM ITB) at the Workshop on Curriculum Development with an Outcomes Based Education Paradigm, Aula Barat ITB, 16-17 July 2018.CHAPTER VII

# CHAPTER VII
# IMPLEMENTATION OF COLLABORATIVE CLASS

## BACKGROUND

Key Performance Indicators (KPIs) serve as metrics to measure the performance of an institution, primarily in achieving specific goals and targets. Each governmental institution is mandated to formulate primary performance indicators and prioritise them accordingly. There are eight (8) KPIs forming the foundation for higher education transformation, namely: (1) Graduates securing decent employment, (2) Students gaining off-campus experience, (3) Lecturers engaging in activities outside the campus, (4) Practitioners teaching on campus, (5) Academic work utilised by the community or receiving international recognition, (6) Study Programs collaborating with world-class partners, (7) Collaborative and participatory classes, and (8) Internationally standardised study Programs.

For the 7th KPI, which pertains to collaborative and participatory classes with project-based group evaluations or case studies, UB's baseline in 2020 was quite low. Only 228 courses out of a total of 4004 (6%) implemented this learning strategy. This percentage is significantly below the performance target set by the Ministry of Education and Culture (Kemdikbud), which is approximately 35% of all courses. Therefore, there is a need to implement collaborative and participatory learning strategies with project-based group evaluations and/or case studies within the Faculty of Veterinary Medicine at Universitas Brawijaya to meet the KPI requirements.

## OBJECTIVES

The objectives of the Collaborative and Participatory Classes for the Academic Year 2020/2021 are to:

- Enhance the quality of learning through the implementation of collaborative and participatory learning strategies with project-based group evaluations and/or case studies.
- Increase the number of participatory and collaborative classes in undergraduate (S1), diploma (D4/D3) Programs at Universitas Brawijaya
-

## TARGETS

The targets for the implementation of Collaborative and Participatory Classes for the Academic Year 2020-2021 include 72 courses employing the case method for theoretical learning and 36 courses using project-based learning for practical implementation.

## SCOPE OF IMPLEMENTATION OF COLLABORATIVE AND PARTICIPATORY CLASSES

Based on the 2020 KPIs from the Ministry of Education and Culture, the scope of implementation for the 7th KPI regarding Collaborative and Participatory Classes is as follows:

| Performance Indicator | Definition, Criteria, and Formula |
|---|---|
| In-Class Learning:<br><br>Percentage of undergraduate (S1) and diploma (D4/D3/D2) courses using case method learning or project-based group learning as part of the evaluation criteria. | The criteria for in-class learning methods must use either the case method or a combination with project-based group learning.<br>1) Case Method:<br>a. Students act as protagonists attempting to solve a case.<br>b. Students analyse the case to build solution recommendations, aided by group discussions to test and develop solution designs.<br>c. The class engages in active discussions, with the majority of the conversation driven by students, while the lecturer facilitates by directing the discussion, posing questions, and observing.<br>2) Team-Based Project Learning:<br>a. The class is divided into groups of more than one student to complete a joint assignment over a specified period.<br>b. Groups are given real-life problems occurring in the community or complex questions, and are provided with the space to create work plans and collaborative models.<br>c. Each group prepares a presentation/final project to be showcased to lecturers, the class, or other audiences who can provide constructive feedback.<br>d. Lecturers guide each group throughout the project period, encouraging students to think critically and creatively in their collaboration.<br>3) Evaluation Criteria: 50% of the final grade must be based on the quality of class discussion participation (case method) and/or the final presentation of the project-based group learning.<br>Formula:<br>$\frac{n}{t} \times 100$<br><br>n = number of courses using the case method or team-based project as part of the evaluation criteria<br>t = total number of courses |

## FORMS OF ASSESSMENT AND METHODS IN COLLABORATIVE AND PARTICIPATORY CLASSES

**a. Case Discussion/Project Work within Groups**

Instructions:
Write your name first and provide assessments using the following criteria:
4 = Good 2= Poor
3 = Fair Good 1= Very Poor
List the names of your group members and assess them based on the specified criteria.

| No | Name of Group Members | Assesment Aspects | | | | | Total | Ranking |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Assesment Aspects:

A. Activeness in contributing ideas within the group
B. Willingness to accept ideas within the group
C. Willingness to share tasks within the group
D. Concern for issues faced by the group
E. Activeness in arguing before reaching a group consensus

Source: Mahmudi A, 2006, Pembelajaran Kolaboratif (https://eprints.uny.ac.id/11996/1/PM%20%2057%20Ali%20Mahmudi.pdf)

**b. Presentation Assessment**

**I**

**nstructions:**

Provide your responses to the statements below by checking (✓) one of the options that best represents your opinion..

4 = Very Good

3 = Good or Satisfactory

2 = Fairly Satisfactory

1 = Unsatisfactory

| No | Assesment Aspects | Yes/No | Score | | | |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 1 | Clarity of delivery/presentation | | | | | |
| 2 | Accuracy of concepts | | | | | |
| 3 | Coherence of presentation | | | | | |
| 4 | Openness | | | | | |
| 5 | Thoroughness in discussing issues | | | | | |
| 6 | Team cohesion | | | | | |
| 7 | Enthusiasm/seriousness | | | | | |
| 8 | Ability to ask questions | | | | | |
| 9 | Ability to answer questions | | | | | |
| 10 | Ability to respond to other students' opinions | | | | | |
| 11 | Time management | | | | | |
| | Total Score | | | | | |
| | Mean | | | | | |

Source: Mahmudi A, 2006, Pembelajaran Kolaboratif (https://eprints.uny.ac.id/11996/1/PM%20-%2057%20Ali%20Mahmudi.pdf)

## c. Group Participation Rubric

**1. Participation**
*Example 1 (An example for class participation, using marks for conversion purpose)*

| Criteria | Excellent<br>Marks = 10 | Good<br>Marks = 8 | Satisfactory<br>Marks = 6 | Marginal Pass<br>Marks = 4 | Fail<br>0 |
|---|---|---|---|---|---|
| **Frequency and Quality** | *Always contributes* to the discussion by raising thoughtful questions, analyzing relevant issues, building on others' ideas, synthesizing across readings and discussions, expanding the class' perspective, and appropriately challenging assumptions and perspectives | *Sometimes contributes* to the discussion in the aforementioned ways. | *Occasionally contributes* to the discussion in the aforementioned ways. | *Rarely contributes* to the discussion in the aforementioned ways. | Non-participation |

This rubric is modified based on
:http://www.google.ca/url?sa=t&source=web&cd=3&ved=0CCgQFjAC&url=http%3A%2F%2Fwww.cmu.edu%2Fteaching%2Fresources%2FTeaching%2FCourseDesign%2FAssessment-Grading%2FRubrics%2FClassParticipationRubric.doc&rct=j&q=Grading%20for%20Class%20Participation%2C%20rubrics%20&ei=_5mXTrSDCOm7iAfw_6SsAg&usg=AFQjCNF-TwU45HPosoWVJ9mhLWzROqaCsg

## d. Case-Based Learning (CBL) Rubric

**6. Group Presentation** (An example using marks for conversion purpose)

| Criteria | Excellent<br>Marks = 10 | Good<br>Marks = 8 | Satisfactory<br>Marks = 6 | Marginal Pass<br>Marks = 4 | Fail<br>Marks = 0 |
|---|---|---|---|---|---|
| ***Research*** | | | | | |
| Quality (e.g. use of varied sources, evaluated and validated sources, accurate information) | Information is accurate; resources are legitimate; resources are varied and appropriate | Information is mostly accurate with only a few minor errors; one resource may be questionable; resources good but not varied enough | Information is acceptably accurate; more than one resource may be questionable; no variation in resources | Information is mostly unreliable and/or inaccurate; most of the resources are not valid | PLAGIARISM or NON SUBMISSION |
| Broad spectrum of information (e.g. on political, economic, social, historical and geographical dimensions) | Includes all five dimensions | Includes four of the five dimensions | Includes three of the five dimensions | Include two of the five dimensions | |
| ***Content of Presentation*** | | | | | |
| Substantive use of information (e.g. explanations on political, economic, social, historical and geographical dimensions are complete and helpful; made connections, inferences, drew conclusions, noted convergence and divergence among resources) | Explanations of dimensions are complete and helpful and indicate how the dimensions interact with each other; draw conclusions, make connections and inferences | Explanations are complete and helpful but include little or no interaction among dimensions or explanations aren't quite as complete or helpful but there is an indication of interaction among dimensions; draw some conclusions and make some inferences | Explanations are acceptably complete with some interaction of dimensions shown; draw some conclusions and make some inferences but miss obvious ones | Incomplete and/or not helpful explanations with little indication of interaction among dimensions; presents others' information with little analysis (e.g. drawing conclusions, making comparisons, connections and inferences) | PLAGIARISM or NON SUBMISSION |
| Effective slides (e.g. coherent, logical progression, well organized, include main points not details, "tell a story") | Slides clearly aid the speaker in telling a coherent story | For the most part slides are helpful in telling the story with minor problems | Slides are acceptably helpful in telling the story with a few glaring problems | Slides mostly interfere with the story | |

## e. Case-Based Learning (CBL) Presentation Rubric

**4. Oral Presentation** (An example for an assignment that contributes to all or most of the credits of a course, using grade points for conversion purpose)

| Criteria | Excellent GP = 4 | Good GP = 3 | Satisfactory GP = 2 | Marginal Pass GP = 1 | Fail GP = 0 |
|---|---|---|---|---|---|
| ***Organization of the presentation*** | | | | | |
| **Introduction** | Topic and focus of the presentation introduced clearly and in an interesting way. Outline was given. | Topic and focus of the presentation were made clear. Outline was given. | Topic and focus of the presentation were introduced. | Topic and/or focus of the presentation were introduced but limited. | PLAGIARISM or NON SUBMISSION |
| **Main point** | The central claim of the presentation was clearly identified and was easy to follow. Connection of main points was in order with succinct transitions. | The central claim of the presentation was identified and there were connections between main points. | The central claim of the presentation was included but difficult to follow. | Central claim of the presentation was difficult to identify. | |
| **Grouping of ideas** | The presentation was organized into clearly-identifiable sections with logical and interesting sequence which audience can follow. | The presentation was organized into identifiable sections with most information presented in logical sequence. A few minor points maybe confusing. | Students jumped around sections and several points were confusing. | The presentation had limited identifiable sections and ideas were disjointed. | |
| **Conclusion** | Ended with a conclusion which reinforced the main points of the presentation. Showing thoughtful, strong evaluation of the evidence presented. | The presentation ended with a summary of the main points showing some evaluation of evidence presented. | The presentation ended with a summary with a few evidence of evaluating content based on evidence. | The presentation ended without limited evidence of summary or conclusion. | |

## f. Case-Based Learning (CBL) Report Rubric

8. Research Paper *(An example for an assignment that contributes to all or most of the credits of a course, using grade point for conversion purpose)*

| Criteria | Excellent GP = 4 | Good GP = 3 | Satisfactory GP = 2 | Marginal Pass GP = 1 | Fail GP = 0 |
|---|---|---|---|---|---|
| **Overall Impression** | Author directly addresses main question or issue, and adds new insight to the subject not provided in lectures, readings, or class discussions. The author has retained nearly all of the knowledge presented in class. He/She is able to synthesize this knowledge in new ways and relate to material not covered in the course. | Author competently addresses main question or issue, but does not add much new insight into the subject. That said, it is clear that the author has learned a great deal in class and is able to communicate this knowledge to others. | Author attempts to address main question or issue, but fails. The author has retained some information from the course, but does not fully understand its meaning or context and cannot clearly convey it to others. | Essay hardly addresses main question or issue, and it is obvious that author has retained limited information from the course. | PLAGIARISM or NON SUBMISSION |
| **Argument** | Essay contains a clear argument—i.e., lets the reader know exactly what the author is trying to communicate. | An argument is present, but reader must reconstruct it from the text. | Author attempts, but fails, to make an argument (e.g., starts with a rhetorical question/statement or anecdote that is never put into context). | Limited attempt is made to articulate an argument. | |
| **Evidence** | Provides compelling and accurate evidence that convinces reader to accept main argument. The importance/relevance of all pieces of evidence is clearly stated. There are no gaps in reasoning—i.e., the reader does not need to assume anything or do additional research to accept main argument. | Provides necessary evidence to convince reader of most aspects of the main argument but not all. The importance/ relevance of some evidence presented may not be totally clear. Reader must make a few mental leaps or do some additional research to fully accept all aspects of main argument. | Not enough evidence is provided to support author's argument, or evidence is incomplete, incorrect, or oversimplified. Information from lectures and readings is not effectively used. | Either little evidence is provided, or there are numerous factual mistakes, omissions or oversimplifications. There is mention of information from lectures and readings. | |

1. **Forms of Learning:** The forms of learning may include lectures, response sessions, tutorials, seminars or equivalents, practicals, studio practice, workshop practice, field practice, research, community service, and/or other equivalent learning forms.
2. **Learning Methods:** Learning methods should be designed with an **active learning approach.** In this grant, at least 50% of the learning assessment must be based on collaborative participatory learning processes using **Case-Based Learning (CBL)** or **Team-Based Learning (TBL).** Other learning methods may include: small group discussions, role-play and simulations, discovery learning, self-directed learning, cooperative learning, collaborative learning, contextual learning, project-based learning, and other equivalent methods.

| No | Metoda Pembelajaran | Orientasi |
|---|---|---|
| 1 | **Small Group Discussion** | Berbagi pengetahuan dan pengalaman & kemampuan komunikasi. |
| 2 | **Role-Play & Simulation** | Belajar dg bermain peran dan menirukan gerak / model / pola / prosedur. |
| 3 | **Discovery Learning** | Belajar melalui penelusuran, penelitian dan pembuktian/penemuan |
| 4 | **Self-Directed Learning** | Belajar berdasarkan pengalamannya sendiri. |
| 5 | **Cooperative Learning** | Belajar dalam tim dengan tugas yang sama untuk mencapai tujuan bersama. |
| 6 | **Collaborative Learning** | Belajar dalam tim dengan tugas yang berbeda untuk mencapai tujuan bersama. |
| 7 | **Contextual Learning** | "*Doing the real thing*" |
| 8 | **Project Based Learning** | Belajar berdasarkan target dan perencanaan |
| 9 | **Problem Based Learning & Inquiry** | Belajar berdasarkan pada masalah dengan solusi "*open ended*", melalui penelusuran dan penyelidikan/penelitian |

3. **Learning materials** should detail or outline the topics and sub-topics to be covered. Tasks should be designed at each stage of the learning process.
4. **Assessment Weighting** should be proportional to the difficulty level of achieving each sub-CLO (Course Learning Outcome), totalling 100%.
5. TM (Tatap Muka) = Face-to-Face, PT (Penugasan Terstruktur) = Structured Assignments, BM (Belajar Mandiri) = Independent Learning.

## FORMS OF COLLABORATIVE AND PARTICIPATORY CLASS MODULES

**Module Types: There are two types of modules: (a) Printed format (b) Interactive Multimedia**

According to Daryanto (2013), a module is a type of teaching material that is comprehensively and systematically packaged. It contains a set of planned learning experiences designed to help students achieve specific learning objectives. A module minimally includes learning objectives, learning material/content, and evaluation. The module serves as an independent learning tool, allowing students to learn autonomously at their own pace.

The module, as one of the outcomes of this grant, will be used by students to carry out case studies or project-based assignments. The scope and content requirements of the module are as follows:

**1. Option I.**

1. Introductory Module on Collaborative and Participatory Topics
2. Minimum of 30-50 pages including cover and appendices
3. Font: Times New Roman 12, 1.5 line spacing, adjusted to the provided template
4. Structure of the Collaborative and Participatory Class Module

a. Cover (Title, Course, and Names of Authors/Instructors); names of instructors can be listed on the second page if the author group is large
b. Table of Contents
c. Learning Objectives (specific to the module)
d. Module Position Map
e. Target Audience and Stakeholders
f. Introductory Theory (Note: not theory answering the task)
g. Scenario (for Case-based) or Project Details (for Project-based)
h. Details of Student Group Work
i. Bibliography
j. References related to the Case or Project
k. Student Report Format
l. Assessment Format (for independent group activities)
m. Presentation Assessment Format

Template Module included in the guide.

**2. Option II**

Structure of the Module

1. Cover Page
2. Francis Page (Page following the cover providing a very brief overview of the module's content to entice further reading, usually with an attention-grabbing illustration)
3. Preface
4. Table of Contents
5. Module Position Map
6. Module Content (Objectives, Methods, Material, Examples, Illustrations, Images, Exercises, Evaluation)

I. Introduction
1.1. Deskripsi Modul
1.2. Module Description
1.3. Prerequisites
1.4. Module Usage Instructions
1. Student Guidelines
2. Facilitator Role (Instructor)
1.5. Final Goals
1.6. Course Learning Outcomes
1.7. Initial Student Ability Test
II. Learning Process
2.1. Student Learning Plan
2.2. Learning Activities
2.2.1. Learning Activities 1
a. Learning Activity Objectives
b. Material Description
c. Summary
d. Assignment
e. Formative Test
f. Formative Test Answer Key
g. Worksheets
2.2.2. Learning Activity 2, and so on
III. Learning Assessment
IV. Conclusion

7. Glossary

**TEMPLATE OF CASE STUDY METHOD REPORTS**

STUDY CASE REPORTS/ CASE METHOD OF COURSES

……

COURSE CODE:

SEMESTER……..ACADEMIC YEAR ……..

Written by: Class A/B/C/D

**FACULTY OF VETERINARY MEDICINE**
**UNIVERSITAS BRAWIJAYA**
**MALANG**
**2021**

**APPROVAL SHEET OF STUDY CASE/ CASE METHOD REPORTS**

COURSE …… (COURSE CODE…….)

Name of Course Coordinator :
Staff ID/ID Number :
Course :
Course Code :
Semester :
Academic Year :
Number of students :
Course Learning Outcomes (CLO) :

1. A
2. A
3. A
4.

Malang,

Acknowledged by,
Head of Veterinary Education Study Program

Course Coordinator

Drh. Indah Amalia Amri, M.Si NIP.
198709252019032011

(……)
Staff ID/ID Number

REPORT CONTENST:

1. REPORT COVER PAGE
2. APPROVAL PAGE
3. STUDENT REPORT WITH A COVER PAGE INCLUDING GROUP MEMBER NAMES
4. DOCUMENTATION SCREENSHOTS
5. STUDENT POWERPOINT PRESENTATION

**TEMPLATE OF TEAM PROJECT BASED METHOD REPORTS**

TEAM BASED PROJECT REPORTS OF COURSES
…(LAB PRACTICE)
COURSE CODE:
SEMESTER……..ACADEMIC YEAR ……..

Written by: Class A/B/C/D

**FACULTY OF VETERINARY MEDICINE**
**UNIVERSITAS BRAWIJAYA**
**MALANG**
**2021**

**APPROVAL SHEET OF TEAM BASED PROJECT REPORTS**

COURSE ……(LAB PRACTICE) (COURSE CODE…….)

1. Name of Course Coordinator :
2. Staff ID/ID Number :
3. Course :
4. Course Code : (Lab Practice)
5. Semester :
6. Academic Year :
7. Number of students :
8. Course Learning Outcomes (CLO) :
    1. A
    2. A
    3. A
    4

Malang,

Acknowledged by,
Head of Veterinary Education Study Program

Course Coordinator

Drh. Indah Amalia Amri, M.Si NIP.
198709252019032011

(……)
Staff ID/ID Number

REPORT CONTENST:

1. REPORT COVER PAGE
2. APPROVAL PAGE
3. STUDENT REPORT WITH A COVER PAGE INCLUDING GROUP MEMBER NAMES
4. DOCUMENTATION SCREENSHOTS
5. STUDENT POWERPOINT PRESENTATION

# CHAPTER VIII
# STUDENT ACTIVITIES OUTSIDE THE CAMPUS

## 8.1. Field Work Practice (FWP)

### 8.1.1 Introduction

Name : Field Work Practice

Credits Semester : 4 Credits

Type : Elective

Field Work Practice (FWP) is an elective academic activity undertaken by Veterinary Medicine students at Universitas Brawijaya. It is conducted at an institution/agency/clinic at local, regional, and national levels that is relevant to the field of Veterinary Medicine, for a predetermined period. FWP is one of the requirements for obtaining an undergraduate degree at the Faculty of Veterinary Medicine (FVM) at Universitas Brawijaya. The activities include active participation, direct field observation, and discussions with leaders, veterinarians, and related staff. FWP aims to provide students with practical work experience to develop their hard skills and soft skills for entering the workforce after graduation. FWP serves as an important means for students to enhance their work skills, problem-solving abilities, communication skills, and familiarity with the work environment. This activity is a manifestation of the learning process facilitated by partner companies/institutions.

### 8.1.1 Objectives

To gain experience and apply theoretical knowledge acquired during lectures into the workplace based on professional standards. To train students to work independently and collaboratively with others, and to adapt to workplace conditions that they will encounter in their future careers.

### 8.1.2 General Guidelines for FWP Implementation

a. Field Work Practice (FWP) is an academic activity undertaken by FVM UB students as a requirement for completing their studies. FWP involves working in the industry to enhance students' understanding of the application of knowledge, science, and technology acquired during their coursework through direct activities at partner institutions/government agencies/research institutions/companies/other relevant partners. The duration of FWP is 200 working hours (1 day = 8 hours), which is equivalent to 120 minutes per credit x 4 credits, making the total duration 25 working days.

b. The team involved in FWP handles all matters related to the administration, preparation, monitoring, and evaluation of FWP.

c. FWP partners are institutions or companies that accept students for FWP..

d. FWP Partner Requirements:
   - Small, medium, and large industries/clinics.
   - Research or government institutions.
   - Other relevant companies.

e. Field Supervisor is a supervisor from the FWP partner who guides the students in the field.

f. Academic Supervisor is a faculty member from FVM UB appointed by the faculty to comprehensively guide the students during FWP. Each student is guided by two academic supervisors: Supervisor 1 and Supervisor 2. The requirements, selection, duties, and obligations of the supervisors are outlined in the FWP Implementation Procedure Manual. Deviations from the requirements are determined by the Dean upon the recommendation of the Head of the Study Program..

g. Examiner is a faculty member who assesses the students during the FWP examination.

h. FWP Examination is an exam conducted after the completion of FWP at the partner institution, and when the academic supervisor permits the exam. The exam is conducted by the students with the academic supervisor and one examiner in a closed setting.

Requirements for Applying for FWP:

- Registered as a student in the relevant academic year.
- Completed a minimum of 110 credits.
- Minimum GPA of 2.00.
- No more than 10% of the total credits have a grade of D.
- No grade of E.
- Fulfilled other requirements specified by FVM UB.

### 8.1.3 Credits and Assessment

The FWP activity at FVM UB carries 4 credits. The assessment components of the FWP exam include three aspects as detailed in Table 1.1: presentation, question-answer (discussion), and report writing. The presentation includes self-confidence, the ability to articulate ideas, and the ability to present the report content. Mastery of the material is shown by the ability to answer various questions related to science, technology, general knowledge, and company management. The report writing is assessed based on the systematic presentation and content of the FWP report.

Table 1.1.Presentation assessment of FWP

| No. | Assessment Aspects | Weight (%) |
|---|---|---|
| 1. | Presentation Assessment:<br>- Self-confidence and demeanour.<br>- Skill in articulating ideas, presenting content, and explaining material. | 20 |
| 2. | Question-Answer (Material Mastery):<br>- General knowledge.<br>- Company management.<br>- Scientific knowledge.<br>- Technical/technology aspects. | 40 |
| 3. | Report Writing:<br>- Systematic structure.<br>- Content. | 40 |

The FWP exam score is derived from the average score given by the academic supervisors and the examiner. Students are declared to have passed the exam if they achieve at least a grade of C. Students who do not pass the exam must follow the decisions of the examining committee.

### 8.1.4 FWP Implementation Mechanism

The procedure for implementing FWP at FVM UB is as follows:

1. Students informally survey potential FWP sites according to their interests.
2. After securing a FWP site, students visit the FVM UB academic office to fill out the FWP registration form, accompanied by their academic transcript and course registration form (KRS).
3. The FVM UB academic staff receive the FWP registration documents.
4. The FVM UB academic staff verify the completeness of the FWP applicant's documents. If eligible, the documents are forwarded to the Vice Dean (Wadek) I for Academic Affairs. If not eligible, the documents are returned to the student.
5. The Vice Dean I for Academic Affairs determines and proposes the names of academic supervisors to the Head of the Department for approval.
6. The FVM UB academic office announces the list of FWP academic supervisors.
7. Students consult with their FWP academic supervisors to prepare their FWP proposals.
8. Students submit the approved FWP proposal to the academic office for the issuance of the FWP permit/letter.
9. The academic office processes the FWP documents with the general administration office.
10. The general administration office prepares the FWP request letter to the intended institution.
11. The general administration office processes the assignment letters for the FWP supervisors and provides them to the students and the supervisors.
12. The general administration office prepares and processes the FWP permit letters for the students and academic supervisors.
13. The general administration office archives the assignment letters, registration forms, transcripts, and KRS of the students.
14. Students carry out their FWP activities.
15. After completing FWP, students undergo the FWP examination. The Dean issues the assignment letters for the academic supervisors for the FWP examination.

## 8.2. Thematic Community Service Program (CSP)

Name : Thematic Community Service Program (CSP)

Credits : 4 Credits

Type : Required

The community service Program is a mandatory activity for both lecturers and students, grounded in the principles of academic competence, entrepreneurship, and professionalism. This Program aims to produce high-quality, relevant, and synergistic community service initiatives that enhance community empowerment. Thematic Community Service (CSP) is one form of community service conducted by students in an interdisciplinary, institutional, and partnership manner, as part of the Tri Dharma of Higher Education. In response to societal dynamics, local and central government developments, as well as global changes, the CSP Program at Universitas Brawijaya is directed towards a thematic model based on community empowerment.

Thematic CSP is a community service Program with a focus and relevance to regional or central government development Programs, aligned with community needs, and pertinent to the vision, mission, strategic plan, and expertise of the Faculty of Veterinary Medicine, Universitas Brawijaya (FVM UB). Several Thematic CSP schemes are available for FVM UB students to choose from, such as Integrated Community Service (Pengmas Terpadu) and DPP, Idul Qurban Implementation, or CSP LPPM UB.

Objectives of Thematic CSP:

a. To develop graduates capable of mapping out problems faced by the community.
b. To foster a leadership spirit that is attentive to community needs.
c. To bring higher education institutions closer to the community.
d. To assist the government in efforts to improve community welfare.

Basic Principles of Thematic CSP:

a. Integration of the Tri Dharma of Higher Education: The aspects of education, teaching, and community service based on research form the foundation for planning, implementation, and evaluation benchmarks of Thematic CSP.
b. Achievement of Three Main Benefits: Thematic CSP aims to achieve student personality development, community empowerment, and institutional development.
c. Empathetic and Participatory Approach: Thematic CSP aims to mobilise the community in development activities that involve, engage, and foster a sense of ownership among the

community. The Program is carried out interactively and synergistically between students and the community, necessitating mutual involvement in all activities from planning, implementation, and funding efforts. Therefore, students and Thematic CSP managers must adopt a socio-cultural approach to the community for better cooperation and participation.

d. Interdisciplinary Aspects: Thematic CSP is conducted by FVM UB students from various academic concentrations. Operationally, students develop interdisciplinary thinking and working mechanisms to solve problems at the Thematic CSP locations.
e. Comprehensive and Complementary with Broad Dimensions: Thematic CSP serves as a binding, summarising, supplementing, and complementing element of the existing curriculum. This enables students to actualise themselves professionally and proportionally.
f. Realistic and Pragmatic: The Programs are based on real problems and needs in the field, executable with the available resources, and beneficial to the community in both the short and long term.
g. Environmental Development: Thematic CSP is conducted to preserve and develop the physical and social environment for mutual benefit. Thematic CSP can identify community problems based on existing resources, with the aim of enabling the community to be self-reliant in development.

Thematic Community Service Program (CSP) is mandatory because it is a structured Program. It can only be undertaken by students meeting certain academic requirements and achieving success through specific stages. It has academic weight and credit load, and Thematic CSP must be conducted alongside other curricular activities through an evaluation process. It holds a clear status/position within the curriculum, meaning the development of Thematic CSP curriculum must follow the guidelines for creating other course curricula. Thematic CSP is included in the study plan card and is implemented with guidance, supervision, and evaluation.

General Guidelines and Student Requirements for Thematic CSP at FVM UB:

a. Thematic Community Service Program (CSP) is an academic activity conducted by FVM UB students as one of the requirements for completing their studies.
b. The Thematic Community Service Program (CSP) is an academic activity undertaken by students of the Faculty of Veterinary Medicine (FVM UB) as a mandatory requirement for completing their studies. The CSP involves 200 working hours (1 day = 8 hours), equivalent to 120 minutes per credit x 4 credits, resulting in 25 working days.
c. Field Supervisors are individuals responsible for guiding students in the field.

d. Academic Supervisors: These are teaching staff from FVM UB appointed by the faculty to comprehensively guide students during the CSP. Each student is mentored by two academic supervisors, Supervisor 1 and Supervisor 2
e. Examiners: These are lecturers tasked with assessing students during the CSP examination.
f. CSP Examination: This is conducted post-CSP implementation, upon approval by the academic supervisors. The examination involves the student, their academic supervisors, and one examiner, and is conducted in a closed setting.
g. Students must register for CSP in their Study Plan Card (KRS) and enrol with the academic department of FVM UB.
h. Students are eligible after completing the 4th semester, and the Program is conducted during the inter-semester period (between the 4th and 5th semesters)
i. Competency training for the Thematic CSP is provided by the CSP Thematic Team of FVM UB.

### 8.1.6. Integrated Community Service (Pengmas), DPP, Idul Adha

#### 8.1.6.1. Introduction

Community service is a component of the Tri Dharma of Higher Education, involving dissemination, application, and socialisation of research findings to the community by lecturers or teams of lecturers with student participation, funded through various schemes. These Programs, organised by LPPM UB, are oriented towards social entrepreneurship, prioritising international, national, and regional issues with performance indicators such as improvements in community quality of life in economic, social, cultural, and security aspects, as detailed in the Community Service Strategic Plan of LPPM UB, based on the Rector's Regulations.

Community service activities are expected to provide direct benefits to the community, especially those around the FVM UB campus. Additionally, these activities foster student awareness and curiosity in solving community problems

#### 8.1.6.2. Objectives of Community Service

The objectives of community service in higher education include:

a. Creating technological innovations to drive economic development through the commercialisation of research results.
b. Providing academically-based solutions to community needs, challenges, or issues, both directly and indirectly.

c. Conducting activities to uplift marginalized communities across all strata (economic, political, social, and cultural).
d. Transferring technology, knowledge, and arts to the community to enhance human dignity and natural resource sustainability.

#### 8.1.6.3. Scope of Community Service

According to Indonesian Law No. 12 of 2012 on Higher Education Article 47, community service activities by academic personnel aim to advance public welfare and educate the nation. These activities should align with the academic culture, expertise, and/or scientific autonomy of the academic community, including students, and the socio-cultural conditions of the community.

Community service outcomes are utilised for the development of science and technology, enrichment of learning resources, and/or academic maturity. The scope of community service, as outlined in Permendikbud RI No. 49 of 2014 on National Standards for Higher Education Article 53, IAPS 4.0, and Universitas Brawijaya's Quality Standards No. 1 of 2017 on Community Service Standards in Chapter V, includes:

#### 8.1.6.4. Implementation Mechanism

Integrated community service and DPP, as well as Idul Adha activities, offer students opportunities to contribute as part of the CSP Thematic Program at FVM UB, supervised by field supervisors. These are annual Programs where students can directly contact the academic department to participate. Integrated community service is conducted in various regions, with students choosing topics from several available activities. Idul Adha is implemented in several areas in East Java and across the nation. DPP community service is an individual lecturer's scheme, where students can apply to participate. Students can choose among these schemes by submitting a CSP Thematic activity proposal to the academic department of FVM UB.

### 8.1.7. CSP Thematic LPPM UB

The Thematic Community Service Program (CSP) LPPM UB is a community service activity organised based on specific themes, managed by field supervisors. The Program activities are formulated based on the Community Service Strategic Plan of Universitas Brawijaya. CSP Thematic provides students with the opportunity to contribute and collaborate in community service Programs led by Universitas Brawijaya lecturers.

#### 8.1.7.1. Implementation Mechanism

1) Students register for CSP online at KKNt.lppm.ub.ac.id.
2) Administrative document selection.
3) Interview selection for CSP participant readiness.
4) Announcement of successful CSP participants.
5) Briefing for all CSP participants.
6) Special CSP DM competency training.
7) Departure ceremony for CSP students.
8) Implementation of CSP activities.
9) Monitoring and evaluation in the field.
10) Consultation on reports and activity outcomes.
11) Final examination for CSP students.
12) Recapitulation of grades.
13) Submission of CSP grades to the academic department of FVM UB.
14) Grade conversion, recognition of credits, and input of grades in the Academic Transcript by FVM UB.

## 8.2. Internship Program

### 8.2.1. Introduction

The Faculty of Veterinary Medicine, Universitas Brawijaya (FVM UB), aims to produce graduates capable of competing in the global era through an interdisciplinary approach grounded in high curiosity. Current job market demands require graduates to possess skills, attitudes, and work ethics. To equip students with theoretical knowledge and practical work skills, FVM UB encourages students to participate in internship Programs. These internships bridge theory and practice, enabling students to understand and analyse the latest developments in the job market related to public health, thus producing graduates ready for employment in the field.

Internship students are required to work in units relevant to their interests. During the internship, students undertake tasks and responsibilities assigned by the field supervisor. These tasks should be accompanied by guidance to ensure optimal performance. Supervisors are expected to direct interns towards creative, initiative-driven, responsible, and responsive problem-solving. Consequently, supervisors should create a rational work environment reflecting daily activities. Additionally, interns must adhere to the institution's regulations. All internship activities require the supervisor's permission and knowledge, facilitating the

initiation of final project research and networking for future employment opportunities.

Internships are independent, elective activities conducted off-campus. They involve practical work experience with partners (industry, government/private agencies, community groups, training institutions, businesses, and other organisations) to gain understanding and skills, typically carried out during odd or even semesters.

### 8.2.2. Goals

1. Provide practical field skills, enabling students to understand workplace conditions.
2. Facilitate student potential development in line with their passions and talents.
3. Enhance graduate competencies, both soft and hard skills, through sufficient interaction with the job market, ensuring relevance to contemporary needs.
4. Strengthen networking between the undergraduate Veterinary Medicine Program and external companies/agencies.

### 8.2.3. Objectives

Internships offer students the opportunity to directly engage in the workforce relevant to their field of study. The specific objectives for students include:

1. Increasing knowledge, experience, abilities, and skills pertinent to their discipline.
2. Guiding students to identify problems and data useful for thesis writing.
3. Sharpening problem-solving skills during internship activities.
4. Acclimatising students to the work culture, distinct from the learning culture, regarding time management, communication skills, teamwork, and the higher pressure to complete tasks promptly.

### 8.2.4. Learning Outcomes

1. Apply disciplinary knowledge in an internship setting.
2. Identify, formulate, analyse, and solve problems related to their field.
3. Employ logical, critical, systematic, and innovative thinking in developing or implementing science and technology, considering and applying humanistic values relevant to their expertise.
4. Demonstrate independent, quality, and measurable performance.
5. Make appropriate decisions in problem-solving within their expertise, based on information and data analysis.
6. Maintain and develop professional networks with supervisors, colleagues, and peers, both

within and outside their institutions.

7. Be accountable for group work outcomes and supervise and evaluate assigned tasks.
8. Conduct self-evaluation of their workgroup and manage independent learning.
9. Exhibit responsibility for work in their field of expertise.
10. Foster independence, perseverance, and entrepreneurship.

**Appendix 1: Permanent Lecturers of the FVM UB Program**

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## Appendix 2: List of Guest Lecturers at FVM UB

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| 3. | Prof. Le Thanh Hien | |
| 4. | Prof. Junpei Kimura | |
| 5. | Prof. Ma. Asuncion G. Beltran, DVM, PhD | |
| 6. | Prof. Samuel Abraham | |
| 7. | Drh. Mochamad Aji Purbayu, M.Sc | |
| 8. | Gretania Resiwidati, DVM, M.Si | |
| 9. | Habib Syifaul Tuska, DVM, M.Si | |
| 10. | Drh. Fitriya Nur Annisa Dewi, PhD | |
| 11. | drh. Yulinar Risky Karaman,M.Biomed | |
| 12. | drh. Muhamad Munawaroh,MM | |
| 13. | drh. Deddy F.Kurniawan | |
| 14. | drh. Wiwiek Bagja | |
| 15. | drh. Mawar Subangkit,M.Si,PhD | |
| 16. | drh. Rio Adityawan | |
| 17. | drh. Tri Satya Putri Naipospos, M.Phil,PhD | |
| 18. | drh. Vici Eko Handayani | |