



# **ASIIN Seal Accreditation Report**

***Integrated Undergraduate and Master's Academic  
Studies in Veterinary Medicine  
Specialist Academic Studies in Veterinary Medicine  
Doctoral Academic Studies in Veterinary Medicine***

Provided by:  
**Faculty of Veterinary Medicine, University of Bel-  
grade**

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## A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for <sup>1</sup>	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) <sup>2</sup>
Integrisane osnovne i master akademske studije iz medicinskih nauka – veterinarska medicina	Integrated undergraduate and master's academic studies in medical sciences - veterinary medicine	ASIIN	CAQA/ NEAQA 24.10.2014. – 24.10.2021	14
Specijalističke akademske studije veterinarske medicine	Specialist academic studies in veterinary medicine	ASIIN	CAQA/ NEAQA 24.10.2014. – 24.10.2021	14
Doktorske akademske studije veterinarske medicine	Doctoral academic studies in veterinary medicine	ASIIN	CAQA/ NEAQA 24.10.2014. – 24.10.2021	14
<p><b>Date of the contract:</b> 19.12.2019</p> <p><b>Submission of the final version of the self-assessment report:</b> 02.10.2020</p> <p><b>Date of the online audit:</b> 14. - 16.06.2021</p> <p><b>at:</b> Faculty of Veterinary Medicine, University of Belgrade, Serbia</p>				
<p><b>Peer panel:</b></p> <p>Prof. Dr. Thomas Göbel, University of Munich, Faculty of Veterinary Medicine</p>				

<sup>1</sup> ASIIN Seal for degree programmes

<sup>2</sup> TC: Technical Committee for the following subject areas: TC 14 - Medicine

## A About the Accreditation Process

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<b>Representative of the ASIIN headquarter:</b> Rainer Arnold	
<b>Responsible decision-making committee:</b> Accreditation Commission for Degree Programmes	
<b>Criteria used:</b>  European Standards and Guidelines as of 15.05.2015  ASIIN General Criteria, as of 10.12.2015	

## B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF <sup>3</sup>	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Integrated undergraduate and master's academic studies in medical sciences - veterinary medicine	Doktor veterinarske medicine (Dr vet.) / Doctor of Veterinary Medicine (Dr vet.)		Level 7	Full time	No	11 Semester	330 ECTS	Fall semester / 1936
Specialist academic studies in veterinary medicine	Specijalista doktor veterinarske medicine (Spec. Dr vet.) / Specialist Doctor of Veterinary Medicine (Spec. Dr vet.)		Level 7	Full time	No	4 Semester	120 ECTS	Fall semester / 2008
Doctoral academic studies in veterinary medicine	Doktor medicinskih nauka – veterinarska medicina (Dr sci. vet. med.) / Doctor of Medical Sciences – Veterinary Medicine (Dr sci. vet. med.)		Level 8	Full time	No	6 Semester	180 ECTS	Fall semester / 2006

<sup>3</sup> EQF = The European Qualifications Framework for lifelong learning

For the Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine (IMAS), the Faculty of Veterinary Medicine, University of Belgrade (FVM) has presented the following profile in their Self-Assessment Report:

“Integrated undergraduate and master academic studies at FVM last for eleven semesters. The study programme is harmonized with national and European standards, the Bologna Declaration and is largely in accordance with the EAEVE criteria.

At the beginning of their studies, students take general courses as an introduction to narrow professional, pre-clinical and clinical ones. The programme includes 65 compulsory and 32 elective courses as well as professional training. Classes are held at the Faculty and in teaching bases - on farms, in stables, veterinary institutes, clinics, stations, ambulatory clinics and in other organizations the Faculty cooperates with.

In the last semester, students enter clinical rotation in order to acquire the necessary skills, which every veterinary surgeon should master on graduation in accordance to the Law on Regulated Professions and Recognition of Professional Qualifications and Directive 2005/36 EU. Clinical rotation consists of two blocks consisting of seven compulsory courses.

In the last semester students decide on taking elective courses in the field of their graduation thesis, which is followed by the thesis preparation and its public defence. Upon completion of the study, 330 ECTS points are granted, and the graduated students are bestowed the title of Doctor of Veterinary Medicine (Dr Vet.).”

For the Specialist Academic Studies in Veterinary Medicine (SAS), the Faculty of Veterinary Medicine, University of Belgrade (FVM) has presented the following profile in their Self-Assessment Report:

“Specialist academic studies at FVM last four semesters. The study programme is realized through nine modules. Students acquire specific knowledge and skills and specialize in providing services in one of the specialization fields (reproduction of animals, veterinary microbiology and immunology, epizootiology, veterinary pathology, food hygiene and technology, internal medicine of social animals, farm animal health, veterinary dietetics, and veterinary surgery.

In the specialist study programme, modern methods of interactive theoretical and practical teaching are used. In small groups, students acquire problem-solving skills through intensive training in laboratories and clinics of the Faculty. During the studies, there is an opportunity for internships from the elective module in a large number of teaching centres which the Faculty cooperate with (farms, stables, veterinary stations, veterinary clinics, dairies

and laboratories) Traineeship in the teaching centre of interest prepare students to skillfully perform all the specialist activities immediately after graduation in the field of selected module.

After the successful defence of the specialist work, 120 ECTS points are granted. Depending on the chosen module, students acquire the title of specialist in the chosen field. (Spec. Dr. Vet.)”

For the Doctoral Academic Studies in Veterinary Medicine (DAS), the Faculty of Veterinary Medicine, University of Belgrade (FVM) has presented the following profile in their Self-Assessment Report:

“Doctoral academic studies at FVM last for six semesters. At this level of study, students acquire the latest scientific knowledge in veterinary and biomedical sciences, which are necessary for training and research in the particular field.

The programme of doctoral academic studies is unique: the candidates, starting from the 3<sup>rd</sup> semester, opt for elective courses in the field of particular doctoral dissertation research. The study programme offers 79 elective courses in the fields of doctoral dissertation research that give students the opportunity to acquire knowledge and scientific competence in a variety of scientific fields.”

## C Peer Report for the ASIIN Seal

### 1. The Degree Programme: Concept, content & implementation

**Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)**

**Evidence:**

- Self-Assessment Report
- Discussions during the audit
- Curricula of the degree programmes
- Module Descriptions

**Preliminary assessment and analysis of the peers:**

According to the Self-Assessment Report, the objective of the Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine (IMAS) programme is the creation of future veterinarian's competencies in order to effectively respond to the demands in the field of animal health and welfare, public health, food safety, and infectious diseases transmission. Graduates are expected to be able to continue their professional and scientific specialisation in Serbia or abroad.

As such, graduates of the programme should be able to:

- Apply a logical approach to scientific and clinical reasoning, differentiate between them and be aware of the benefits and limitations of each one.
- Understand the research methods and contributions of basic and applicative research to veterinary science.
- Understand the structure, function and behaviour of domestic, wild and laboratory animals and their physiological and social needs.
- Understand the activities related to animal husbandry and production.
- Analyse the aetiology, pathogenesis, clinical signs, diagnostics and treatment of common diseases and disturbances that are common in domestic species.
- Have a knowledge about worldwide diseases that are a potential risk for national and international bio safety and trade.



- Apply the legislation related to animal care and welfare, animal migration and infectious diseases that should be reported.
- Apply the legislation related to drugs and responsible drug use including antibiotics and antiparasitics.
- Apply the principles of disease prevention and promote animal health and welfare.
- Understand issues related to veterinary public health, including epizootiology, cross-border infectious diseases, zoonoses, food-borne diseases, novel diseases, food hygiene and technology.
- Apply principles of effective interpersonal interaction, including communication, leadership, management and teamwork.
- Apply ethical principles to the veterinary profession, including important ethical theories that help in decision making regarding professional ethics and ethics related to animal welfare.

Graduates of the IMAS programme need to take a state license exam in order to find employment in different veterinary fields. There are small animal clinics mostly located in urban areas, and animal clinic for small and large animals in the suburban and rural areas as well as pet shops and pharmaceutical companies that deal with veterinary drugs. In addition, graduates can find employment in the food industry, in dairy or meat processing plants. For those who decide to continue laboratory, research and scientific work, there are employment opportunities in scientific and specialist institutes.

According to the Self-Assessment Report, the Specialist Academic Studies in Veterinary Medicine (SAS) programme has the objectives of producing specialist veterinarians in one of the following areas: reproduction of animals, veterinary microbiology and immunology, epizootiology, veterinary pathology, food hygiene and technology, internal medicine of social animals, farm animal health, veterinary dietetics, and veterinary surgery.

In order to achieve this aims, graduates of the SAS programme should be able to:

- analyse and solve problems in certain areas of veterinary medicine;
- gain general knowledge and experience that allows them to:
- communicate with animal owners, colleagues, the public and competent administrative and professional bodies;
- understand and improve the ethical principles and quality standards in the veterinary profession and;
- understand, implement and analyse the quality standards on which modern veterinary practice is based;
- know the principles of organization and management of veterinary practice and animal production and

- know the National and European legislation that regulate the veterinary profession.

Graduates of the SAS programme have better job perspectives after finishing their degree, because veterinary specialists are in demand in Serbia.

The primary goal of the Doctoral Academic Studies in Veterinary Medicine (DAS) programme is to make students familiar with the newest findings in veterinary and biomedical sciences that are significant for independent scientific-research work and for further improvement in these areas. Students of the DAS programme should master experimental and analytical science methods and expand their knowledge in specific areas of veterinary medicine. The goals include gaining of scientific abilities and academic skills, development of creative and communicative skills and mastering specific practical skills that are needed for future development in the career.

To his end, students of the DAS programme should master the principles and mechanisms of cell function on the molecular level and gain knowledge in cell biology needed for mastering the research work in modern biomedicine. They should be capable to perceive in details the system of normal metabolic transformations in animal organisms for a better understanding of the changes in tissue function during an illness. In addition, they should understand the role of the nervous system in the regulation and control of other organ systems function and be prepared to perceive humoral regulation and control of organ systems and tissue function. Moreover, they should gain theoretical knowledge and skills that are necessary for independent scientific-research work with experimental animals. This includes participating in scientific-research projects, following and critically evaluating scientific literature and articles, communicating with researchers in the country and worldwide, and participating in the scientific-research processes.

Doctors of veterinary medicine or veterinary specialists can work and practice in public service and specialized practices, in veterinary clinics, scientific and diagnostic institutions, state services, industry of food of animal origin, etc. Competent highly trained specialized professionals can improve the quality of veterinary services, help the implementation of national and European standards, and improve animal welfare and raise public health issues.

The auditors hold the view that the objectives and intended learning outcomes of all three degree programmes under review are reasonable and well founded. They are convinced that the intended profiles of all three degree programmes allow students to take up an occupation that corresponds to their qualification. The degree programmes are designed in such a way that they meet the objectives set for them and the peers judge the objectives and learning outcomes of the degree programmes suitable to reflect the intended level of

academic qualification. The peers appreciate that FVM aims for high standards as to give their graduates good chances in the national and international job market.

### Criterion 1.2 Name of the degree programme

**Evidence:**

- Self-Assessment Report
- Discussions during the audit
- Curriculum of the three study programmes

**Preliminary assessment and analysis of the peers:**

With regard to the title of the IMAS, SAS, and DAS programmes, the auditors hold the opinion that the English translation and the original Serbian names correspond with the intended aims and learning outcomes as well as the main course language.

Graduates of IMAS programme receive the diploma with the title of Doctor of Veterinary Medicine (dr. vet).

After finishing the SAS programme, depending on the elected specialisation, graduates receive a diploma with the title of Specialist of Veterinary Medicine (spec. dr. vet.).

Graduates of the DAS programme receive the doctoral degree with the title of Doctor of Medical Sciences – Veterinary Medicine (dr. sci. vet. med.).

### Criterion 1.3 Curriculum

**Evidence:**

- Self-Assessment Report
- Discussions during the audit
- Curricula of the degree programmes

**Preliminary assessment and analysis of the peers:**

FVM organizes the courses during the school year, which, as a rule, begins on October 1st, and for the second and third degree of studies no later than October 15th and lasts 12 calendar months. The school year has 42 working weeks, of which 30 weeks are teaching weeks and 12 weeks are for consultations, exam preparation and exams. The school year is divided into autumn and spring semesters. Each semester has 15 teaching weeks and six weeks for consultations, exam preparation and exams.

The curricula of the all three degree programmes under review are based on the recommendations of the European Association of Establishments for Veterinary Education (EAEVE), World Organisation for Animal Health (OIE), Federation of Veterinarians of Europe (FVE), and World Veterinary Association (WVA).

The curriculum of the IMAS programme lasts five and a half years and is organized in semesters (11 semesters); it includes obligatory and elective courses and is divided into four types of subjects/course categories:

1.	Academic general	AG	9.06 %
2.	Theoretical-methodological	TM	20.99 %
3.	Scientific-professional	SP	26.87 %
4.	Professional-applicative	PA	43.08 %

All academic-general educational, theoretical-methodological and scientific-professional courses are classified into pre-clinical courses, in which practical classes are organized in groups of 15 students. Professional-applied courses are classified into clinical courses in which practical classes are organized in groups of seven students.

Academic general, theoretical and methodological courses are more present in the first two years of studies, while scientific-professional and professional-applied courses are more present in the third, fourth, fifth, and sixth year of study.

The IMAS programme includes 65 obligatory courses, 32 elective courses and professional practice. All courses have ECTS points assigned and at the end students obtain 330 ECTS points. All courses last one semester and have one to nine ECTS points.

Students have an extramural summer clinical practice, which is done in the 10th semester for two weeks and encompasses two ECTS points. Students can do this extramural summer clinical practice in many veterinary institutions depending on their affinity (veterinary clinics, laboratories, research institutes, etc.).

The SAS programme is designed for two years and is organized in semesters, two semesters per year. Each semester contains a number of obligatory and elective courses that are classified as academic-general educational, theoretical-methodological, scientific-professional and professional-applied courses.

All academic-general educational, theoretical-methodological and scientific-professional courses are classified into pre-clinical courses, in which practical classes are organized in groups of 15 students. Professional-applied courses are classified into clinical courses in which practical classes are organized in groups of seven students.

Academic general, theoretical and methodological courses are equally present in the first year of studies, while professional-applied courses are more present in the second year of study.

The SAS programme includes two obligatory courses and five elective courses in the first year and three elective courses within each module in the second year. All courses have ECTS points assigned and at the end students obtain 120 ECTS points. All courses last one semester and have three to 15 ECTS points.

Students have a professional practice, which is done in the fourth semester for two weeks and encompasses four ECTS points. Professional practice from the elective module is obligatory. In agreement with the Heads of the modules / mentor, it can also be done in certain veterinary institutions.

Classes in the IMAS and SAS programmes are held at FVM and in teaching bases outside the faculty - on farms, stables, veterinary institutes, clinics and other organizations with which the Faculty has appropriate agreements for certain types of teaching.

The DAS programme lasts for three years, and students gain 180 ECTS. The study programme includes compulsory theoretical subjects, and elective subjects in the area of the doctoral thesis to be completed, as well as scientific research in scientific areas of the studies. The doctoral thesis is the final part of the study programme.

The DAS programme includes three obligatory courses and elective courses that are classified in five elective blocks. The elective blocks I and II consist of general elective courses that are not directly related to the preparation of the doctoral dissertation. Elective block III consists of methodological courses in the function of preparing a doctoral dissertation. The elective blocks IV and V consist of courses in the field of the doctoral dissertation. Most of the elective courses in the field of the doctoral dissertation last one semester; some are two-semester courses. All courses have assigned between four to 20 ECTS points.

The peers gain the impression that the graduates of all the degree programmes under review are well prepared for entering the labour market and can find adequate jobs in Serbia or in other countries. During the discussion with the peers, FVM's partner from the industry/public sector confirm that the graduates have a broad scientific education, are very adaptable, and have manifold competences which allow them to find adequate jobs.

In summary, the auditors are convinced that the intended qualifications profiles of all degree programmes under review allow the students to take up an occupation that corresponds to their qualification profile.

<b>Criterion 1.4 Admission requirements</b>
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**Evidence:**

- Self-Assessment Report
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

The Faculty of Veterinary Medicine was allowed to enrol 156 new students per year in the IMAS programme - 150 budget financed students and six self-financed students. Since the accreditation of the programme was extended and the Faculty's capacity was increased (organisation of studies, quality of equipment and teaching capacity), the University of Belgrade allowed enrolment for more students during the second call. Currently, FVM is going through the national accreditation process of the IMAS programme that allows 170 new students to be enrolled every year.

Applicants can gain a minimum of 16 and a maximum of 40 points based on the general success in high school, which means the sum of average grades from all subjects in the first, second, third and fourth grade. In addition, an entrance exam in biology and chemistry is required. The test in each subject consists of 30 questions (60 in total) and each correct answer is scored with one point. As a result, candidates can achieve a maximum of 100 points (60 from the entrance exam and 40 from high school grades).

Candidates who have won one of the first three places in the national competition for high schools, organized by the Ministry of Education, Science and Technological Development in biology or chemistry, do not have to take the entrance exam from that subject. For that subject is awarded the maximum number of points (30).

Enrolment in the SAS programme is carried out on the basis of a competition announced by the University of Belgrade. Applicants need to have completed the studies of veterinary medicine and need to have obtained a minimum of 300 ECTS points. The SAS programme can enrol 40 new students every year. However, many students need to re-enrol in the first year, since they could not manage to defend their specialist thesis by the beginning of the next school year. These students usually complete their studies i.e., defend their specialist thesis within a month or two after re-enrolling.

The ranking of candidates is done according to the average grade in undergraduate studies and the duration of study. If two candidates have the same average grade, the student who studied within a shorter period has the priority. Foreign students must also provide proof of knowledge of the Serbian language.

FVM is allowed to enrol 20 students in the DAS programme every year who have completed integrated undergraduate and master's academic studies or integrated studies with at least

an eight (out of 10) GPA (Grade Point Average). Students with a lower GPA than eight should have a paper published in a scientific journal in order to be admitted. English language skills are also necessary.

The applicants are ranked according to their average grade achieved during undergraduate and master's academic studies and the duration of the studies or the number and quality of published scientific papers.

Applicants for all degree programmes have equal rights to enrol which cannot be limited based on gender, race, marital status, skin colour, language, religion, political opinion, national, social or ethnic origin, disability or for any other reason or circumstances. Candidates with special needs can take the entrance exam according to their abilities.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

**Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:**

The peers consider criterion 1 to be fulfilled.

## **2. The degree programme: structures, methods and implementation**

### **Criterion 2.1 Structure and modules**

**Evidence:**

- Self-Assessment Report
- Study plans of all three degree programmes
- Module Descriptions
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

Since the previous accreditation cycle, significant changes have been introduced to the IMAS programme in accordance with the new National Entity for Accreditation and Quality Assurance in Higher Education (NEAQA) standards and the European System of Evaluation of Veterinary Training (ESEVT) standards. Particular attention was paid to the deficiencies

observed in need for greater engagement of students in practical work with patients, compared to lectures and exercises. For that reason, the number of active teaching hours (lectures and exercises) was reduced from 5,400 in the previous Study Plan to 4,700 in the new one.

Out of 4,700 hours, 330 hours were allocated to rotational clinical/professional practice. During rotational practice, students take part in clinical cases examination and diagnostics. That new approach overcomes the previous way of learning about clinical cases through exercises and lectures that showed only certain segments of the patient's clinical problem. Through rotational practice, students also become familiar with handling of the samples of food of animal origin, veterinary administration and laboratory practice.

Since the previous accreditation cycle, significant changes have been introduced to the SAS programme in accordance with the new National Entity for Accreditation and Quality Assurance in Higher Education (NEAQA) standards and the European System of Evaluation of Veterinary Training (ESEVT) standards.

The curriculum now includes two obligatory and five elective courses in the first and second semester. Electives selected in each semester depend on the courses attended in the previous one. In the first semester, the students listen to two obligatory courses with six ECTS points and choose three of seven elective courses with 24 ECTS points. In the second semester, students attend two elective courses with 30 ECTS points (two of twelve courses).

In the second year of study, depending on interest, students decide for one of nine modules (veterinary reproduction, veterinary microbiology with immunology, epizootiology, veterinary pathology, hygiene and food technology, internal medicine of social animals, farm animal's health, veterinary dietetics, and veterinary surgery).

In the third semester, the student decides on two of at least four offered courses, and in the fourth semester on one of at least two offered elective courses within each module. Specialist Teaching Block is compulsory for each module and is divided into Specialist Teaching Block 1 in the third semester and Specialist teaching block 2 in the fourth semester.

After fulfilling all pre-exam obligations and taking all exams provided by the study programme, the student submits a specialist thesis to the Teaching-Scientific Council of the Faculty.

By listening to and taking the exams in the compulsory and elective subjects, the student acquires a total of 98 ECTS points. For the completed professional practice from the elective module, students acquire four ECTS points. For the defended specialist thesis, the student acquires another 18 ECTS points, which results in a total of 120 ECTS points.



The DAS programme includes three compulsory subjects and elective subjects that are classified in five elective blocks. The elective blocks I and II include the general elective subjects that are not directly related to the preparation of the doctoral dissertation. Elective block III consists of methodological subjects related to the doctoral dissertation topic. Elective blocks IV and V consists of elective subjects related to the doctoral dissertation topic.

From the beginning of the third semester, students choose elective subjects related to their doctoral dissertation topic.

During the first two years, students attend obligatory and elective theoretical courses. The remaining time is dedicated to study research work, divided equally on every semester and as a part of elective subjects related to the doctoral dissertation topic. During the fifth and sixth semester a scientific paper should be published in a journal.

Electives encompass 60 ECTS points and compulsory courses 18 ECTS points. For the doctoral dissertation defence the student acquires 102 ECTS points, in total for the completion of the doctoral studies - 180 ECTS points.

FVM submits an Objectives-Module-Matrix for each of the three degree programmes. In way, it is made transparent by which courses which intended learning outcomes should be achieved.

After analysing the module descriptions and the study plans, the peers confirm that all degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. All working practice intervals are well integrated into the curriculum and the supervision by the faculties allows for their respective quality in terms of relevance, content, and structure.

In addition, the peers gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved. However, as for the IMAS programme the numbers of successful students in the new curriculum is not available yet, it should be monitored if the size and structure of the modules fits the purposes of the curriculum. There may be a need for smaller, more interdisciplinary modules, to achieve fewer drop-outs and a shorter study time (see also criterion 2.2.).

### *International Mobility*

FVM has established a Development & International Relations Office (DIRO) with the purpose of transparency and efficiency in the implementation of international exchange programmes. One of the main goals of DIRO is to establish and update programme procedures for the mobility of students, academic and administrative staff. The procedures identify the

courses or modules taken abroad, the gained credits, the awarded grades and recognises them through the European Credit Transfer and Accumulation System. DIRO continuously cooperates with relevant stakeholders (University of Belgrade, foreign universities and faculties, Ministry of Education of the Republic of Serbia, National Tempus Foundation, Erasmus Office, National CEEPUS Office) in the country and abroad, as well as participates in academic networks with the intention to improve teaching and research capacity. The procedures are regulated by the Rulebook of Mobility by the University of Belgrade. According to the Rulebook, every ECTS point a student gains at another institution is recognized by the university. To recognize an obligatory course there must be at least 70 % of course similarity. If there is less than 70 % of course similarity, the course can be recognized as an elective course. The implementation of the established procedures FVM facilitates the mobility of students, teaching, and administrative staff and ensures the recognition of credits achieved at other universities.

In order to better promoting students' academic mobility and to make all opportunities visible, FVM's website is supplemented through the menu "International Cooperation" with submenus in Serbian and English.

The number of outgoing and incoming students and academic staff members at FVM in the period from 2016 to 2020 are: eight incoming students, three incoming PhD students, 18 outgoing students, 19 outgoing PhD students, six incoming teachers, 35 outgoing academic staff members, 11 summer school – incoming students, and eight summer school – outgoing students. In addition, there were 24 incoming students that attended some IMAS courses within the last four years

Thanks to the European Union Erasmus+ program and Pavle Savić funding programme, PhD students from Slovenia, Italy and France completed exchanges at FVM that lasted for three and one month respectively, working on their dissertation. Also, 19 PhD students from FVM since 2016/17 by means of the CEEPUS and Erasmus+ programme funds, realised exchanges in France, Poland, Hungary, Slovakia, Czech Republic, Austria, Croatia, Slovenia, Italy and Spain. In the course of a 10-year TEMPUS project 24 teachers from FVM spent some time (3 to 5 months) at other European universities, in return 12 teachers from European universities joint FVM for a limited time.

During the audit, the peers discuss in detail with the vice-deans, the programme coordinators, the students, and the employers about the internationalisation of FVM. FVM wants to be more visible internationally, to send more students and staff members abroad, and to attract more foreign students. Establishing a centre like DIRO is helpful and supports further improving the academic mobility of students and staff members.

Since the job market for veterinarians is saturated in Serbia, a stronger focus on internationalisation would give the graduates better perspectives e.g. for finding jobs outside Serbia. On the other hand, the peers understand that FVM sees the danger of "brain drain" if

many of their most promising graduates go abroad e.g. for joining a PhD programme but will not come back to Serbia after finishing their degree. FVM should accept this situation and make the best out of it. For example, former graduates that work abroad can be invited as guest lecturers and may be willing to support FVM financially. In addition, alumni at international universities are a good starting point for establishing co-operations and exchange programmes.

With respect to English proficiency, the peers see that English courses are offered in the IMAS programme and the students all have to learn English in high school. These English language classes are fine and appreciated by the students. As a result, the general knowledge of English is fine but it would be a good idea to introduce more English speaking elements in the courses, e.g. by using English textbooks and papers, doing presentations in English, and inviting international guest lecturer that give classes in English.

Serbia is now an ERASMUS partner country and not only a programme country anymore. For students this has the disadvantage that the available scholarships have a reduced amount of financial support, this may hinder students from FVM even more to spend some time abroad. On the other hand, a lot more exchange places will be open to students from Serbia.

According to the peers, international mobility, although actively promoted by FVM, is still very limited. Prolonged study time, language barrier, and financial problems are contributing factors. FVM tries to promote the international mobility by providing financial assistance in form of scholarships and by creating exchange programmes, mostly in the context of ERASMUS+. The peers appreciate these efforts; however, there is still room for improvement. For example, it would be useful to motivate and inform students about the existing opportunities, to provide scholarships, to establish more co-operation programmes with reputable international universities, to improve the English proficiency, to invite more international guest lecturers, to organise international summer schools.

The students confirm during the discussion with the peers that opportunities for international academic mobility exist. However, they also point out that they wish for more exchange programmes and more scholarships.

The peers appreciate the effort to foster international mobility and support FVM in further pursuing this path.

<b>Criterion 2.2 Work load and credits</b>
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**Evidence:**

- Self-Assessment Report
- Curriculum of all three study programmes
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

According to the national Law of Higher Education, every school year has 60 ECTS points. Each individual course within the study programme is reflected through a number of corresponding ECTS points.

A total of 60 ECTS points correspond to an average of 40 hours put in per student during the workweek in an academic year. According to FVM, one ECTS point represents a total workload of 25 - 30 hours, which the student spends in all forms of teaching and individual learning necessary for monitoring classes, as well as for preparing and taking exams.

It needs to be determined exactly how many hours of students' total workload are required for one ECTS. The ECTS points need to be calculated for each course and the students' total workload (including the time for self-studies) needs to be presented in the module description of every course.

As described in the ECTS users' guide, FVM should estimate the time students need for self-studies, including time for exam preparation, and then ask the students if this estimation is correct or not. Eventually, the students' total workload and the awarded ECTS point need to be aligned, if the estimation differs from the actual workload.

Overall student engagement shall comprise active instruction (lectures, exercises, practicum, seminars, etc.), independent work, preliminary exams (colloquia), exams, writing of final papers, students' internship, voluntary work in a local community and other forms of involvement.

In the IMAS programme, from 2017/18 to 2019/2020 there were on average 73 graduates per year, the average length of studies was nine years in 2017/18, eight years and three months in 2018/19, and seven years and six months in 2019/2020. The peers discuss with the programme coordinators, why there are only between 76 and 72 graduates in the IMAS programme per year, whereas the intake is 156 students per year. In addition, it is discussed why the average length of studies significantly exceed the expected time (nine years in 2017/18, eight years and seven months in 2018/19, seven years and six months in 2019/20). The programme coordinators explain that the average length of studies has decreased in recent years, it was much higher a few years ago. One reason for the high number of drop-outs is that students have problems with the required level in natural sciences. Not all high school students are well prepared to start their studies at FVM and thus have

problems in following the classes. In addition, living expenses are high in Belgrade and students have problems financing their studies. Consequently, even good students drop out because of economic reasons. FVM is well aware of these problems and has taken several steps to better prepare high graduates for studying at FVM. One measure taken was inviting high school students to FVM and showing them what veterinary medicine is about and what level of knowledge is needed. Moreover, FVM will introduce orientation days for new students to ease the transit from high school to university. During the orientation, present learning techniques are presented and new students are informed about the available academic and economic support. FVM has also realised that additional psychological support for students is very useful and is planning to establish support mechanisms in this area.

In the SAS programme, there were between 47 (2017/18) and 28 (2019/2020) graduates within the last three years. Since the programme was recently prolonged from one to two years, there is no statistical data available on the average length of studies for the new curriculum.

In the DAS programme, from 2017/18 to 2019/2020 there were on average 13 graduates per year, the average length of studies was five years and 10 months in 2017/18, six years in 2018/19, and six years and 11 months in 2019/2020. The peers discuss with the programme coordinators, why there are only between 16 and 11 graduates in the DAS programme per year, whereas the intake is 20 students per year. In addition, they would like to know, why the average length of studies is increasing and why it takes so long (up to 6 years) to complete the degree programme. The programme coordinators explain that the DAS students have to work, usually as teaching or research assistants at either FVM or scientific institutions or clinics, besides doing their PhD. In addition the university rulebooks allows for taking three times the intended time for finishing the degree programmes. Finally, there are no additional tuition fees for enrolling for a fourth year or even more.

In summary, the peers see that the average length of studies is too long and the drop-out rates are too high. On the other hand, FVM knows where its deficits are and they are trying hard to overcome the existing problems and to improve the situation. FVM has discussed with students and stakeholders about these deficits and as result, the DAS curriculum was adjusted to give students more flexibility and the IMAS programme was shortened to 11 semesters. Furthermore, the students confirm in the discussions with the peers, that it is possible to finish the degree programmes in the expected time and that there are no organisational obstacles that hinder students to finish in time or cause drop-outs. The total workload is considered to be appropriate and e.g. the IMAS programme leaves enough room for doing part-time jobs besides studying.

The peers appreciate FVM's efforts and strongly recommend to further analysing the reasons why students drop out of the programmes and why they exceed the intended time of studies. For example, it would be useful to talk with the students that have problems getting their credits, to invite them to discuss about their situation, and find solutions so that they do not drop out the programme. In addition, the establishment of an online self-assessment for high school students has proven a successful tool to better informing prospective students and to help them evaluating their own interests and abilities. After analysing the situation, suitable measures should be implemented to reduce the number of drop-outs and the average length of studies.

### Criterion 2.3 Teaching methodology

**Evidence:**

- Self-Assessment Report
- Study Plans of the degree programme
- Module Descriptions

**Preliminary assessment and analysis of the peers:**

The degree programmes under review make use of several different educational methods for each module such as active instruction (lectures, exercises, practicum, seminars, etc.), independent work, preliminary exams (colloquia), exams, writing of final papers, students' internship, voluntary work in a local community and thesis.

The overall learning model at FVM is aimed at improving the students' competences through discussions, case studies, research tutorials, and lectures. Practical work is designed to impart good laboratory skills and is usually done as a group activity. Some practical works include small research projects.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. FVM wants to encourage the students to gain knowledge from different scientific areas and wants to introduce them to research activities. This should ultimately contribute to the transition from a teacher centered to a student-centered learning approach.

To help the students to achieve the intended learning outcome and to facilitate adequate learning and teaching methods FVM has developed an e-learning platform. It is a learning management system, designed as a digital platform, where students and teachers can interact and where quizzes and videos are uploaded as well.

FVM has established five centers to facilitate the educational processes. Among them the Development & International Relations Office (DIRO, established 2015), the Quality Assurance and Improvement Centre (established 2018), and just this year the Centre for Innovation and Scientific Research was opened. FVM also publishes scientific journals, among them student magazine "Hiron". This magazine is designed for students and veterinary surgeons, as well as students of other biomedical sciences; it is published twice a year with a circulation of 300 copies.

In summary, the peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes.

#### **Criterion 2.4 Support and assistance**

**Evidence:**

- Self-Assessment Report
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

All teachers at FVM are available to the students for individual and group consultations. This includes the timely information about important dates like the exam schedule, the content of the courses, areas of scientific interest, and possibilities to join research projects. In the discussion with the peers, the students confirm that the motivation of the teachers to offer individual assistance, advice and support is high.

FVM has a number of student organizations where students can participate in various extracurricular activities. The Students' Parliament of the Faculty is the highest students' body, which exercises their rights and protect their interests. Members of the Students' Parliament actively participate in the faculty's bodies concerning students, the quality and the implementation of the teaching and learning processes. The Students' Centre for Scientific and Research Work is an association within the Students' Parliament of the Faculty established for popularization of the students' scientific research. The International Association of Veterinary Students (IVSA) enables FVM students to participate in congresses organized by veterinary faculties around the world. By participating in the meetings, students make friends and develop cooperation, exchange ideas and scientific knowledge of veterinary medicine, animal welfare, and learn about different cultures. The Kennel association at FVM organizes courses and lectures in various fields of cynology, health care and dog welfare. It enables the students of the faculty, as well as students of the entire University of Belgrade to acquire knowledge in this interesting field. The Association of Students for the Popularization of Hunting "Veterinarian" was founded with the aim of preserving

biodiversity, prevention, treatment, nutrition, research of the wild animal genetics and popularizing hunting among young people throughout Serbia.

In the DAS programme, mentors are available to students for all types of assistance, including introduction to laboratory and / or clinical work, involvement in research and use of literature, preparation of seminars and professional papers and participation in the preparation of scientific papers.

Mentors supervise and direct the student's work during the preparation of the doctoral dissertation, monitor the quality of the student's research work, encourage participation in scientific projects and the publication of student's work. Mentors make sure that the research goes according to plan, so that all necessary research for the preparation of the doctoral dissertation is done within the prescribed time and evaluate whether the research has reached the necessary level for the doctoral dissertation, in terms of scope and quality. Mentors give a written opinion on the conducted research and the achieved scientific contribution of the doctoral dissertation.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well informed about the services available to them.

**Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:**

The peers appreciate that the Faculty of Veterinary Medicine agrees with the suggestion of introducing more English speaking elements in the courses by using English textbooks and papers, doing presentations in English, and inviting international guest lecturer that give classes in English for all three study programmes. In addition, FVM will strive to motivate teachers and students for taking part at mobility programmes by providing more funds and establishing more co-operation programmes with reputable international universities.

In order to verify the students' total workload, FVM will organise a survey among teachers and students regarding the ECTS and adjust the ECTS system if needed. The peers support this plan.

The peers consider criterion 2 to be mostly fulfilled.

### **3. Exams: System, concept and organisation**



<b>Criterion 3 Exams: System, concept and organisation</b>
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**Evidence:**

- Self-Assessment Report
- Curriculum of the three degree programmes
- Module Descriptions
- Rulebooks

**Preliminary assessment and analysis of the peers:**

According to the Self-Assessment Report, the students' academic performance is evaluated based on their attendance and participation in class, their laboratory works and reports, assignments, homework, presentations, mid-term exam, and the final exam at the end of each semester. The form and length of each exam is mentioned in the module descriptions that are available to the students via FVM's homepage and the digital e-learning platform.

The examination period for all exams during the school year is available to students at the beginning of the school year. Students are informed about the dates of the exams by notices on the boards of the Department and by publishing them on the website of the Department and/or on the website of FVM. FVM offers six examination terms per year.

Grading of students is done by continuous monitoring and is based on the points earned in the different exams and assignments. The final grade is the result of the different activities in the course, which may include practical and clinical exercises, oral exams, seminar papers, professional practise, mid-term and final exam, graduation thesis and colloquium.

Exams can be both theoretical and practical; exams in clinical curses consist of three parts: an elimination test, practical and oral exam. By fulfilling pre-examination obligations and passing the final exam, a student can earn a maximum of 100 points, with pre-examination obligations contributing at least 30 and up to 70 points.

According to the Rulebook on examination and assessment at the Faculty of Veterinary Medicine, a failed exam can be re-taken two times. Upon request, the exam can be taken for a fourth time in front of an examination commission. The student needs to submit the request to the Dean of Student Affairs.

The IMAS programme is successfully completed with passing all the exams and fulfilling other study obligations, included writing of and the public defence of the graduate thesis. As the programme coordinator explains during the audit, the thesis in the IMAS programme encompasses 21 ECTS points. This includes two elective courses (each 9 ECTS) in the chosen field of the thesis (18 ECTS), the course "Study Research Work in the function of graduate thesis" (1 ECTS), and the course "Preparation and defence of graduate thesis" (2 ECTS). The

procedure and details for the graduation thesis is given on FVM's website and in the rulebook on the procedure for application, preparation and defence of the graduation thesis.

After fulfilling all pre-examination obligations and taking all exams required by the SAS programme, students submit a specialist work proposal to the Teaching-Scientific Council of the Faculty. After considering the proposal, the Teaching-Scientific Council of the Faculty makes a decision on accepting the topic of specialist work and appoints a Defence Commission for the evaluation and public defence of the specialist work. This commission has three to five members, including the mentor assigned to the student when enrolling in the appropriate module. Public defence of specialist work includes oral presentation or practical and oral presentation, in case the topic refers to practical procedures, and answering questions asked by members of the Defence Commission. The procedure for the specialist work is described in the FVM Rulebook on Specialist Academic Studies of Veterinary Medicine.

The DAS programme is successfully completed with passing all exams, preparation and public defence of the doctoral dissertation. PhD students have acquired the right to defend their doctoral dissertation after having passed all exams and if she or he is the first author of at least one paper published or accepted for publication in an appropriate scientific journal. The manner and procedure of preparation and defence of the doctoral dissertation is regulated by the FVM Rulebook on the procedure of application and defence of the theses for acquiring academic, professional and scientific titles.

The students confirm that they are well informed about the examination schedule, the examination forms and the rules for grading. The peers confirm that there is a form of assessment for each course and that all students are well informed about the form of assessment and the details of what is required to pass the module. The rules for re-sits, disability compensation, illness and other circumstances are detailed in the rulebook on examination and assessment, which can be assessed online, and are therefore transparent to all stakeholders.

The peers also inspect a sample of examination papers and final theses and are overall satisfied with the general quality of the samples.

The peers conclude that the criteria regarding the examination system, concept, and organization are fulfilled and that the examinations are suitable to verify whether the intended learning outcomes are achieved or not.

**Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:**

The peers consider criterion 3 to be fulfilled.

## 4. Resources

### Criterion 4.1 Staff

#### Evidence:

- Self-Assessment Report
- Staff handbook
- Discussions during the audit

#### Preliminary assessment and analysis of the peers:

There are currently 1,500 students studying at FVM, lectured by about 100 teachers, 30 assistants and several professional associates, laboratory technicians and technical staff. FVM is a member of the European Association of Veterinary Faculties (EAEVE) and has been working intensively on harmonising its degree programmes with European standards.

At FVB, the academic staff members have different academic positions. There are full professors, associate professors, assistant professors and teaching assistants. The academic position of each staff member is based on research activities, assessment of teaching methods and pedagogical work as well as well on coaching junior teachers. Moreover, laboratory work and clinical cases that are carried out by the teacher are taken in consideration, as well as activities in scientific boards and participation in international staff exchange programmes. The requirements for each position (full professor, associate professor, assistant professor, teaching assistant and teaching assistant with PhD) are clearly defined in the Faculty Act published on FVM's webpage.

According to the Self-Assessment Report, the academic staff at FVM consists 46 full professors, 26 associate professors, 33 assistant professors, 1 research associate, 10 teaching assistants with PhD and 9 teaching assistants. In addition, there are 103 non-teaching staff members.

FVM publicly announces open positions for teachers and independently carries out the selections process. In addition, associate professors and assistant professors need to be confirmed by the Serbian Academic Council of Medical Sciences. The position of full professor is proposed by the Academic Council of Medical Sciences and confirmed by the University Council. A person elected to the position of teaching assistant with a PhD and teaching assistant concludes an employment contract for a period of three years, while assistant professors and associate professors conclude an employment contract for a period of five years. A person elected to the position of full professor concludes an employment contract for an indefinite period. Once in five years full professors have the obligation to submit a

report on their scientific and teaching work and address it to the Dean. The report has to be published on FVB's webpage.

During the audit, the peers learn that new staff members (usually graduates of the IMAS programme) are hired as teaching assistants for three years. After two periods as teaching assistants and doing their PhD at the same time, young staff members can apply for the position of an assistant professor. Several of the PhD students stay at FVM after finishing their studies and are hired as assistant teachers. Since the degree programmes at FVM are taught in Serbian and the salaries are rather low in comparison to other European countries, there are no applications from international veterinarians to join FVM.

In order to broaden the students' horizon, especially in the field of research and current developments, guest lectures and researchers from both Serbia and abroad are regularly invited. This is appreciated by the peers and should be expanded.

The staff members are in general satisfied with the existing opportunities for pursuing their research interests. National and international publications are the goal and the key performance indicator for evaluating the research quality of the teachers. Together with their teaching performance, these are the main criteria for advancing to the next academic level. The details are described in the respective rulebook.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes. The only weak point they identify with respect to the qualification of the teaching staff is the fact that most of the staff members are also graduates from FVM. For this reason, they recommend sending their young teachers for a substantial amount of time abroad to reputable international universities in order to gain insights on recent developments and research projects in the area of veterinary medicine.

The auditors are impressed by the dedication and motivation of the staff members and their awareness for existing problems. At the same time, FVM is very self-critical; measures to improve the programmes have been recently implemented, their success needs to be reviewed.

<b>Criterion 4.2 Staff development</b>
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**Evidence:**

- Self-Assessment Report
- Staff handbook

- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

FVM encourages the training and further development of its staff members and has established a regulation on continuing education, professional training, and improvement of employees.

At the request of the employee, the Teaching Scientific Council approves the application of teachers for scientific and professional meetings in the country and abroad. The costs are covered by FVM.

FVM is also using European funds for staff exchange programmes and actively participates in European programmes, projects, and networks of academic and student's mobility, which allows visits at universities abroad. European programmes that are mostly used for staff exchange are ERASMUS and CEEPUS. Calls for application are published on FVM's website. In addition, FVM has established the Development & International Relations Office at the Faculty of Veterinary Medicine in 2015 to support staff exchange. As mentioned in the Self-Assessment Report, from 2016 to 2019, 27 staff members have taken part at ERASMUS or CEEPUS programmes.

The peers confirm that the teachers are very satisfied with the time they have to conduct their own research and that many research projects are ongoing or anticipated for the near future.

In summary, the auditors confirm that FVM offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further developing their professional and teaching skills. However, they notice that young staff members (teaching assistants and assistant professors) are not required to attend course for further developing their didactic and teaching abilities. Since this is an important aspect of the teaching and learning processes at FVM, the peers recommend introducing mandatory courses for young academic staff members for further developing their professional and teaching skills.

<b>Criterion 4.3 Funds and equipment</b>
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**Evidence:**

- Self-Assessment Report
- Video of the facilities
- Discussion during the audit

**Preliminary assessment and analysis of the peers:**

The Facilities at FVM include 22 departments, clinics, laboratories, the Central Library, the Centre for Development and International Cooperation, the Centre for Publishing and Teaching Appliances, the Centre for Quality Assurance and Improvement, the Information and Communication Centre and the Faculty Secretariat.

According to the national Law of Higher Education, a higher education institution shall acquire funds for carrying out its activities from the following sources: funds provided by the founder, tuition fees, donations, gifts, and endowments, funds for financing scientific research, artistic and professional work, projects and contracts related to the carrying out of courses of study, research and consulting services, and remuneration for commercial and other services.

The peers discuss with the Dean and the Vice Deans how FVM is financed and what the share of the different sources of income provide to the general budget. They learn that 30 % of the budget is covered by the Republic of Serbia, the rest derives from own funds (35 % tuitions fees, 17.5 % donations, 17.5 % projects). One of the problems FVM faces is that the tuition fees are rather low for degree programmes in the area of veterinary medicine (1000€ per year for the SAS and IMAS, 1.500€ per year for DAS) and that the Ministry is neither willing to increase the provided funds nor accepting an increase of the tuition fees.

Courses are held in auditoriums, classrooms, and specialized laboratories. Faculty Intranet and Internet resources can be accessed via local wireless network (Wi-Fi) that covers the building, the courtyard of FVM and remote locations using the access server. FVM has a library and a reading room. In addition, there is a repository at FVM, which provides open access to publications and scientific papers.

In advance of the audit, FVM presents a video that shows the facilities, including the teaching and research laboratories. The peers notice that there are no severe bottlenecks due to missing equipment or a lacking infrastructure. This positive impression is supported by the students and the teachers who confirm in the discussions that they are satisfied with the facilities and the available instruments. However, in the provided video not all biosafety regulations were followed. The programme coordinators explain that all students are introduced to biosafety measures in laboratory and clinical work. In addition, every teacher is obliged to repeat the safety instructions at the beginning of the practical courses and students sign a list confirming that they were instructed. The peers appreciate this policy but emphasise that teachers should also reprimand students during the practical classes if not all safety measure are followed appropriately and should pay close attention to this.

During the audit, the peers inquire if there a skills lab for practical training and if there is an agreement with other institutions to share large-scale scientific equipment. They learn

that FVM does not a specific skills lab, but for example, there is a cow model available for teaching reproductive veterinary medicine. With respect sophisticated technical equipment, staff members and advanced students (mostly from the DAS programme) from FVM can use all instruments available at the University of Belgrade, including all scientific institutes.

Since FVM is located near the city centre of Belgrade, there is not enough space on the premises for facilities for large animals. Some are available to the students at FVM, but for most courses on large animals, students have to go to outlying farms and clinics. In addition, teaching on some large animals e.g. horses is limited; the focus is on cows and pigs. The peers accept this situation, because Serbia there is not a large amount of horses and only very few veterinarians for this area are needed.

At FVM, there is an ethical commission, which is responsible for animal welfare and the use of laboratory animals for experiments. In addition, videos on animal dissection were recorded and the experiments are no longer done by the students. This has reduced the need for using laboratory animals.

FVM uses modern education technology and tools to deliver knowledge to the students. All teaching rooms are equipped with computers for lecturers, have Wi-Fi, video projectors and speakers, so every professor and assistant can use PowerPoint presentations. All Departments have their own websites where they download and make accessible all teaching material available for students. Besides that, the Faculty has its own Centre for Publishing and Sales of Teaching Materials, so professors are encouraged to print books and material for the courses they hold. In August and September 2020, the University of Belgrade organised a multi-day training for teachers and students in order to promote the use of services needed for distance learning.

In summary, the peers agree that the facilities of all three study programmes are adequate to allow students to reach the intended learning outcomes and to gain the necessary skills and qualifications for a successful career after graduation.

**Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:**

The peers appreciate that FVM will send more young teachers for a substantial amount of time abroad to reputable international universities in order to gain insights on recent developments and research projects in the area of veterinary medicine. In addition, the peers support the plan of introducing mandatory courses for young academic staff members for further developing their professional and teaching skills.

FVM points out that all students are introduced to biosafety measures in laboratory and clinical work. In addition, every teacher is obliged to repeat the safety instructions at the beginning of the practical courses and students sign a list confirming that they were instructed. In addition, general rules and instructions are available to students on the Faculty's website in Serbian and English language.

The peers consider criterion 4 to be mostly fulfilled.

## 5. Transparency and documentation

### Criterion 5.1 Module descriptions

**Evidence:**

- Self-Assessment Report
- Module Descriptions
- Website of FVM: <http://www.vet.bg.ac.rs/en>

**Preliminary assessment and analysis of the peers:**

The module descriptions are published on FVM's website in Serbian but not in English. This should be amended so that all stakeholders can access them at any time.

After studying the module descriptions, the peers confirm that they information about the persons responsible for each module, the teaching methods, the awarded credit points, the intended learning outcomes, the applicability, the admission and examination requirements, the forms of assessment, and how the final grade is calculated. The only information missing is the students' workload. As described in the Self-Assessment Report, one ECTS point represents a total workload of 25 - 30 hours, which the student spends in all forms of teaching and individual learning necessary for monitoring classes, as well as for preparing and taking exams.

It needs to be determined exactly how many hours of students' total workload are required for one ECTS point. The ECTS should be calculated for each course and the students' total workload (including the time for self studies) needs to be presented in the module description of every course.

As described in the ECTS users' guide, FVM should estimate the time students need for self-studies, including time for exam preparation, and then ask the students if this estimation



is correct or not. Eventually, the students' total workload and the awarded ECTS point need to be aligned, if the estimation differs from the actual workload.

### Criterion 5.2 Diploma and Diploma Supplement

**Evidence:**

- Self-Assessment Report
- Sample Diploma Supplement for each degree programme
- Sample Diploma for each degree programme

**Preliminary assessment and analysis of the peers:**

The peers confirm that the students of all three degree programmes are awarded a Diploma and a Diploma Supplement after graduation. The Diploma Supplement contains almost all necessary information about the degree programme and lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA. The only thing that is missing is a relative grade (e.g. A, B, C, D) in order to assess the individual performance in comparison to other graduates.

### Criterion 5.3 Relevant rules

**Evidence:**

- Self-Assessment Report
- Website of FVM: <http://www.vet.bg.ac.rs/en>

The auditors confirm that the rights and duties of both FVM and the students are clearly defined and binding. All rules and regulations are published on FVM's website and hence available to all relevant stakeholders. In addition, the students receive all relevant course material in the language of the degree programme including at the beginning of each semester.

As already mentioned under criterion 2.2, the peers notice that there is no official guideline on the calculation of the students' workload and how this is converted in ECTS. It is necessary to define exactly how many hours of students' total workload are required for one ECTS and to anchor that rule in an official regulation.

Another deficit the peers notice is the fact that not all relevant information about the degree programmes (e.g. study plan, syllabus, intended learning outcomes, profile, link to the rulebooks and the admission criteria) is available on the English homepage of the pro-

grammes. For this reason, the peers suggest publishing all relevant information on the programme's English homepage. This way, it is ensured that all stakeholders are well informed about the programmes.

**Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:**

The peers thank FVM for clarifying that the number of total students' working hours (contact hours + self-learning) required for one ECTS point is 30 hours. All awarded ECTS points are calculated on that basis and included in the curriculum. However, FVM realises that the clear information about students' total workload "may have been drowned in the multitude of other data." Therefore, FVM will prepare a comprehensive course structure table containing contact hours / total workload / ECTS ratio, upload it to the FVM webpage, and include it in the Rulebook on Integrated Undergraduate and Master's Academic Studies in Medical Sciences - Veterinary Medicine. The peers expect that these changes will be implemented in the further course of the procedure.

Diploma and Diploma Supplement are issued by the University of Belgrade. In accordance with the peers' recommendations, the Faculty of Veterinary Medicine will send a request to the University of Belgrade to introduce a relative grade in the Diploma Supplement in order to assess the individual performance in comparison to other graduates.

The peers confirm that FVM has started publishing documents on the Faculty's website. All relevant information about the degree programmes (study plan, syllabus, intended learning outcomes, academic references) is now available on the Faculty's website in Serbian and English language.

The peers consider criterion 5 to be mostly fulfilled.

## **6. Quality management: quality assessment and development**

<b>Criterion 6 Quality management: quality assessment and development</b>
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**Evidence:**

- Self-Assessment Report
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

The auditors discuss the quality management system at FVM with the programme coordinators. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external evaluation.

Internal evaluation of the quality of the degree programmes is mainly provided through student and alumni surveys. The students give their feedback on the courses by filling out the questionnaires.

During the audit, the peers learn that the results of the surveys are accessible by the students and the members of the teaching staff. If there is negative feedback, the Dean talks to the respective teacher, analyses the problem, and offers guidance. The auditors gain the impression that the faculties take the students' feedback seriously and changes are made if there is negative feedback.

Each year students evaluate the quality of the knowledge assessment by the teachers, as part of the survey on the assessment of performance quality of the faculty's management and professional services of FVM. The survey is also used for the purpose of fulfilment of quality standards in the self-evaluation process.

External quality assessment of the degree programmes is provided by the Commission for Accreditation and Quality Assurance (CAQA). This national body conducts accreditation procedures of higher education institutions every seven years in accordance with the Standards and Regulations on Standards and Procedures for Accreditation of Higher Education Institutions in Serbia.

The peers discuss with the representatives of FVM's partners from public institutions and private companies that external stakeholders are members of the Faculty Council, where they discuss the needs and requirements of the employers and possible changes to the degree programmes. In addition, FVM will establish a board of stakeholders as this is demanded by a new regulation for HEIs in Serbia. As the peers consider the input of the employers to be very important for the further improvement of the degree programmes, they appreciate the existing culture of quality assurance with the involvement of all stakeholders in the quality assurance process.

The Dean is the head and the managing body of FVM; his or her rights and responsibilities are defined by Serbian law and the FVM Statute. Currently, FVM has three Vice Deans.

The Faculty Council is the management body of FVM, it has 27 members (15 representatives of the faculty (chosen by the Teaching and Scientific Council), four representatives of the students (chosen by the Student Parliament), and eight representatives of the founders (appointed by Government of the Republic of Serbia). The representatives of the founders

are chosen from prominent scientists and professionals within the FVM's field of work, as well as from the field of education or industry, who are not employed or in any way engaged at FVM.

The Teaching-Scientific Council, as the highest professional body of FVM, decides on all study programmes. When deciding on issues related to quality assurance of teaching, reform of study programmes, analysis of study efficiency and determination of ECTS credits, the composition of the Teaching-Scientific Council is expanded by 20 % of student representatives, including representatives of teaching associates, elected by the Student Parliament. The Dean and Vice-Deans are ex officio members of the Council. The Dean is the President of the Council by function.

To improve the quality of the degree programmes, the Faculty Council appoints the Commission for Monitoring and Improvement of the Integrated Academic Study Programme. This commission has nine members (one teacher from each year of study, the Vice-Dean for Undergraduate Studies and two students from the IMAS programme). Its tasks are to monitor and analyse the degree programme and the quality of teaching, to compare the degree programmes with national and international standards as defined by the National Council for Higher Education and EAEVE, to regularly obtain feedback from external stakeholders (e.g. employers), to submit a report to the Faculty Council at least once a year, as well as proposing changes to improve the quality of the degree programme. There are similar commissions for the SAS programme (six members) and the DAS programme (six members).

The Center for Quality Assurance and Improvement plans and analyses the evaluation procedures for higher education, scientific research, clinical and laboratory work at FVM. It is responsible for promoting a culture of quality at FVM, for preparing proposals for improving the standards, procedures and methods of quality control, and for plan and conducting activities regarding quality control, according to FVM's annual work plan. The Center for Quality Assurance and Improvement has The Commission for Quality Assurance and Improvement has 18 members (11 teachers, three non-teaching staff members, and four students). It is obliged to inform the Faculty Council about its work at least once a year.

Student surveys are conducted every year, it contains questions on teachers' performance, content of courses, available literature, teaching methodology, etc. The surveys follow the Rulebook on Student Evaluation of the Quality of Teaching and Educational Work of Teachers. In addition, there is students' evaluation of the quality of the faculty management and professional services (Students Affairs Office, Information Center, Development and International Relations Office, Library etc.). This survey also conducted once in a school year. Moreover, the quality of the degree programmes and the achieved learning outcomes is assessed by a graduates' survey. Finally, once a year the faculty employees

fill out a survey about the quality of the teaching processes, degree programmes, and working conditions.

In order to evaluate the job perspectives and the quality of the graduates, an employer survey is regularly conducted. It includes questions on the needs of veterinary graduates, competitiveness and readiness for work, assessment of knowledge, qualifications in practical skills, and competence in veterinary medicine. In addition, a comprehensive survey among veterinarians in Serbia was conducted in the course of a TEMPUS project in 2016. It concerned, job perspectives, salaries, employment in general, positions of veterinarians in society etc. Due to the comments and feedback, clinical rotation was introduced in the IMAS programme and the length was reduced to 11 semesters.

During the discussion with the peers, the employer emphasise that they are satisfied with the degree programmes and the qualification profile of the graduates. They appreciate the employability of the graduates and appreciate overall the cooperation with FVM.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All stakeholders are involved in the process. The comprehensive quality management system and the involvement of students on all levels is one of the strong points of FVM.

### **Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:**

The peers consider criterion 6 to be fulfilled.

## D Additional ASIIN Criteria

<b>Criterion D 1 Research</b>
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**Evidence:**

- Self-Assessment Report
- Rulebooks
- Discussions during the audit
- List of national and international research projects
- Sample of published dissertations or papers in scientific journals

**Preliminary assessment and analysis of the peers:**

As detailed in the Self-Assessment Report, the goal of the DAS programme is to verify that the doctoral candidates are able to conduct original and scientifically relevant research activities in veterinary medicine. In addition, they should be able to independently analyse and interpret results of their original research activities and should have obtained the latest knowledge in veterinary and biomedical sciences. This includes scientific and academic skills as well as creative abilities and practical skills.

Conducting research activities means getting familiar with laboratory and / or clinical work, involvement in research work and use of literature, preparation of seminars and participation in publishing scientific papers.

Members of the Faculty of Veterinary Medicine plan, prepare and implement scientific research activities, as well as take part at national and international research projects. At FVM, currently more than 10 international and 90 commercial projects are currently carried out. Scientific research work at FVM is mostly financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

PhD students at FVM participate in research activities and projects in one of the following five areas of scientific research work:

1. Fundamental research related to the basic structure and function of organisms, organs, tissues, cells and molecules.
2. Medical research related to animal reproduction, epizootiology, pathogenesis, diagnosis, treatment and prevention of pathological conditions and diseases.
3. Testing the efficacy, toxicity and harmfulness of drugs, vaccines, biocides and other products used in veterinary and human medicine, plant protection, environment and ecosystems.

## D Additional ASIIN Criteria

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4. Development studies of new products that can be used in the prevention, diagnosis and treatment of animal and human diseases, protection of animal and human health and protection of plants, environment and ecosystems.

5. Analysis and improvement of animal feed, and food of animal origin.

PhD students also participate in scientific conferences organized by FVM. In the previous three years, 43 doctoral dissertations in veterinary medicine have been defended at FVM

### Criterion D 2 Duration and Credits

#### Evidence:

- Self-Assessment Report
- Rulebooks
- Discussions during the audit
- Study plan
- Module descriptions
- Statistical data on graduation time

#### Preliminary assessment and analysis of the peers:

The DAS programme includes three compulsory courses and five elective blocks. The elective blocks I and II consist of general elective courses that are not directly related to the preparation of the doctoral dissertation. Elective block III consists of methodological courses in the function of preparing a doctoral dissertation. The elective blocks IV and V consist of elective courses in the field of the doctoral dissertation. All courses have ECTS points assigned and at the end, doctoral students obtain 180 ECTS points. FVM applies the European Credit Transfer System and awards the ECTS according to the students' total workload. One ECTS point represents a total workload of 25 - 30 hours, which the student spends in all forms of teaching and individual learning necessary for monitoring classes, as well as for preparing and taking exams. According to the National Law of High Education, every school year encompasses 60 ECTS points.

The period from application to announcement of completed dissertation is three years and one month on the average, and the period from the announcement of completed dissertation to the dissertation defence is five months and 15 days on the average.

### Criterion D 3 Soft Skills and Mobility

### **Evidence:**

- Self-Assessment Report
- Rulebooks
- Discussions during the audit
- Study plan
- Module descriptions
- Statistical data on academic mobility

### **Preliminary assessment and analysis of the peers:**

FVM has established the Development & International Relations Office (DIRO), which is responsible for organising international exchange programmes, advising, and supporting student in realising studies abroad. One of the main goals of DIRO is to establish and update programme procedures for the mobility of students, academic and administrative staff. Credits gained abroad are recognized by FVM and need to be verified by respective coordinator. Information about the mobility programmes is provided on the MobiON platform and the CEEPUS platform.

According to the provided statistical data, since 2016 there have been 19 PhD students from FVM that have spent some time abroad, on the other hand, during the same period, there have been only three incoming students.

<b>Criterion D 4 Supervision and Assessment</b>
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### **Evidence:**

- Self-Assessment Report
- Rulebooks
- Discussions during the audit
- Module descriptions

### **Preliminary assessment and analysis of the peers:**

At the beginning of the course, the teacher presents to the students the course schedule and the evaluation process. In addition, the form of examination is described in the module description for each course. The examination period for all exams is published at the beginning of the school year on the FVM webpage. Students are informed about the exact dates of the exams via the Department notice boards and by publishing them on the FVM webpage. FVM offers six examination periods per year.



## D Additional ASIIN Criteria

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Students' work is continuously monitored during classes and expressed in points. A student who has met all required prerequisites given in the teaching plan can take the final examination. By finishing all of the pre-exam obligations and by passing the exam, the student can get 100 points maximum, where pre-exam obligations may contribute at least 30, and at most 70 points.

The DAS programme is completed with passing all scheduled exams, preparation and public defence of the doctoral dissertation. Students have acquired right to defend the doctoral dissertation if they have published at least one paper or if it has been accepted for publication in a reputable journal (with a minimum impact factor).

PhD students choose a scientific mentor at the beginning of their studies. A mentor can have a maximum of five PhD students at once and needs to have sufficient research experience (minimum of five published/accepted papers) in the respective scientific area.

The mentor supervises and guides the student's work during the preparation of the doctoral dissertation, monitors the quality of the student's research work, encourages participation in scientific projects and the publication of the results. The mentor makes sure that the research goes according to plan, so that all research necessary for the preparation of the doctoral dissertation is done within the planned period. The mentor gives a written opinion on the scope and quality of the conducted research and achieved scientific contribution of the doctoral dissertation.

### Criterion D 5 Infrastructure

#### **Evidence:**

- Self-Assessment Report
- Discussions during the audit
- List of co-operations

#### **Preliminary assessment and analysis of the peers:**

PhD students perform their research activities in the laboratories at FVM, at associated research centres, or at companies. FVM provides the necessary equipment for scientific research, including the equipment provided by the institutions that FVM cooperates with.

### Criterion D 6 Funding

**Evidence:**

- Self-Assessment Report
- FVM financial plan
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

FVM acquires its funds from different sources: tuition fees, provision of services, gifts, donations, and sponsorships. Most of the budget is covered by the Republic of Serbia.

FVM's plan of scientific research includes a description of research and expected results, required human resources and research infrastructure, needed investments, participation in scientific meetings and researcher mobility. The budget for financing scientific research work is provided via an agreement with the Ministry of Education, Science and Technological Development of the Republic of Serbia.

<b>Criterion D 7 Quality Assurance</b>
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**Evidence:**

- Self-Assessment Report
- Rulebooks
- Discussions during the audit

**Preliminary assessment and analysis of the peers:**

The Rulebook on Veterinary Medicine Doctoral Academic Studies specifies the conditions and procedures of admission, purpose, objectives and learning outcomes, the curriculum, organization of the degree programme, and the rules of doctoral academic studies.

Rules of good scientific practice are followed according to the code of conduct on scientific research work published by the National Council for Scientific and Technological Development.

FVM collects statistical data through surveys and regular feedback from PhD students, which is used for continuously assessing the quality of the DAS programme.

Student surveys are conducted by FVM following the general rules of the University of Serbia. PhD students participate in the survey, which contains questions on the educational work of teachers and associates, study programmes, available up to date literature, teaching methodology, qualifications for work, and opportunities for further advancement.

#### D Additional ASIIN Criteria

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In addition, FVM conducts an employer survey on the needs of veterinary graduates, competitiveness and readiness for work, assessment of knowledge, qualifications in practical skills, and competences of graduates of veterinary medicine.

**Final assessment of the peers after the comment of the Higher Education Institution regarding the additional ASIIN criteria:**

The peers consider the additional criteria for structured doctoral programmes to be fulfilled.

## **E Additional Documents**

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

- none

## **F Comment of the Higher Education Institution (22.07.2021)**

The Faculty of Veterinary Medicine, University of Belgrade provides a detailed statement.

## G Summary: Peer recommendations (12.08.2021)

Taking into account the additional information and the comments given by FVM, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Specialist Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Doctoral Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027

### Requirements

#### For all degree programmes

- A 1. (ASIIN 5.1) Make the students' total workload, including time for self studies, transparent in every module description.
- A 2. (ASIIN 5.2) Include a relative grade or statistical information about the distribution of the final grade in the Diploma Supplement.
- A 3. (ASIIN 5.3) Anchor the hours needed for awarding one ECTS point in an official regulation.

### Recommendations

#### For all degree programmes

- E 1. (ASIIN 2.1) It is recommended to further improve the English proficiency of the students by introducing more English taught subject-specific elements into the curriculum and by using English textbooks.
- E 2. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students.

- E 3. (ASIIN 2.2) It is strongly recommended to further analyse the reasons why students drop out of the programmes and why they exceed the intended time of studies. After analysing the situation, suitable measures should be implemented to reduce the number of drop outs and the average length of studies.
- E 4. (ASIIN 4.1) It is recommended to encourage young teachers to spend a substantial amount of time abroad at international universities.
- E 5. (ASIIN 4.2) Young teachers should be required to attend courses for further developing their didactical and teaching techniques.

## H Comment of the Technical Committee 14 - Medicine (24.08.2021)

*Assessment and analysis for the award of the ASIIN seal:*

The Technical Committee sees that some minor problems regarding the module descriptions, the students' workload, and the Diploma Supplement remain. For this reason, they agree with issuing three requirements. In addition, there is room for improvement with respect to the internationalisation of FVM, the average length of studies, and further training courses for young teachers. To all these aspects, recommendations are suggested. Overall, the Technical Committee agrees with the peers' assessment.

The Technical Committee 14 – Medicine recommends the award of the seal as follows:

<b>Degree Programme</b>	<b>ASIIN-seal</b>	<b>Subject-specific label</b>	<b>Maximum duration of accreditation</b>
Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Specialist Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Doctoral Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027



# I Decision of the Accreditation Commission (17.09.2021)

*Assessment and analysis for the award of the subject-specific ASIIN seal:*

The Accreditation Commission discusses the procedure and follows the assessment of the peers and the Technical Committee.

The Accreditation Commission decides to award the following seals:

<b>Degree Programme</b>	<b>ASIIN seal</b>	<b>Subject-specific labels</b>	<b>Maximum duration of accreditation</b>
Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Specialist Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027
Doctoral Academic Studies in Veterinary Medicine	With requirements for one year	-	30.09.2027

## Requirements

### For all degree programmes

- A 1. (ASIIN 5.1) Make the students' total workload, including time for self studies, transparent in every module description.
- A 2. (ASIIN 5.2) Include a relative grade or statistical information about the distribution of the final grade in the Diploma Supplement.
- A 3. (ASIIN 5.3) Anchor the hours needed for awarding one ECTS point in an official regulation.

## Recommendations

**For all degree programmes**

- E 1. (ASIIN 2.1) It is recommended to further improve the English proficiency of the students by introducing more English taught subject-specific elements into the curriculum and by using English textbooks.
- E 2. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students.
- E 3. (ASIIN 2.2) It is strongly recommended to further analyse the reasons why students drop out of the programmes and why they exceed the intended time of studies. After analysing the situation, suitable measures should be implemented to reduce the number of drop outs and the average length of studies.
- E 4. (ASIIN 4.1) It is recommended to encourage young teachers to spend a substantial amount of time abroad at international universities.
- E 5. (ASIIN 4.2) Young teachers should be required to attend courses for further developing their didactical and teaching techniques.

## Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Integrated Undergraduate and Master's Academic Studies in Veterinary Medicine (IMAS):

The aim of the study programme is to gain the latest knowledge and skills that will be applicable in different fields of veterinary medicine:

- Theoretical, practical and methodological knowledge related to the morphology and functioning of animal organisms, their physiological and social needs, as well as animal behaviour.
- Knowledge and skills related to diagnostic and clinical observations that include assessment of habitus, condition and welfare of animals, analysis of aetiology, pathogenesis and clinical signs of common diseases, and disorders observed in all domestic animals, as well as other diseases of international importance that are a potential risk for national and international biosafety and trade.
- Skills needed to successfully perform a broad spectrum of laboratory tests. Appropriate way of sampling and handling specimens, conducting the analysis and accurate interpretation of results.
- Techniques related to animal handling and safe animal restraint, as well as awareness about caution measures in order to minimize the safety risks in the working environment.
- Skills related to treatment protocols, providing critical care in life-threatening emergencies, prescribing and dispensing drugs in accordance with the law and the latest recommendations, as well as reporting suspected adverse drug effects. Performing surgery using sterile techniques. Performing sedation, anaesthesia and pain management protocols in animals, as well as euthanasia when indicated. Keeping clinical records understandable for other vets or any layperson.
- Understanding the activities related to animal husbandry and production, application of the principles of disease prevention and promotion of animal health and welfare, implementation of legislation related to animal care, welfare, movement and diseases that should be reported.
- To perform necropsy, keeping records, appropriate tissue sampling and handling.

- A holistic approach to food safety of animal origin. Dedication to maintain and promote animal health. Inspection of all phases in food production chain according to the principle “from farm to fork”, during harvesting, transport, storage, processing, packaging, sales. Implementation of the HACCP approach to improve food safety, recognizing potential hazards, and product control at some point on the production line to ensure its safety.
- To practice an ethical approach and moral principles in professional activities, and acknowledge the organization, management and legislation enforcement in the veterinary profession.
- Encouraging teamwork, improvement of communication and cooperation with colleagues, institutions, public and clients.
- Application of evidence-based medical principles, use of high quality clinical research in clinical decision making, development of critical thinking and critical assessment of the professional literature. Understanding research methods and contributions to basic and applicative research in veterinary science, recognition of personal/professional limitations and need for professional help, commitment to self-improvement and lifelong learning.
- To follow the latest news and contemporary demands in veterinary medicine.

## 0 Appendix: Programme Learning Outcomes and Curricula

The following **curriculum** is presented:

No	Code	Course title	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Course type
				L	P	DON	SRW				
<b>1<sup>st</sup> YEAR</b>											
1.	20I1001	Anatomy 1	1.	4	5				7.0	O	Theoretical-methodological
2.	20I1002	Medicinal chemistry	1.	2	1				4.0	O	Academic-general
3.	20I1003	Zoology	1.	1	2				4.0	O	Academic-general
4.	20I1004	Biophysics	1.	1	1				3.0	O	Academic-general
5.	20I1005	Biostatistics with informatics	1.	2	1				4.0	O	Academic-general
6.	20I1006	Animal behaviour, welfare and protection	1.	2	1				4.0	O	Academic-general
7.	20I1007	Anatomy 2	2.	3	3				6.0	O	Theoretical-methodological
8.	20I1008	Topographic anatomy	2.	1	1				3.0	O	Theoretical-methodological
9.	20I1009	Biochemistry	2.	4	3				7.0	O	Theoretical-methodological
10.	20I1010	Veterinary genetics	2.	2	2				4.0	O	Scientific-professional
11.	20I1011	Botany	2.	1	1				2.0	O	Academic-general
12.	20I1012	Histology with embryology 1	2.	3	2				5.0	O	Theoretical-methodological
Elective courses:											
In the first semester, students choose 4 ECTS in total from Elective Block 1A (1-5).											
In the second semester, students choose 3 ECTS in total from Elective Block 1B (6-9).											
1.	20I1I01	Veterinary profession and society	1.	2	0				2.0	E	Academic-general

## 0 Appendix: Programme Learning Outcomes and Curricula

2.	2011I02	Medical terminology - english	1.	2	0				2.0	E	Academic-general
3.	2011I03	Psychosocial aspects of animal husbandry	1.	0	2				2.0	E	Academic-general
4.	2011I04	Experimental chemistry	1.	0	2				2.0	E	Theoretical-methodological
5.	2011I05	Physics fundamentals of diagnostic and therapeutic methods	1.	0	2				2.0	E	Theoretical-methodological
6.	2011I06	Introduction to veterinary clinical practice	2.	1	2				3.0	E	Theoretical-methodological
7.	2011I07	Introduction to veterinary laboratory practice	2.	1	2				3.0	E	Theoretical-methodological
8.	2011I08	Breeding and care of wild and exotic animals	2.	1	2				3.0	E	Theoretical-methodological
9.	2011I09	Breeding and care of honey bees	2.	1	2				3.0	E	Theoretical-methodological
Total class hours (lectures + practicals, DON, other classes) and ECTS per year				29	27				60.0		
Total hours of teaching per year				56					60.0		

**0 Appendix: Programme Learning Outcomes and Curricula**

No	Code	Course title	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Subject type
				L	P	DON	SRW				
<b>2<sup>nd</sup> YEAR</b>											
13.	20I2O01	Histology with embryology 2	3.	3	3				6.0	O	Theoretical-methodological
14.	20I2O02	Physiology 1	3.	4	3				7.0	O	Scientific-professional
15.	20I2O03	Microbiology and immunology 1	3.	3	3				6.0	O	Scientific-professional
16.	20I2O04	Animal nutrition 1	3.	3	3				5.0	O	Theoretical-methodological
17.	20I2O05	Animal breeding 1	3.	2	2				5.0	O	Theoretical-methodological
18.	20I2O06	Physiology 2	4.	4	3				8.0	O	Scientific-professional
19.	20I2O07	Microbiology and immunology 2	4.	3	2				6.0	O	Scientific-professional
20.	20I2O08	Animal nutrition 2	4.	2	2				5.0	O	Theoretical-methodological
21.	20I2O09	Animal breeding 2	4.	2	2				4.0	O	Theoretical-methodological
22.	20I2O10	Parasitology 1	4.	3	2				5.0	O	Scientific-professional
Elective courses: In the third semester, students choose 1 ECTS from Elective Block 2A (10-11). In the fourth semester, students choose 2 ECTS in total from Elective Block 2B (12-14).											
10.	20I2I01	Medicinal and poisonous plants of the Balkans	3.	1	0				1.0	E	Academic-general
11.	20I2I02	Aquaristics	3.	1	0				1.0	E	Scientific-professional
12.	20I2I03	Breeding and care of caged birds	4.	1	1				2.0	E	Scientific-professional
13.	20I2I04	Aquaculture and fisheries	4.	1	1				2.0	E	Scientific-professional
14.	20I2I05	Molecular-genetic methods in veterinary medicine	4.	1	1				2.0	E	Theoretical-methodological
Total class hours (lectures + practicals, DON, other classes) and ECTS per year				31	26				60.0		
Total hours of teaching per year				<b>57</b>					<b>60.0</b>		

## 0 Appendix: Programme Learning Outcomes and Curricula

No	Code	Course title	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Subject type
				L	P	DON	SRW				
<b>3<sup>rd</sup> YEAR</b>											
23.	20I3O01	Parasitology 2	5.	1	1				2.0	O	Scientific-professional
24.	20I3O02	General pathology	5.	4	3				8.0	O	Scientific-professional
25.	20I3O03	Pathophysiology	5.	3	3				6.0	O	Scientific-professional
26.	20I3O04	Pharmacology and toxicology 1	5.	3	2				5.0	O	Scientific-professional
27.	20I3O05	General clinical diagnostics and propedeutics	5.	2	4				7.0	O	Professional-applied
28.	20I3O06	Bee diseases	6.	1	1				2.0	O	Professional-applied
29.	20I3O07	Special pathology	6.	4	3				7.0	O	Scientific-professional
30.	20I3O08	Pharmacology and toxicology 2	6.	4	2				6.0	O	Scientific-professional
31.	20I3O09	Animal hygiene and herd health	6.	4	4				8.0	O	Theoretical-methodological
32.	20I3O10	Fish diseases	6.	1	1				3.0	O	Professional-applied
33.	20I3O11	Anesthesiology	6.	1	1				2.0	O	Professional-applied
<p>Elective courses:</p> <p>In the fifth semester, students choose 2 ECTS in total from Elective Block 3A (15-17).</p> <p>In the sixth semester, students choose 2 ECTS in total from Elective Block 3B (18-20)</p>											
15.	20I3I01	Cynology and felinology	5.	2	0				2.0	E	Scientific-professional
16.	20I3I02	Breeding and welfare of sport horses	5.	2	0				2.0	E	Scientific-professional
17.	20I3I03	Breeding and care of farm animals	5.	2	0				2.0	E	Scientific-professional
18.	20I3I04	Protection and rescue of animals in emergency situations	6.	2	0				2.0	E	Scientific-professional



**0 Appendix: Programme Learning Outcomes and Curricula**

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19.	2013105	Sport medicine of horses	6.	2	0				2.0	E	Scientific-professional
20.	2013106	Rearing and nursing of dogs and cats	6.	2	0				2.0	E	Professional-applied
Total class hours (lectures + practicals, DON, other classes) and ECTS per year				32	25				60.0		
Total hours of teaching per year				<b>57</b>					<b>60.0</b>		

## 0 Appendix: Programme Learning Outcomes and Curricula

No	Code	Course title	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Subject type
				L	P	DON	SRW				
<b>4<sup>th</sup> YEAR</b>											
34.	20I4O01	Diagnostic imaging	7.	3	2				6.0	O	Professional-applied
35.	20I4O02	General surgery	7.	2	2				5.0	O	Professional-applied
36.	20I4O03	Obstetrics and reproduction 1	7.	3	4				7.0	O	Professional-applied
37.	20I4O04	Diseases of ruminants 1	7.	3	2				5.0	O	Professional-applied
38.	20I4O05	One health	7.	1	0				2.0	O	Professional-applied
39.	20I4O06	Basic principles of food hygiene	7.	2	0				3.0	O	Theoretical-methodological
40.	20I4O07	Specialised surgery	8.	3	3				6.0	O	Professional-applied
41.	20I4O08	Obstetrics and reproduction 2	8.	3	3				6.0	O	Professional-applied
42.	20I4O09	Diseases of ruminants 2	8.	3	2				6.0	O	Professional-applied
43.	20I4O10	Wild animal diseases	8.	1	1				2.0	O	Professional-applied
44.	20I4O11	Economics and management in veterinary medicine	8.	3	2				4.0	O	Academic-general
45.	20I4O12	Milk hygiene and technology	8.	4	2				6.0	O	Professional-applied
Elective courses:											
In the seventh semester, students choose 2 ECTS in total from Elective Block 4 (21-24).											
21.	20I4I01	Pharmacognosy	7.	1	1				2.0	E	Scientific-professional
22.	20I4I02	Tropical diseases	7.	1	1				2.0	E	Scientific-professional
23.	20I4I03	Physical therapy	7.	1	1				2.0	E	Professional-applied
24.	20I4I04	Radioecology	7.	1	1				2.0	E	Scientific-professional

**0 Appendix: Programme Learning Outcomes and Curricula**

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Total class hours (lectures + practicals, DON, other classes) and ECTS per year	32	24			60.0		
Total hours of teaching per year	56				60.0		

## 0 Appendix: Programme Learning Outcomes and Curricula

No	Code	Course title	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Subject type
				L	P	DON	SRW				
<b>5<sup>th</sup> YEAR</b>											
46.	20I5O01	Diseases of equides	9.	4	3				6.0	O	Professional-applied
47.	20I5O02	Diseases of dogs and cats 1	9.	2	2				5.0	O	Professional-applied
48.	20I5O03	Infectious diseases of animals with epizootiology 1	9.	3	2				5.0	O	Professional-applied
49.	20I5O04	Poultry diseases	9.	3	2				6.0	O	Professional-applied
50.	20I5O05	Meat hygiene and technology 1	9.	3	2				5.0	O	Professional-applied
51.	20I5O06	Ethics and communication in veterinary medicine	9.	1	0				3.0	O	Scientific-professional
52.	20I5O07	Diseases of dogs and cats 2	10.	2	2				4.0	O	Professional-applied
53.	20I5O08	Infectious diseases of animals with epizootiology 2	10.	3	2				5.0	O	Professional-applied
54.	20I5O09	Swine disease	10.	3	2				5.0	O	Professional-applied
55.	20I5O10	Meat hygiene and technology 2	10.	4	3				6.0	O	Professional-applied
56.	20I5O11	Radiobiology with radiation hygiene	10.	1	2				2.0	O	Scientific-professional
57.	20I5O12	Veterinary laws and regulations	10.	2	1				2.0	O	Academic-general
58.	20I5O13	Forensic veterinary medicine	10.	1	2				4.0	O	Scientific-professional
59.	20I5LP	Extramural summer clinical practice	10.					2 weeks 80 hours	2.0	O	
Total class hours (lectures + practicals, DON, other classes) and ECTS per year				32	25				60.0		
Total hours of teaching per year				<b>57</b>					<b>60.0</b>		

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No	Code	Course title	Sem.	Active teachingS				Other	ECTS	Obligatory/ Elective O/E	Subject type
				L	P	DON	SRW				
<b>6<sup>st</sup> YEAR</b>											
Clinical Rotation - Block 1 "Clinic"											
60.	2016O01	Clinical pathology of pets	11.			4		2 weeks	2.0	O	Professional-applied
61.	2016O02	Clinical pathology of farm animals	11.			4		2 weeks	2.0	O	Professional-applied
62.	2016O03	Clinical pathology of equidae	11.			2		1 week	1.0	O	Professional-applied
63.	2016O04	Urgent and mobile clinic	11.			2		1 week	1.0	O	Professional-applied
Clinical Rotation - Block 2 - "Hygiene and technology of food of animal origin, Administrative veterinary medicine, Laboratory practice"											
64.	2016O05	Food hygiene and technology of animal origin	11.			2		1 week	1.0	O	Professional-applied
65.	2016O06	Administrative veterinary medicine	11.			1		1 week	1.0	O	Professional-applied
66.	2016O07	Laboratory practice	11.			1		1 week	1.0	O	Professional-applied
Elective courses in the field of graduate thesis:											
In the eleventh semester, students with the mentor consent choose 18 ECTS in total from Elective Block 5.											
Common list with the two elected courses from the entitled field.											
25.	2016I01	Clinical pathology and therapy of social animals	11.	1		2	3		9.0	E	Professional-applied
26.	2016I02	Diagnostic procedures in internal medicine of social animals	11.	1		2	3		9.0	E	Professional-applied
27.	2016I03	Breeding, pathology and therapy of farm animals	11.	1		2	3		9.0	E	Professional-applied
28.	2016I04	Farm biosecurity	11.	1		2	3		9.0	E	Professional-applied
29.	2016I05	Preventive veterinary medicine	11.	1		2	3		9.0	E	Professional-applied
30.	2016I06	Veterinary practice in organic livestock production	11.	1		2	3		9.0	E	Professional-applied

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31.	2016I07	Control of food of animal origin	11.	1		2	3		9.0	E	Professional-applied
32.	2016I08	Integrated food control	11.	1		2	3		9.0	E	Professional-applied
67.	2016O08	SRW in the function of graduate thesis	11.				2		1.0	O	
68.	2016O09	Preparation and defence of graduate thesis	11.					3 weeks	2.0	O	
Total class hours (lectures + practicals, DON, other classes) and ECTS per year				2		20	8		30.0		
Total hours of teaching per year				<b>30</b>					<b>30.0</b>		

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Specialist Academic Studies in Veterinary Medicine (SAS):

The students acquire the ability to:

- analyse and solve problems in certain areas of veterinary medicine;
- gain general knowledge and experience that allows them to:
- communicate with animal owners, colleagues, the public and competent administrative and professional bodies;
- understand and improve the ethical principles and quality standards in the veterinary profession and;
- understand, implement and analyse the quality standards on which modern veterinary practice is based;
- know the principles of organization and management of veterinary practice and animal production and
- know the National and European legislation that regulate the veterinary profession.

The following curriculum is presented:

No	Code	Course	Sem.	Active teaching				Other	ECTS	Obligatory/ Elective O/E	Course type
				L	P	DON	SIR				
<b>1<sup>st</sup> year Common base for elective fields – Module: M1, M2, M3, M4, M5, M6, M7, M8 and M9</b>											
1	20S1001	Methodology of investigations	1.	2					3	O	Academic -general
2	20S1002	Ethics and welfare	1.	2					3	O	Academic -general
<b>Elective group I (1 of 2 offered courses is chosen)</b>											
3	20S1101	Standards of good clinical, veterinary, practice	1.	4	2				8	E	Academic-general
4	20S1102	Standards of good laboratory practice	1.	4	2				8	E	Academic - general
<b>Elective group II (2 of 5 offered courses is chosen)</b>											
5	20S1103	Veterinary management	1.	2	1	2			8	E	Academic-general
6	20S1104	Biotechnology	1.	2	1	2			8	E	Theoretical -methodological
7	20S1105	Structure and function of cells, tissues and organs in physiological and pathophysiological conditions	1.	2	1	2			8	E	Theoretical -methodological
8	20S1106	Infection and mechanisms of defense against infectious agents	1.	2	1	2			8	E	Professional-applied
9	20S1107	Composition and properties of foods	1.	2	1	2			8	E	Scientific-professional
<b>Elective group III (2 of 12 offered courses is chosen)</b>											



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10	20S1108	Introduction to the reproduction of farm and social animals	2.	4	2	4			15	E	Professional-applied
11	20S1109	Instrumental methods of diagnostics and therapy of animal diseases	2.	4	2	4			15	E	Professional-applied
12	20S1110	Clinical pathology of social animals	2.	4	2	4			15	E	Professional-applied
13	20S1111	Health care and management of farm animals	2.	4	2	4			15	E	Professional-applied
14	20S1112	Surgical methods in the diagnostic and treatment of animal diseases	2.	4	2	4			15	E	Professional-applied
15	20S1113	General epizootiology	2.	4	2	4			15	E	Theoretical -methodological
16	20S1114	Epizootiology methods	2.	4	2	4			15	E	Professional-applied
17	20S1115	Clinical microbiology	2.	4	2	4			15	E	Theoretical -methodological
18	20S1116	Methods of virological, bacteriological, mycological, and parasitological diagnostics	2.	4	2	4			15	E	Professional-applied
19	20S1117	Food safety	2.	4	2	4			15	E	Theoretical -methodological
20	20S1118	Food testing methods	2.	4	2	4			15	E	Professional-applied
21	20S1119	Feed safety	2.	4	2	4			15	E	Scientific-professional
<b>Total class hours (lectures + practicals, DON, other classes) and ECTS per year</b>				<b>20</b>	<b>8</b>	<b>12</b>					
<b>Total hours of teaching per year</b>				<b>40</b>					<b>60</b>		
<b>SECOND (FINAL) YEAR</b>											

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<b>Elective field– Module: M1 <i>Reproduction in domestic animals</i></b>											
<b>Elective courses Module 1 (2 of 5 offered courses is chosen)</b>											
22	20S2M101	Reproductive endocrinology in domestic animals	3.	2	3	1			9	E	Academic-general
23	20S2M102	Infertility in domestic animals	3.	2	3	1			9	E	Academic-general
24	20S2M103	The diseases of the mammary gland of domestic animals	3.	2	3	1			9	E	Professional-applied
25	20S2M104	Andrology and artificial insemination in domestic animals	3.	2	3	1			9	E	Professional-applied
26	20S2M105	Surgical and obstetric techniques in reproduction	3.	2	3	1			9	E	Professional-applied
27	20S2M106	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 1 (1 of 2 offered courses is chosen)</b>											
28	20S2M107	Protocols for improving the reproductive efficiency of farm animals	4.	1	2				6	E	Professional-applied
29	20S2M108	Protocols for improving the reproductive efficiency of social animals	4.	1	2				6	E	Professional-applied
30	20S2M109	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field– Module: M2 <i>Veterinary microbiology and immunology</i></b>											
<b>Elective courses Module 2 (2 of 4 offered courses is chosen)</b>											
31	20S2M201	Bacteriology and mycology	3.	2	3	1			9	E	Theoretical -methodological

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32	20S2M202	Virology	3.	2	3	1			9	E	Theoretical -methodo-logical
33	20S2M203	Laboratory diagnostics of bacterial and fungal infections	3.	2	3	1			9	E	Professional-applied
34	20S2M204	Laboratory diagnostics of viral infections	3.	2	3	1			9	E	Professional-applied
35	20S2M205	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 2 (1 of 4 offered courses is chosen)</b>											
36	20S2M206	Vectors of animal pathogens	4.	1	2				6	E	Professional-applied
37	20S2M207	Immunology	4.	1	2				6	E	Professional-applied
38	20S2M208	Microbiology of food and animal feed	4.	1	2				6	E	Professional-applied
39	20S2M209	Laboratory diagnosis of fish diseases	4.	1	2				6	E	Professional-applied
40	20S2M210	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field– Module: M3 Epizootiology</b>											
<b>Elective courses Module 3 (2 of 4 offered courses is chosen)</b>											
41	20S2M301	Special epizootiology 1 – bacterial and parasitic diseases	3.	2	3	1			9	E	Theoretical -methodo-logical
42	20S2M302	Special epizootiology 2 – viral diseases	3.	2	3	1			9	E	Theoretical -methodo-logical
43	20S2M303	Epizootiology of non infectious diseases - technopaties	3.	2	3	1			9	E	Professional-applied

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44	20S2M304	Application of diagnostic methods and epizootiological preventive measures	3.	2	3	1			9	E	Professional-applied
45	20S2M305	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 3 (1 of 2 offered courses is chosen)</b>											
46	20S2M306	Biosecurity measures and veterinary hygiene	4.	1	2				6	E	Professional-applied
47	20S2M307	Epizootiology service organization	4.	1	2				6	E	Theoretical-methodological
48	20S2M308	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field– Module: M4 Veterinary pathology</b>											
<b>Elective courses Module 4 (2 of 8 offered courses is chosen)</b>											
49	20S2M401	Morphological characteristics of diseases of social and farm animals	3.	2	3	1			9	E	Theoretical-methodological
50	20S2M402	Descriptive pathology	3.	2	3	1			9	E	Theoretical-methodological
51	20S2M403	Diagnostic methods in pathology	3.	2	3	1			9	E	Theoretical-methodological
52	20S2M404	Pathomorphological and pathohistological diagnosis of parasitic animal diseases	3.	2	3	1			9	E	Theoretical-methodological
53	20S2M405	Pathomorphological characteristics of important diseases of ruminants	3.	2	3	1			9	E	Professional-applied
54	20S2M406	Pathomorphological characteristics of important diseases of equids	3.	2	3	1			9	E	Professional-applied

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55	20S2M407	Pathomorphological characteristics of important diseases of wild, zoo and exotic animal species	3.	2	3	1			9	E	Professional-applied
56	20S2M408	Pathomorphological characteristics of important avian diseases	3.	2	3	1			9	E	Professional-applied
57	20S2M409	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 4 (1 of 3 offered courses is chosen)</b>											
58	20S2M410	Tumors of social animals	4.	1	2				6	E	Professional-applied
59	20S2M411	Dermatopathology	4.	1	2				6	E	Professional-applied
60	20S2M412	Neuropathology	4.	1	2				6	E	Professional-applied
61	20S2M413	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field – Module: M5 Food hygiene and technology</b>											
<b>Elective courses Module 5 (2 of 6 offered courses is chosen)</b>											
62	20S2M501	Integrated food control	3.	2	3	1			9	E	Theoretical -methodological
63	20S2M502	Food preservation methods	3.	2	3	1			9	E	Theoretical -methodological
64	20S2M503	Instrumental food analysis	3.	2	3	1			9	E	Professional-applied
65	20S2M504	Microbiological analysis of food	3.	2	3	1			9	E	Professional-applied
66	20S2M505	Parasitological analysis of food	3.	2	3	1			9	E	Professional-applied

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67	20S2M506	Radiation food analysis	3.	2	3	1			9	E	Professional-applied
68	20S2M507	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 5 (1 of 2 offered courses is chosen)</b>											
69	20S2M508	Safety and quality of meat and meat products	4.	1	2				6	E	Professional-applied
70	20S2M509	Safety and quality of milk and dairy products	4.	1	2				6	E	Professional-applied
71	20S2M510	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field – Module: M6 Internal medicine of social animals</b>											
<b>Elective courses Module 6 (2 of 10 offered courses is chosen)</b>											
72	20S2M601	Internal diseases of dogs and cats	3.	2	3	1			9	E	Professional-applied
73	20S2M602	Internal diseases of equidae	3.	2	3	1			9	E	Professional-applied
74	20S2M603	Exotic pet diseases	3.	2	3	1			9	E	Professional-applied
75	20S2M604	Diagnostic imaging of companion animals' diseases	3.	2	3	1			9	E	Professional-applied
76	20S2M605	Behavioral disorders of social animals	3.	2	3	1			9	E	Academic-general
77	20S2M606	Diagnostic and therapy of parasitic diseases of social animals	3.	2	3	1			9	E	Academic-general
78	20S2M607	Diagnosis and therapy of neurological diseases in dogs and cats	3.	2	3	1			9	E	Professional-applied
79	20S2M608	Laboratory diagnosis of tumors and principles of pharmacological therapy	3.	2	3	1			9	E	Professional-applied

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80	20S2M609	Clinical pharmacology of social animals	3.	2	3	1			9	E	Professional-applied
81	20S2M610	Clinical toxicology of social animals	3.	2	3	1			9	E	Academic-general
82	20S2M611	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 6 (1 of 4 offered courses is chosen)</b>											
83	20S2M612	Emergencies in social animals	4.	1	2				6	E	Professional-applied
84	20S2M613	Integrative clinical approach in social animal oncology	4.	1	2				6	E	Professional-applied
85	20S2M614	The use of ionizing radiation in the diagnosis and treatment of animal diseases	4.	1	2				6	E	Academic-general
86	20S2M615	Physical therapy of social animals	4.	1	2				6	E	Professional-applied
87	20S2M616	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field– Module: M7 Farm animal welfare</b>											
<b>Elective courses Module 7 (2 of 6 offered courses is chosen)</b>											
88	20S2M701	Clinical pathology and therapy of ruminant diseases	3.	2	3	1			9	E	Theoretical -methodological
89	20S2M702	Clinical pathology and therapy of swine diseases	3.	2	3	1			9	E	Theoretical -methodological
90	20S2M703	Poultry clinical pathology and therapy	3.	2	3	1			9	E	Theoretical -methodological
91	20S2M704	Methods of diagnosing ruminant diseases	3.	2	3	1			9	E	Professional-applied

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92	20S2M705	Methods of diagnosing swine diseases	3.	2	3	1			9	E	Professional-applied
93	20S2M706	Diagnostic methods in poultry production	3.	2	3	1			9	E	Professional-applied
94	20S2M707	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 7 (1 of 3 offered courses is chosen)</b>											
95	20S2M708	Metabolic and reproductive disorders of ruminants	4.	1	2				6	E	Professional-applied
96	20S2M709	Production diseases, technopathies and reproductive disorders of swine	4.	1	2				6	E	Professional-applied
97	20S2M710	Technopathies in poultry production	4.	1	2				6	E	Professional-applied
98	20S2M711	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field – Module: M8 Veterinary dietetics</b>											
<b>Elective courses Module 8 (2 of 4 offered courses is chosen)</b>											
99	20S2M801	Nutritional therapy	3.	2	3	1			9	E	Academic-general
100	20S2M802	Animal nutrition and quality of food of animal origin	3.	2	3	1			9	E	Academic-general
101	20S2M803	Clinical dietetics of ruminants	3.	2	3	1			9	E	Professional-applied
102	20S2M804	Clinical dietetics of pigs	3.	2	3	1			9	E	Professional-applied
103	20S2M805	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 8 (1 of 2 offered courses is chosen)</b>											



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104	20S2M806	Clinical dietetics of poultry	4.	1	2				6	E	Professional-applied
105	20S2M807	Clinical dietetics of dogs and cats	4.	1	2				6	E	Professional-applied
106	20S2M808	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied
<b>Elective field – Module: M9 Veterinary surgery</b>											
<b>Elective courses Module 9 (2 of 5 offered courses is chosen)</b>											
107	20S2M901	Orthopedics of dogs and cats	3.	2	3	1			9	E	Scientific-professional
108	20S2M902	Abdominal surgery of dogs and cats	3.	2	3	1			9	E	Professional-applied
109	20S2M903	Surgery of horses	3.	2	3	1			9	E	Professional-applied
110	20S2M904	Surgery of cattle	3.	2	3	1			9	E	Professional-applied
111	20S2M604	Diagnostic imaging of companion animals' diseases	3.	2	3	1			9	E	Scientific-professional
112	20S2M905	Specialist teaching block from elective module I	3.			3	5		7	O	Professional-applied
<b>Elective courses Module 9 (1 of 3 offered courses is chosen)</b>											
113	20S2M906	Reconstructive Surgery	4.	1	2				6	E	Scientific-professional
114	20S2M907	Veterinary ophthalmology	4.	1	2				6	E	Professional-applied
115	20S2M615	Physical therapy of social animals	4.	1	2				6	E	Professional-applied
116	20S2M908	Specialist teaching block from elective module II	4.			3	5		7	O	Professional-applied

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117	20S2O01	SRW in the function of specialist work	4.				9		6	0	
118	20S2O02	Professional practice from the elective module	4.					2 weeks	4	0	
119	20S2O03	Specialist work	4.					3 weeks	12	0	
<b>Total class hours (lectures + practicals, DON, SIR, other classes) and ECTS per year</b>				<b>5</b>	<b>8</b>	<b>8</b>	<b>19</b>				
<b>Total hours of teaching per year</b>				<b>40</b>					<b>60</b>		
<b>Total hours of teaching, other classes and ECTS for all study years</b>				<b>80</b>					<b>120</b>		

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Doctoral Academic Studies in Veterinary Medicine (DAS):

The prime goal of the DAS programme is for students to adopt the newest findings in veterinary and biomedical sciences that are significant for independent scientific-research work and for further improvement in these areas. Students should master experimental and analytical science methods and expand their knowledge in specific areas of veterinary medicine through different subjects.

The goals of the DAS programme include gaining of scientific abilities and academic skills, development of creative and communicative skills and mastering specific practical skills that are needed for future development in the career.

After completing their studies, students should be able to:

- Independently solve practical and theoretical problems in the field of veterinary science, to organize and carry out development and scientific research;
- Acquire knowledge, skills, abilities and competencies for participation in the international scientific projects realization;
- Conduct development of new technologies and use the latest knowledge in the field of veterinary science;
- Develop the ability of critical thinking, creativity and independent work;
- Respect the principles of the ethical code of good scientific practice;
- Present professionally the results of scientific research;
- Announce results of scientific research work (scientific conferences, scientific journals, patents, technical solutions);
- Contribute to the development of innovations in veterinary science.

The following curriculum is presented:

No	Code	Course title	Semester	Course status	Active teaching			ECTS
					L	RSW	OTHER	
<b>1<sup>st</sup> YEAR</b>								
1	20D1001	Methodology of scientific research work	1.	O	2	/	/	4.0
2	20D1002	Molecular biology of the cell	1.	O	4	/	/	7.0
3	20D1003	Biostatistics and informatics in biomedical sciences	1.	O	4	/	/	7.0
<b>Elective courses - Block I (student choose one course from two offered )</b>								
4	20D1101	Veterinary immunology	1.	E	3	/	/	8.0
5	20D1102	Neural and humoral mechanisms of regulations	1.	E	3	/	/	8.0
6	20D1004	Study research work 1	1.	O	/	7	/	4.0
<b>Elective courses - Block II, group of subjects 1 (student choose one course from two offered )</b>								
7	20D1103	Integration of the metabolism in domestic animals	2.	E	5	/	/	9.0
8	20D1104	Pathomorphological changes and clinical manifestations of the disease	2.	E	5	/	/	9.0
<b>Elective courses - Block II, group of subjects 2 (student choose one course from two offered )</b>								
9	20D1105	Environmental protection	2.	E	3	/	/	8.0

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10	20D1I06	Experimental animals in biomedical research	2.	E	3	/	/	8.0
11	20D1O05	Study research work 2	2.	O		12	/	13.0
<b>Active teaching total hours and ECTS credits per year</b>					<b>21</b>	<b>19</b>	<b>/</b>	<b>60.0</b>
<b>2<sup>nd</sup> YEAR</b>								
<b>Elective subjects - Block III Methodological courses in the function of preparing a doctoral dissertation</b>								
<b>(student choose 1 from 8 offered courses)</b>								
12	20D2I01	Methods of cells, tissues and organs investigation in physiological and pathophysiological conditions	3.	E	5	/	/	10.0
13	20D2I02	Methods of microbiological and immunological diagnostics	3.	E	5	/	/	10.0
14	20D2I03	Food testing methods	3.	E	5	/	/	10.0
15	20D2I04	Experimental models and methods in pharmacology and toxicology	3.	E	5	/	/	10.0
16	20D2I05	Diagnostics of parasitic zoonoses	3.	E	5	/	/	10.0
17	20D2I06	Modern instrumental methods in veterinary medicine	3.	E	5	/	/	10.0
18	20D2I07	Clinical trial methodology	3.	E	5	/	/	10.0

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19	20D2I08	Molecular-genetic diagnostics in veterinary medicine	3.	E	5	/	/	10.0
<b>Elective courses - Block IV</b>								
<b>In the 3rd semester, students with the mentor consent choose two courses in the field of doctoral dissertation. One-semester elective courses in the field of doctoral dissertation from the list can be taken in the semester of the student's choice (3<sup>th</sup> or 4<sup>th</sup> Semester).</b>								
20	-	Elective course 1	3.	E	1	2	/	5.0
21	-	Elective course 2	3.	E	1	2	/	5.0
22	20D2O01	Study research work 3	3.	O	/	10	/	10.0
<b>Elective courses - Block V</b>								
<b>In the 4th semester, students with the mentor consent choose three courses in the field of doctoral dissertation.. One-semester elective courses in the field of doctoral dissertation from the list can be taken in the semester of the student's choice (3<sup>th</sup> or 4<sup>th</sup> Semester).</b>								
23	-	Elective course 3	4.	E	1	2	/	5.0
24	-	Elective course 4	4.	E	1	2	/	5.0
25	-	Elective course 5	4.	E	1	2	/	5.0
26	20D2O02	Study research work 4	4.	O	/	11	/	15.0
<b>Active teaching total hours and ECTS credits per year</b>					<b>10</b>	<b>31</b>	<b>/</b>	<b>60.0</b>
<b>3<sup>rd</sup> YEAR</b>								

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29	20D3O01	Doctoral dissertation: Publishing an article in a journal indexed in SCI or SCie	5.	O	/	9	/	20.0
30	20D3O02	Study research work in the function of preparing a doctoral dissertation 1	5.	O	/	11	/	10.0
31	20D3O03	Study research work in the function of preparing a doctoral dissertation 2	6.	O	/	20	/	10.0
32	20D3O04	Preparation and defense of a doctoral dissertation	6.	O	/	/	8	20.0
<b>Active teaching total hours and ECTS credits per year</b>						<b>0</b>	<b>40</b>	<b>60.0</b>
<b>Active teaching total hours and ECTS credits in the study program</b>						<b>31</b>	<b>90</b>	<b>180.0</b>
<b>ELECTIVE COURSES IN THE FIELD OF DOCTORAL DISSERTATION</b>								
1	20D2I09	ECG and EHO diagnostics	3. or 4.	E	1	2	/	5.0
2	20D2I10	Application of econometric methods in productivity assessment and animal health control	3. or 4.	E	1	2	/	5.0
3	20D2I11	Mathematical modeling of biological systems and processes	3. or 4.	E	1	2	/	5.0
4	20D2I12	Experimental animals and experimental models	3. or 4.	E	1	2	/	5.0
5	20D2I13	Physiology and biochemistry of body fluids	3. or 4.	E	1	2	/	5.0

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6	20D2I14	Radiation hygiene	3. or 4.	E	1	2	/	5.0
7	20D2I15	Radiobiology and radiopathology	3. or 4.	E	1	2	/	5.0
8	20D2I16	Physical therapy	3. or 4.	E	1	2	/	5.0
9	20D2I17	Swine disease	3. or 4.	E	1	2	/	5.0
10	20D2I18	Comparative anatomy of domestic animals, mammals and poultry	3. or 4.	E	1	2	/	5.0
11	20D2I19	Comparative anatomy of experimental animals	3. or 4.	E	1	2	/	5.0
12	20D2I20	Morphology of the nervous and endocrine systems	3. or 4.	E	1	2	/	5.0
13	20D2I21	Veterinary hematology	3. or 4.	E	1	2	/	5.0
14	20D2I22	Molecular markers for determination of parentage, pedigree and characterization of animal species and breeds	3. or 4.	E	1	2	/	5.0
15	20D2I23	Molecular ecology and behaviour of hunting game and exotic animals	3. or 4.	E	1	2	/	5.0
16	20D2I24	Molecular ecology and behaviour of the honey bee	3. or 4.	E	1	2	/	5.0
17	20D2I25	Animal nutrigenetics and nutrigenomics	3. or 4.	E	1	2	/	5.0
18	20D2I26	Metabolic diseases of poultry and mycotoxicosis	3. or 4.	E	1	2	/	5.0



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19	20D2I27	Oncogenic and non-oncogenic immunosuppressive diseases of poultry	3. or 4.	E	1	2	/	5.0
20	20D2I28	Homeostasis of body fluids and electrolytes	3. or 4.	E	1	2	/	5.0
21	20D2I29	Clinical pathology and therapy of equides	3. or 4.	E	1	2	/	5.0
22	20D2I30	Clinical pathology and therapy of dogs	3. or 4.	E	1	2	/	5.0
23	20D2I31	Clinical pathology and therapy of cats	3. or 4.	E	1	2	/	5.0
24	20D2I32	Clinical dietetics of dogs and cats	3. or 4.	E	1	2	/	5.0
25	20D2I33	Prevention of animal behavioral disorders	3. or 4.	E	1	2	/	5.0
26	20D2I34	Organic waste and environmental protection	3. or 4.	E	1	2	/	5.0
27	20D2I35	General hygiene measures and preventive measures in veterinary medicine	3. or 4.	E	1	2	/	5.0
28	20D2I36	Parasitic zoonoses	3. or 4.	E	1	2	/	5.0
29	20D2I37	Economics and management in veterinary medicine	3. or 4.	E	1	2	/	5.0
30	20D2I38	Forensic veterinary medicine	3. or 4.	E	1	2	/	5.0
31	20D2I39	National and EU regulations in veterinary medicine	3. or 4.	E	1	2	/	5.0
32	20D2I40	Zoonoses and the concept of One health	3. or 4.	E	1	2	/	5.0

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33	20D2I41	Viral diseases of honey bees	3. or 4.	E	1	2	/	5.0
34	20D2I42	Biological hazards of food	3. or 4.	E	1	2	/	5.0
35	20D2I43	Food biopreservation	3. or 4.	E	1	2	/	5.0
36	20D2I44	Chemical and physical contaminants of food	3. or 4.	E	1	2	/	5.0
37	20D2I45	Food preservation by physical and chemical methods	3. or 4.	E	1	2	/	5.0
38	20D2I46	Food quality and nutritional value	3. or 4.	E	1	2	/	5.0
39	20D2I47	Scientific foundation of integrated food safety system	3. or 4.	E	1	2	/	5.0
40	20D2I48	Primary food production	3. or 4.	E	1	2	/	5.0
41	20D2I49	Instrumental food analysis	3. or 4.	E	1	2	/	5.0
42	20D2I50	Farm animal nutrition	3. or 4.	E	1	2	/	5.0
43	20D2I51	Animal nutrition and food of animal origin quality	3. or 4.	E	1	2	/	5.0
44	20D2I52	Feed safety	3. or 4.	E	1	2	/	5.0
45	20D2I53	Histology and embryology	3. or 4.	E	1	2	/	5.0
46	20D2I54	Stem cells and their role in tissue homeostasis and regenerative medicine	3. or 4.	E	1	2	/	5.0

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47	20D2I55	Clinical endocrinology	3. or 4.	E	1	2	/	5.0
48	20D2I56	Fish diseases	3. or 4.	E	1	2	/	5.0
49	20D2I57/1	Imaging diagnostics 1	3.	E	1	2	/	5.0
50	20D2I58/1	Infertility in domestic animals 1	3.	E	1	2	/	5.0
51	20D2I59/1	Artificial insemination and cryology of sperm in domestic animals 1	3.	E	1	2	/	5.0
52	20D2I60/1	Reproductive management in farm animals 1	3.	E	1	2	/	5.0
53	20D2I61/1	Diseases of ruminants 1	3.	E	1	2	/	5.0
54	20D2I62/1	Veterinary clinical toxicology 1	3.	E	1	2	/	5.0
55	20D2I63/1	Mechanisms of drugs action 1	3.	E	1	2	/	5.0
56	20D2I64/1	Efficacy and safety of drug use in veterinary clinical practice 1	3.	E	1	2	/	5.0
57	20D2I65/1	Microbiology 1	3.	E	1	2	/	5.0
58	20D2I66/1	Animal Parasitic Diseases 1	3.	E	1	2	/	5.0
59	20D2I67/1	Parasitology 1	3.	E	1	2	/	5.0
60	20D2I68/1	Infectious diseases of animals 1	3.	E	1	2	/	5.0

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61	20D2I69/1	Epizootiology of animal infectious diseases 1	3.	E	1	2	/	5.0
62	20D2I70/1	Vaccinology 1	3.	E	1	2	/	5.0
63	20D2I71/1	Pathology 1	3.	E	1	2	/	5.0
64	20D2I57/2	Imaging diagnostics 2	4.	E	1	2	/	5.0
65	20D2I58/2	Infertility in domestic animals 2	4.	E	1	2	/	5.0
66	20D2I59/2	Artificial insemination and cryology of sperm in domestic animals 2	4.	E	1	2	/	5.0
67	20D2I60/2	Reproductive management in farm animals 2	4.	E	1	2	/	5.0
68	20D2I61/2	Diseases of ruminants 2	4.	E	1	2	/	5.0
70	20D2I62/2	Veterinary clinical toxicology 2	4.	E	1	2	/	5.0
71	20D2I63/2	Mechanisms of drugs action 2	4.	E	1	2	/	5.0
72	20D2I64/2	Efficacy and safety of drug use in veterinary clinical practice 2	4.	E	1	2	/	5.0
73	20D2I65/2	Microbiology 2	4.	E	1	2	/	5.0
74	20D2I66/2	Animal Parasitic Diseases 2	4.	E	1	2	/	5.0
75	20D2I67/2	Parasitology 2	4.	E	1	2	/	5.0

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76	20D2I68/2	Infectious diseases of animals 2	4.	E	1	2	/	5.0
77	20D2I69/2	Epizootiology of animal infectious diseases 2	4.	E	1	2	/	5.0
78	20D2I70/2	Vaccinology 2	4.	E	1	2	/	5.0
79	20D2I71/2	Pathology 2	4.	E	1	2	/	5.0