SELF-EVALUATION REPORT

for the European Association of Establishments for Veterinary Education

CONSULTATIVE ON-SITE VISIT

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UNIVERSITY OF SARAJEVO
THE VETERINARY FACULTY
Zmaja of Bosne 90, 71 000 Sarajevo, Bosnia and Herzegovina
Phone: +387 33 655 922; Fax: +387 33 610 908
E-mail: info@vfs.unsaba
Web-site: www.vfs.unsa.ba

Management:
Dean: Professor Nihad Fejzić, DVM, MSc, PhD
Vice-Dean for Financial and Business Affairs: Professor Muhamed Smajlović, DVM, MSc, PhD
Vice-Dean for Education: Professor Rizah Avdić, DVM, MSc, PhD
Vice-Dean for Human Resources: Professor Selma Filipović, DVM, MSc, PhD
Vice-Dean for Science, Postgraduate and Continuing Education: Professor Hajrudin Beširović, DVM, MSc, PhD
Head of Morphology Division: Professor Aida Hodžić, DVM, MSc, PhD
Head of Epizootiology Division: Professor Maid Rifatbegović, DVM, MSc, PhD
Head of Zootechnics and Poultry Farming Division: Professor Vedad Šakić, DVM, MSc, PhD
Head of Food Hygiene and Environmental Protection Division: Professor Faruk Čaklovica, DVM, MSc, PhD
Head of Clinics: Professor Amir Zahirović, DVM, MSc, PhD
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ABBREVIATIONS

ASVF  The Association of Students of the Veterinary Faculty, University of Sarajevo
B&H  Bosnia and Herzegovina
BATA  The Institute for Accreditation of Bosnia and Herzegovina
CIC VFS  The Commission for International Cooperation of VFS
EAEVE  The European Association of Establishments for Veterinary Education
ECTS  European Credit Transfer and Accumulation System
EHEA  The European Higher Education Area
FB&H  The Federation of Bosnia and Herzegovina
GDP  Gross domestic product
GPA  Grade point average
HEA  The Agency for Development of Higher Education and Quality Assurance of Bosnia and Herzegovina
LIC VFS  Library and Informatics Centre of VFS
LLL  Lifelong learning
MNY  Minimum no of years allowed to successfully complete the curriculum
QAC VFS  The Quality Assurance Committee of VFS
SER  Self-evaluation report
SPUS  The Student Parliament of the University of Sarajevo
TSC VFS  The Teaching and Scientific Council of VFS
UNSA  University of Sarajevo
VFS  The Veterinary Faculty, University of Sarajevo
PREFACE

The Veterinary Faculty, University of Sarajevo, as the only veterinary higher education establishment in Bosnia and Herzegovina, puts constant efforts to accomplish better results in the realisation of undergraduate, postgraduate and continuous veterinary education. Decision to carry out initial external evaluation of our competences for undergraduate veterinary education by the European Association of Establishments for Veterinary Education was made as one of the main developmental steps outlined in the Strategy of Development of the Veterinary Faculty, University of Sarajevo in the 2012-2022 Period, adopted on February 13, 2013.

Preparation of the presented Self-Evaluation Report was coordinated by the Quality Assurance Committee and the Dean of the Veterinary Faculty Sarajevo. The Report was prepared after wide discussion at all organisational units of the Faculty by a specific team and was adopted by the Teaching and Scientific Council of Veterinary Faculty Sarajevo on July 3, 2014.

Responsibilities of members of the working team regarding the structure and preparation of the Report are as follows:

- Coordination of the working team, editing and translation of the Report to English language – Prof. Davor Alagić, PhD, Chair of the Quality Assurance Committee,
- Introduction, Chapter 1 (Objectives) and Chapter 2 (Organisation)– Prof. Nihad Fejzić, PhD, Dean, and Sabrina Grbo, BA
- Chapter 3 (Finances) – Prof. Muhamed Smajlović, PhD, Vice-Dean for Financial and Business Affairs;
- Chapter 4 (Curriculum) – Prof. Rizah Avdić, PhD, Vice-Dean for Education and Prof. Aida Hodžić, PhD, Vice-Chair of the Quality Assurance Committee,
- Chapter 5 (Teaching and Learning: Quality and Evaluation) – Prof. Davor Alagić, PhD, and Senior Assistant Sabina Šerić-Haračić, MSc;
- Chapter 6 (Facilities and Equipment) – Prof. Ćazim Crnkić, PhD, and Izmir Kovčić, DVM,
- Chapter 7 (Animals and Teaching Material of Animal Origin) – Prof. Amir Zahirović, PhD, Head of VFS Clinics
- Chapter 8 (Library and Learning Resources) – Mladen Hlubna, BLSc, librarian, and Izmir Kovčić, DVM
- Chapter 9 (Student Admission and Enrolment) – Prof. Rizah Avdić, PhD, and Senior Assistant Sabina Šerić-Haračić, MSc
- Chapter 10 (Academic and Support Staff) – Prof. Selma Filipović, PhD, Vice-Dean for Human Resources;
- Chapter 11 (Continuing Education) – Prof. Hajrudin Beširović, PhD, Vice-Dean for Science, Postgraduate and Continuing Education;
- Chapter 12 (Postgraduate Education) – Prof. Hajrudin Beširović, PhD,
- Chapter 13 (Research) – Prof. Aida Hodžić, PhD, and Prof. Rizah Avdić, PhD.

We would like to express our gratitude to all of other numerous members of the Faculty staff and students who have contributed to preparation of the Self-Evaluation Report.

Professor Nihad Fejzić, PhD
Dean
INTRODUCTION

- History

The idea to establish a veterinary faculty in Bosnia and Herzegovina was born in 1946. Based on an elaborated proposal, the Government of the People’s Republic of Bosnia and Herzegovina issued the Decision on Establishment of the Veterinary Faculty in Sarajevo (VFS) on **August 4, 1949**. The Faculty commenced the study programme on October 16, 1950.

Since the foundation, VFS has been adapting its teaching and scientific activities to developmental needs of veterinary profession and science, through establishment of cooperation with European and other faculties by exchange of experts, scientific journals and publications. Today VFS is the only veterinary higher education establishment in Bosnia and Herzegovina (B&H) and also succeeds activities of former State veterinary institute of the People’s Republic of Bosnia and Herzegovina established in 1949.

By issuing the Act on University in 1949, the Government of the People’s Republic of Bosnia and Herzegovina established the University of Sarajevo (UNSA), and VFS became its new member in 1950. In following decades UNSA has been dynamically developed\(^1\). Today UNSA consist of 23 faculties and 5 institutes, and its full integration has begun by enforcement of the Statute of the University of Sarajevo\(^2\), which implies a legal basis for implementation of requirements of the Bologna Process, as well as for reorganization of all of its structures and management bodies.

- Vision

VFS has an internationally recognizable reputation in veterinary education, promotion of animal health, production and welfare, biomedical research and public health. As a higher education establishment which bases teaching process on a permanent development of its scientific capacities and commitment to internationalization, VFS is an active participant in improvement of human and animal health and welfare, and of B&H economy as well.

- Mission

VFS has a 64-year long tradition of development and successful work. Since its establishment, VFS mission is focused to assurance of high standards of excellence in education and research in veterinary medicine and biomedicine and to achievement of first-class standards in health protection and welfare of animals, animal production and food safety.

- The main organizational changes

As a member of UNSA, a public higher education establishment, VFS bases its work on provisions of the Act on Higher Education in Bosnia and Herzegovina\(^3\), the Act on Higher Education in Canton Sarajevo\(^4\) and the UNSA Statute\(^5\). During the last decade a special

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\(^2\) The Statute of the University of Sarajevo from June 28, 2013

\(^3\) The Act on Higher Education in Bosnia and Herzegovina ("Official Gazette of B&H", no.59/07 and 59/09)

\(^4\) The Act on Higher Education in the Canton of Sarajevo ("Official Gazette of the Canton of Sarajevo", no. 42/13)

\(^5\) The Statute of the University of Sarajevo from June 28, 2013
attention has been focused on construction of laboratory institute building on Stup location (see Chapter 6), as well as on renewal and the ISO 17025 accreditation of VFS diagnostic laboratories, renovation of teaching facilities, VFS Clinics. All of those activities have been undertaken to modernize teaching, research and operative diagnostic process.

In the last couple of years a particular attention has been dedicated to creation and implementation of curriculum according to the Bologna Principles. All of those activities have been continuously carried out to improve the quality of our teaching process and to ensure that VFS graduates acquire the Day-One Skills, which concept and requirements are clearly defined by relevant EU legislation.  

Currently, VFS employs 170.5 personnel FTE (79.5 FTE of academic personnel- Chapter 10), and the total number of undergraduate students in academic 2012/13 year was 564 (Chapter 9).

Funding of the teaching process and operative laboratory diagnostic work of the VFS Veterinary Institute by VFS Founder (the Government of Canton Sarajevo, the Ministry of Education, Science and Youth) is not adequate and sufficient in relation to the needs of functioning of all VFS segments. As a result, the Founder provides finances only for 140 VFS employees and 4 external teachers, while the rest of employees (currently 26) have been financed from VFS incomes. Starting from 2014, all the funds for salaries (gross salary for 140 employees) and just partially for maintenance expenses (additional 10% to total gross salaries) are allocated from the Founder via UNSA to VFS bank account (see Chapter 3). VFS has retained the status of legal entity, and the UNSA Statute prescribes full financial autonomy in management of own income for UNSA member faculties in future.

Certain organizational changes have happened since 2004 and greatly contributed to improvement of our teaching process:

- Improvement of international cooperation by VFS participation in student and academic staff exchange programs (TEMPUS, CEEPUS, VetNEST, Basileus and other) (Chapter 5);
- „Curriculum Development According to the Bologna Principles” – a cooperation project between VFS and the Norwegian School of Veterinary Science - including secondary cooperation with other institutions of veterinary medicine on the Western Balkans (veterinary faculties from Zagreb (Croatia) and Skopje (FYR Macedonia) (Chapter 5);
- Library-Informatics Centre of VFS (LIC VFS) was established in 2002 with the main goal to provide educational, research and professional support to students and academic staff. Its reconstruction and renovation has begun in 2014 (Chapter 8).
- On June 26, 2012 the Institute for Accreditation of Bosnia and Herzegovina (BATA) approved the accreditation no. LI-43-01 from for VFS testing laboratories according to the requirements of the ISO 17025 (Chapter 5). Since then, the accreditation scope has been extended, which also proves VFS dedication to quality assurance. Staff from

6Directive no. 2005/36/EC and no. 2013/55/EU
the accredited laboratories is engaged in solving everyday problems in animal health protection and food safety, and transfer their practical and theoretical knowledge and experience to students through regular teaching.

- **New regulations relating to teaching**

Bosnia and Herzegovina signed the Bologna Declaration (1999) on the Berlin Conference in 2003. National regulation on higher education, harmonized with the Bologna Principles, was adopted in 2007, and jurisdiction for higher education is completely assigned to ministries of cantons (in the Federation of Bosnia and Herzegovina – FB&H), the entity of Republic of Srpska, and the Government of the Brčko District. As a result of such legal frame, higher education system in B&H is extremely heterogeneous, and the process of its reforming according to the Bologna Principles is very slow and still ongoing.

Currently, higher education in the Canton of Sarajevo is regulated by the Act on Higher Education from October 2013. By its entering into force, the Ministry of Education, Science and Youth of the Canton of Sarajevo finally defined guidelines and goals of UNSA integration. In accordance with the Act, the Government of the Canton of Sarajevo suspended VFS Management Board, which was the main management body of VFS. According to provisions of the UNSA Statute, responsibilities for operative and financial planning and realization, as well as managerial duties are distributed among the Dean and the Teaching and Scientific Council of VFS (TSC VFS), the UNSA Senate, the UNSA Rector and the UNSA Management Board.

Full integration of UNSA has started by putting into effect the UNSA Statute. It implies a legal basis for implementation of the Bologna Principles requirements, as well as for reorganization of all structures and management bodies of UNSA. Such legal basis finally will imply a full implementation of three-cycle study programs, student and teacher mobility, quality assurance in higher education and other recommendations in line with the European Higher Education Area (EHEA) Principles.

- **New buildings or major items of equipment**

VFS management is committed to success, not only in fulfilment of requirements and prerequisites of national and international accreditation, but also in providing conditions (new buildings and relevant equipment) for research and professional work in function of education.

Significant positive changes have happened during the last decade, particularly in building new facilities, reconstruction and adaptation of some VFS departments, and in purchasing required equipment as well.

- **New VFS facilities**
  - National Animal Health Laboratory (National Reference Laboratory for highly pathogenic avian influenza (HPAI) and other infectious diseases) – on Stup location;

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7 The Act on Higher Education in Bosnia and Herzegovina („Official Gazette of B&H“, no.59/07 and 59/09)
8 The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)
9 „Official Gazette of the Canton of Sarajevo“, no. 51. pp. 133
10 The Statute of the University of Sarajevo from June 28, 2013
Facility for large animal clinical training (clinical training room and stable) built within the Cattle Farm “Bojnik”.

- **Capital equipment supplied within ten last years:**
  - Numerous microscopes for teaching purposes;
  - Numerous laboratory equipment and furniture for operative diagnostic and teaching purposes (safety cabinets, incubators, weights, pH meters, ELISA plate readers, autoclaves, centrifuges, ovens, water baths, etc.);
  - Dentistry X-ray machine;
  - Professional dentistry equipment for small animals;
  - QBC Vet Auto Reader;
  - Biochemical Analyser Vet Test 8008;
  - Device for animal electrotherapy;
  - Multimedia classrooms at LIC VFS and several other departments;
  - Vertical double-gel system for immunoblotting;
  - LACTOSCAN MCC – milk analysis machine
  - UPLC-MS/MS (Ultra Performance Liquid Chromatography/Mass Spectrometry/Mass Spectrometry) machine with solid phase extraction system and compact air compressor;
  - HPLC-FLC/DAD (High Performance Liquid Chromatography – Fast Liquid Chromatography/Diode Array Detector) machine with cobra-cell;
  - AAS (Atomic Absorption Spectroscopy) machine with Winlab32 AAS software kit and EDL (Electordeless discharge lamps) driver and As, Hg, Pb, and Cd lamps
  - Rotor evaporator with water bath and pump;
  - Nitrogen evaporator with water bath and thermal block;
  - Millipore deionized and ultra-clean water system;
  - SNAP test reader;
  - Ultrasound machine with relevant probes;
  - Class II Biohazard Safety Cabinet;
  - Real-Time PCR (QPCR) System;
  - RT-PCR system with capillary electrophoresis device and software;
  - PCR sterile cabinet;
  - Sterile chamber
  - Deep-freezer (- 80°C)
  - Urine analyser;
  - Holter ECG;
  - Vet Lab station (Idexx);
  - IT server and relevant database software;
  - Numerous desktop and laptop computers and projectors;
  - Two vans for student transportation.

- **Main changes to the study program**
Legislation\textsuperscript{11} imposes a revision of curricula every five years aiming to improve quality and efficacy of teaching process. Therefore, a new revision of VFS curriculum has been planned in accordance with criteria enforced in EU regulation\textsuperscript{12}. By implementation of the above mentioned project „Curriculum Development According to the Bologna Principles”\textsuperscript{13} from 2006 to 2009 a new VFS curriculum had been developed. The main goal was to adjust VFS curriculum, introduce ECTS system and to establish quality assurance system. However, due to inadequate national legislation in that period, it was not possible to fully implement and adjust VFS curriculum. Currently, VFS undergraduate teaching is carried out according to two curricula and the main changes in study program took place in 2011 (see Chapters 4 and 5). By the Decision of the TSC VFS\textsuperscript{14}, VFS undergraduate curriculum for first study cycle, designed in accordance with the Bologna Principles, was finally adopted. Since its introduction from academic 2011/2012 year, VFS was obliged to harmonize the curriculum with authentic interpretation of previous Act on Higher Education\textsuperscript{15}. To each student who completed the study program, diploma on completed first study cycle and the professional degree of Bachelor of Veterinary Medicine is obtained, until amendment of the Regulation on Use of Academic Titles and Acquisition of Scientific and Professional Degrees on Higher Education Establishments in the Canton of Sarajevo\textsuperscript{16}.

*NOTE: by academic 2014/2015 year the undergraduate teaching process according to the “old” (pre-Bologna) curriculum will be ended.

By introduction of the integrated first and second cycle study of veterinary medicine\textsuperscript{17} from academic 2013/2014 year, graduate competences earned by completing this curriculum are harmonized with provisions relevant EU legislation\textsuperscript{18}, as well as with the OIE recommendation\textsuperscript{19}. The integrated first and second cycle study, according to curriculum, takes ten semesters (five years), and by its completion a student earns 300 ECTS points and the professional degree Doctor of Veterinary Medicine.

In academic 2012/2013 year, the TSC VFS adopted a proposal of curriculum for master (second cycle) study, which provides teaching for 13 professional orientations within six different areas. Currently, this curriculum is pending decision of the UNSA Senate. However, due to a legal deficiency concerning study programmes within the UNSA Council of Medical Science Group, which involves the integrated first and second cycle study and the third cycle study, it is necessary to amend relevant legislation and to introduce the professional degree “Master of Veterinary Medicine”.

\textsuperscript{11}The Act on Higher Education in the Canton of Sarajevo (“Official Gazette of the Canton of Sarajevo”, no. 42/13)
\textsuperscript{12}Directive no. 2005/36/EC and 2013/55/EU
\textsuperscript{13}http://siu.no/eng/Front-Page/Global-menu/Publications/Publication-database/(view)/463
\textsuperscript{14}The Decision of the Teaching and Scientific Council of VFS no. 01-02-120/10 from March 16, 2011
\textsuperscript{15}The Act on Higher Education in the Canton of Sarajevo (“Official Gazette of the Canton of Sarajevo”, no. 22/10)
\textsuperscript{16}The Regulation on Use of Academic Titles and Acquisition of Scientific and Professional Degrees on Higher Education Establishments in the Canton of Sarajevo (“Official Gazette of the Canton of Sarajevo” no. 34/08 and 27/09)
\textsuperscript{17}The Curriculum of Integrated First and Second Cycle Study of Veterinary Medicine, 2013
\textsuperscript{18}Directive no. 2005/36/EC and no 2013/55/EU
\textsuperscript{19}OIE recommendation on Competencies of graduating veterinarians (“Day 1 graduates”) to assure National Veterinary Services of quality, OIE, May 2012
In addition, third cycle study curriculum “Veterinary Medicine and Public Health”\(^{20}\) has been established, which takes six semesters (three years) and follows the Bologna and EHEA Principles. By its completion, a postgraduate student earns 180 ECTS points and the academic degree Doctor of Veterinary Sciences.

In line with the above mentioned amendment of study program, in 2013 the TSC VFS\(^ {21}\) defined VFS principal scientific areas and teaching subjects, which was approved by the UNSA Senate\(^ {22}\).

Also, in 2012 VFS adopted its first programme of continuing education, by which life-long learning of veterinarians was officially initiated and aimed toward a constant improvement of knowledge, skills and competences of veterinarians. Such form of education is a reflection of dynamics, flexibility and competitiveness of each higher education establishment.

- **Important decisions made by the management of the Faculty, or by the authorities responsible for it**

The most important decisions made by the VFS and UNSA management, or by the responsible ministry are the following:

- The 2012-2022 Strategy of Development of Veterinary Faculty of the University of Sarajevo has been adopted\(^ {23}\), which fully follows the EHEA principles and clearly defines main goals of VFS work and development;
- Integration of UNSA, which is defined by relevant cantonal legislation\(^ {24}\) and started by entering into force of the UNSA Statute\(^ {25}\), implies reorganization of all of its structures and management bodies according to the EHEA principles;
- Decision of VFS management to carry out and maintain accreditation of VFS testing laboratories according to the ISO 17025 requirements, which has been recognized as a qualification for quality improvement of teaching process and for better updating the students with practical everyday problems in veterinary diagnostics;
- Introduction of the integrated first and second study cycle of veterinary medicine represents a prerequisite for an increase of scope of practical skills of VFS students, particularly the skills gained through clinical intramural teaching, ambulatory practice and extramural work, in order to ensure the Day-One Skills of VFS graduates;
- Introduction of the third cycle study program “Veterinary Medicine and Public Health”, which clearly defines commitment of VFS to fulfil requirements and respect of the EHEA Principles;

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\(^{20}\) The Third Cycle Study Curriculum „Veterinary Medicine and Public Health“, 2013

\(^{21}\) The Decision of the Teaching and Scientific Council of VFS no. 01-02-659-1/13 from September 11, 2013

\(^{22}\) The Decision of the Senate of the University of Sarajevo amending Decision on Defining the Principal Scientific Areas and respective Teaching Subjects on the University of Sarajevo no. 01-38-2925/13 from September 25, 2013


\(^{24}\) The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)

\(^{25}\) The Statute of the University of Sarajevo from June 28, 2013
• Decision of VFS management to contract teaching, research and professional collaboration with farms, meat and milk processing companies, veterinary diagnostic institutions and stations, ZOO garden, fish farms and other establishments, as prerequisites for our students to acquire necessary skills. In this way VFS contracted the collaboration with the following establishments:
  1. Cantonal Public Communal Company “Park”, Sarajevo - ZOO Garden,
  2. Cantonal Public Agriculture Company “Butmir” – Cattle Farm “Bojnik”
  3. Agriculture High School "Sanus Futurum", Sanski Most,
  4. „Planinsko dobro“ Ltd., Rogatica – Horse Stable “Borike”,
  5. "Fish Farm LAKS" Ltd, Salakovac,
  6. " RIBA NERETVA” Company, Mostar – Fish Farm “LJUTA”,
  7. Horse Riding Club "Djeca vjetra" Sarajevo,
  8. Goat Farm "EKO KOZA", Mostar
  9. Meat Processing Company "MP FARM" Ltd., Pale,
  10. Meat Processing Company "PANIFLEKS" Ltd., Pale,
  11. Private household , Glamoč (owner: Smajić Ifeta),
  12. Agriculture Company “ Bio-Farma Zimča”, Visoko,
  13. Meat Industry "Rakitno", Rakitno,
  14. Public Company "Veterinary Institute of the Tuzla Canton", Tuzla,
  15. Feed Processing Company "Bosnet Group” Ltd., Hadžići,
  16. Public Company "Veterinary Station Visoko", Visoko;

• By establishment of a formal teaching, research and professional collaboration with the Cantonal Public Agriculture Company “Butmir” – Cattle Farm “Bojnik”, a large animal clinical teaching facility has been provided within the building conceded by the farm. This allowed dislocation of large animals from VFS main building and their accommodation in a farm environment, which improved the quality of clinical training of VFS students;

• In addition to domestic extramural work organized each year in collaboration with the Agriculture High School "Sanus Futurum" in Sanski Most, an international extramural practice has been introduced in collaboration with the Veterinary Faculty in Istanbul (Turkey) (Chapter 4, Section 4.1.4);

• Second annual student evaluation of VFS undergraduate teaching process is completed, which includes quality evaluation of teaching performance of academic personnel and of the whole study program (Chapter 5, Section 5.1.4). VFS is among the leading UNSA faculties in practical implementation of this quality improvement tool.

❖ Major problems encountered by the Faculty, whether resolved or not

Having in mind existing political situation, financial instability of the whole society, and particularly of the sector of higher education in B&H, as major problems, which VFS is facing along its efforts to improve quality of teaching process, may be abstracted the following:

• Lack of public funds for science and education is more evident by each year, especially with global financial crisis and recession, which is particularly notable in B&H;

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Financing the teaching process by the Founder (the Ministry of Education, Science and Youth of the Canton of Sarajevo) is not adequate and sufficient in relation to the needs of functioning of all VFS segments. Also, it is important to emphasize that a comprehensive reform of B&H higher education financing system has been expected;

- Lack of resources for financing up-to-date diagnostic equipment necessary for a modern clinical training and work of diagnostic laboratories;
- The Government of the Canton of Sarajevo and its Ministry of Education, Science and Youth, as well as the UNSA management are still reviewing the system of distribution of funds for faculties within the UNSA (Chapter 3);
- Since the funds of VFS are limited by the budget of the Government of the Canton of Sarajevo, which is adopted at the very end of each year for the following year, it is almost impossible to effectively plan the costs and their payment. Thus, there is almost a constant deficit of total foreseen funds necessary for a full function of VFS (Chapter 3);
- Due to enormous economic and political turbulences, approval for opening new positions at VFS from the Founder represents a major obstacle a quality planning of human resources (Chapter 10).
Chapter 1: OBJECTIVES

1.1 FACTUAL INFORMATION

- **Indicate whether there is an official list of the overall objectives of the Faculty.**

By decisions of the TSC VFS and the VFS Management Board (former managerial body), VFS finally adopted the 2012-2022 Strategy of Development of Veterinary Faculty of the University of Sarajevo\(^1\), which is fully consistent with political and legal mandate of VFS and also harmonised with the EHEA principles. The Strategy defines VFS objectives by optimisation of its resources and organization through national and international collaboration and networking of VFS, and a strong commitment to creation of a specific profile of VFS.

Clearly defined within the Strategy, the VFS mission is divided into the following groups of activities:

- Teaching and continuous education,
- Science, knowledge and transfer of technologies,
- VFS clinics and diagnostic laboratories,
- Internationalization, mobility and cooperation,
- Quality management and quality assurance,
- Personnel and organization.

To achieve key objectives defined within the 2012-2022 Strategy, VFS accepted to carry out all the mentioned activities aimed toward student benefits, and to encourage student creativity by use of contemporary technologies and various teaching methodologies. Also, teaching should be scientifically- and evidence-based through promotion and development of new scientific methods and technologies, with a final objective to improve VFS recognition on national and international level.

The Strategy also defines the following strategic objectives of VFS:

- Further development of study programs, which implies development and improvement of existing study program – harmonisation with market needs and international standards and introduction of new, market oriented and internationally focused, study programs;
- Strengthening of teaching capacities, which implies strengthening of didactic expertizes as a foundation for improvement of teaching activities, further development of an innovative and interactive teaching and reinforcement of interfaculty cooperation in the field of innovative didactics;
- Integration and development of VFS lifelong learning (LLL) program;

- Redesign of VFS scientific profile and strengthening its national and international position in main research areas;
- Expansion of scientific cooperation;
- Strengthening transfer of technologies and knowledge;
- Strengthening national and international position of VFS Clinics as a centre of excellence;
- Strengthening national and international position of VFS diagnostic laboratories as centres of excellence;
- Promotion of internationalisation as one of the major strategic objectives of VFS, primarily focused on internationalisation of teaching process, science and student and teacher mobility, and on international collaboration with academic and research institutions within EHEA;
- Increase of VFS cooperation and networking, and extension of integrated quality management with assurance of international accreditation of quality assurance system;
- Improvement of strategic planning and development of human resources;
- Promotion of organization for future and communication culture.

❖ Who determines the official list of objectives of the Faculty?

The TSC VFS defines official list of VFS objectives, while the Dean, who is proposer of the Strategy, achieves the objectives and represents VFS. Besides the Dean and the TSC VFS, Vice-Deans and advisory bodies of VFS (the Commission for International Cooperation and the Quality Assurance Committee) actively participate in defining the official list of VFS objectives.

❖ By what procedure is this list revised?

Having in mind the ongoing integration of UNSA and its preparation for national accreditation, and that VFS is currently in a phase of legal transition, there is not a clearly defined administrative body responsible for revision of the list.

However, the list is regularly revised within sessions of the VFS Dean’s Office (consisted of the Dean and Vice-Deans) and the VFS Collegium (consisted of the VFS Dean’s Collegium and Heads of Divisions), and within sessions of the advisory bodies. All advances and obstacles in achieving the objectives are discussed and those sessions are the mechanism for reporting, monitoring and revision of the list. All of suggestions from those sessions are finally reported to the TSC VFS, which discusses them and makes final decisions.

❖ Do you have a permanent system for assessing the achievement of the Faculty’s general objectives? If so, please describe it.

Currently, there is not a permanent system for evaluation of the achievement of VFS general objectives. However, overall VFS objectives defined by the Strategy are regularly discussed and assessed on the sessions of the VFS managerial and advisory bodies as described above. In addition, activity reports of all VFS main organizational units (divisions) are evaluated through the described system, while the Annual Report of VFS and the Annual Plan of VFS are defined, discussed and adopted by the TSC VFS, and distributed to UNSA for further procedure.
Furthermore, the Dean is obliged by the Act\(^2\) and the Statute\(^3\) to deliver the Annual Report on Teaching and Financial Performance of VFS to the Rector of UNSA.

As full integration and national accreditation of UNSA have not been finished yet, there are not UNSA official report forms. Consequently, there are not clearly defined reporting criteria. National accreditation of UNSA is ongoing; a self-evaluation report (SER) is completed and distributed to the Agency for Development of Higher Education and Quality Assurance of Bosnia and Herzegovina (HEA). It is expected that UNSA accreditation process would be completed by the end of 2014.

If there is no official list, please indicate the objectives that guide the Faculty’s operation.

The list of VFS strategic objectives is given above.

1.2 COMMENTS

In your view, to what extent are the objectives achieved?

Firstly, we believe that VFS, by adopting a unique strategy of work and development, has permanently committed to development and improvement of undergraduate study program, and to its harmonisation with market requirements and international standards as well, particularly to reaching the EU defined criteria\(^4\) for knowledge and skills of veterinary graduates.

A special attention is given to improvement of teaching, which may be seen through the introduction of new curricula, upgrading of clinical teaching through student field work and international cooperation (student and teaching staff exchange, international projects, etc.).

By establishing the Commission for International Cooperation of VFS (CIC VFS) and the Quality Assurance Committee of VFS (QAC VFS), it is clear that the objectives set by the Strategy are not only defined, but also formally activated. Application of VFS for EAEVE consultative on-site visit and establishment of the VFS Team for Self-Evaluation Report are clearly set prerequisites to achieve the Strategy’s objectives.

Also, within the TEMPUS IV Program, financing the project named "Public Health in the Western Balkans – Improvement in the Field of Public Health and Development of a “One Health” Educational and Scientific Architecture in Western Balkan Countries" is approved\(^5\), where B&H and VFS are partners (Chapter 5), which undoubtedly illustrates VFS dedication to internationalization as one of the strategic objectives.

What, in your view, are the main strengths and weaknesses of the Faculty?

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\(^2\)The Act on Higher Education in the Canton of Sarajevo („Official Gazzette of the Canton of Sarajevo“, no. 42/13)

\(^3\)The Statute of the University of Sarajevo from June 28, 2013

\(^4\)Directive no. 2005/36/EC and no. 2013/55/EU

**Strengths**

- By adopting the 2012-2022 Strategy, VFS will, unlike in previous period, assure a continuity in improvement of teaching quality, and a sustainability of achieved objectives of the Strategy;
- Professional networking with regional and international partners in teaching, research and professional operative work;
- VFS is the only veterinary faculty in B&H, and, as such, it actively participates in promotion of human and animal health and welfare, as well as in economic development of B&H;
- Significant professional operative collaboration with companies of a vital national interest for B&H;
- Establishment of cooperation with the Veterinary Chamber of the Federation of Bosnia and Herzegovina and its deepening and improvement in creation and implementation of developmental and LLL programs.

**Weaknesses**

- Funding of teaching process by the Founder is not adequate and sufficient in relation to the needs of functioning of all VFS segments, including the VFS diagnostic laboratories. Therefore, lack and inappropriateness of budget funding is the main limiting factor and obstacle for achievement of objectives of the Strategy (Chapter 3);
- Human resources, apart from public funding, represent a critical point and are also one of key issues for achievements of the VFS strategic objectives (Chapter 10);
- Limited participation of students in research work (Chapter 13);
- VFS, as a member of the largest and the oldest public university in B&H, is the only veterinary higher education establishment in the country, which functional formulation of authority, financing and regulation of veterinary education are practically reduced to the level of the Canton of Sarajevo. Such functional system additionally complicates organisation of overall VFS work and development, and achievement of the defined strategic objectives as well;
- Cooperation with other establishments aimed towards providing the environment for practical teaching is deficient and difficult. Most of companies, which could provide an excellent training ground, are private-owned and strongly profit-oriented, and, therefore, unwilling to allow student access to their facilities;
- Salaries of VFS employees are insufficient and smaller, when compared with salaries of private veterinarians, or of veterinarians working for various governmental institutions, and of colleagues from the region;
- Having in mind a large number of undergraduate students, numerous and constant obligations of VFS teaching staff, which, apart from their teaching work, must participate in research, publishing and operative diagnostic work, it may be said that the number of academic personnel, especially of personnel for practical training, is insufficient (Chapter 10.).
1.3 SUGGESTIONS

- If you are not satisfied with the situation, please list your suggestions for change in order of importance and describe any factors which are limiting the further development of your Faculty.

For a normal running of VFS, it is essential that the Founder\(^7\) and other relevant institutions recognize specificities of study program of VFS as the only veterinary faculty in B&H, and of all of its diagnostic and clinical services as well, and, thus, provide much better funding.

Further development of VFS undergraduate study program implies development and improvement of the existing program, its harmonisation with market requirements and international standards, and introduction of new, market oriented and internationally focused study programs, as well as development and realization of LLL programs, acquisition of international accreditation of quality assurance system, and improvement of strategic planning and development of human resources. To effectively carry out those activities a full support is essential, not only from competent authorities, but also from stable political and economic stakeholders willing to recognize VFS quality and importance and provide their support to VFS development. Of course, besides the mentioned factors, it is equally necessary to fully activate all of our internal resources, which would contribute to further work and development of VFS through applying to various open calls and funding opportunities (national and international).

Also, it is important to emphasize that cooperation with industry, availability of companies as teaching training grounds, and offering services to the State Veterinary Administration of B&H and other competent authorities are an advantage of VFS. In the other hand, it is important to improve and better plan all of activities related to this opportunity.

Public funds for science and teaching have been reduced year by year, particularly with global financial crisis and recession, which significantly strikes B&H economy. In addition, funds for teaching process allocated by the Founder are inadequate and insufficient to fulfil all of VFS complex needs, including our operative diagnostic work. Such financial limitation surely represents the major obstacle to VFS to meet all of the EAEVE criteria.

\(^7\)The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth
Chapter 2: ORGANISATION

2.1 FACTUAL INFORMATION

Details of the Faculty

**Name of the Faculty:** The Veterinary Faculty, University of Sarajevo

**Short name:** Veterinary Faculty Sarajevo (VFS)

**Address:** Zmaja od Bosne 90, 71 000 Sarajevo, Bosnia and Herzegovina

**Telephone:** +387 33 655 922

**Fax:** +387 33 610 908

**Website:** www.vfs.unsa.ba

**E-Mail:** info@vfs.unsa.ba

**Title and name of head of the Faculty:** Professor Nihad Fejzić, DVM, MSc, PhD

- Is the Faculty within a university? If so, please give address of the university.
  
  University of Sarajevo, Obala Kulina Bana 7/II, 71 000 Sarajevo, Bosnia and Herzegovina

- Details of the competent authority overseeing the Faculty

  VFS is a full member of UNSA, which status is regulated in the Statute of the University of Sarajevo\(^1\). As an UNSA member, VFS is financed by budget of the UNSA Founder, the Government of the Canton of Sarajevo, namely the Ministry of Education, Science and Youth of the Canton of Sarajevo. Funds, which the Ministry allocates through UNSA, are primarily assigned for salaries and payment of material costs (see Chapter 3).

- Indicate the rules concerning the appointment of the elected officials of the Faculty (Dean, Vice-Dean, Heads of Department, etc.)

  The rules concerning the appointment of VFS Dean and Vice-Deans are defined in Articles 97, 98, 99, and 103 of the UNSA Statute. Currently, VFS has six Heads of Divisions, appointed by the Dean\(^2\) for a two-year period. The appointment was done in accordance with former VFS Regulation\(^3\). Also, based on proposals of Heads of Divisions, the Dean appoints Heads of Departments (smaller organisational units within the Divisions) for a two-year period

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\(^1\) The Statute of the University of Sarajevo from June 28, 2013

\(^2\) The Decision of the Dean no. 02-12-764-2/12 from November 23, 2012

\(^3\) The Regulation of Veterinary Faculty of the University of Sarajevo no.01-02—180-29/00 from September 26, 2005

\(^4\) The Decision of the Dean no. 02-12-50-1/13 from January 01, 2013
The Dean also appoints heads and deputy-heads of organisational units of the VFS Veterinary Institute\(^5\) (Appendix 3).

The Dean is elected by the TSC VFS for a four-year period, and the same person has a right to be consecutively re-elected for another mandate. The appointment of the Dean must be confirmed by the Rector of UNSA. The Dean is responsible to the TSC VFS, the Rector and the Management Board of UNSA.

Currently, VFS has four Vice-Deans and a Student Vice-Dean. Mandate of a Vice-Dean lasts four years and follows the mandate of the Dean. It is important to mention that, by entering into force the UNSA Statute\(^6\), certain changes happened in the process of appointment of Vice-Deans and heads of organizational units of UNSA faculties. According to the Statute, vice-deans and heads of organisational units of UNSA faculties are elected, appointed and dismissed by the TSC VFS based on dean’s proposal. It also important to underline that the Statute regulates student rights in a way that their participation in work and decision making process is ensured through various bodies of UNSA and its faculties, and regular assessment of work of academic personnel is provided as well (VFS carried out two annual student evaluations – see Chapter 5).

- Provide a diagram of the administrative structures showing the Faculty in relation to the university and ministerial structure of which it is part.

Diagram of the administrative structures is provided in Appendix 1.

- Provide a diagram of the internal administrative structure of the Faculty itself (councils, committees, departments, etc.).

Diagrams of the internal organisational structure of VFS are provided in Appendix 2 and Appendix 3.

- Describe, briefly the responsibilities, constitution and function of the main administrative bodies (councils, committees, etc.).

In line with provisions of respective legislation\(^7\) and the UNSA Statute, VFS bodies are the Teaching and Scientific Council of VFS (TSC VFS), the Dean and other expert and advisory bodies.

**Teaching and Scientific Council of VFS (TSC VFS)**

The TSC VFS is the highest expert body consisted of academic personnel employed by VFS on a full-time basis, at least one representative of senior assistants and assistants, and at least three student representatives taking into consideration study years and cycles.

According to the provisions of the UNSA Statute, authorities of the TSC VFS are to:

- Make decisions on all academic, teaching, scientific and expert issues in line with its competence;
- Propose and self-evaluate curricula for all study cycles;

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\(^5\) The Decision of the Dean no. 02-12-50-1/13 from January 01, 2013  
\(^6\) The Statute of the University of Sarajevo from June 28, 2013  
\(^7\) The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)
Review curricula of all study cycles at least once upon completing a study cycle;
Elect and dismiss the Dean and Vice-Deans;
Adopt general regulatory acts of the Faculty;
Elect heads of organisational units of the Faculty;
Propose research program and program of continuing education and training of academic and other personnel to the UNSA Senate;
Appoint commissions for pursuance the academic degree of master of science and the professional master degree;
Appoints commissions for academic promotions;
Propose commissions for pursuance the academic degree of doctor of sciences;
Consider requests and define proposals for continuing education and training of academic personnel in the country and abroad;
Define proposal on number of students for enrolment for all study cycles;
Make decision on curricular elective subjects to be carried out in a certain academic year taking into account personal, financial and other capacities of the Faculty and number of candidates as well;
Make proposal of teaching realisation plan before commencement of an academic year;
Analyse academic performance of students within semesters and at the end of each academic year and defines the measures to improve student academic performance;
Analyse and asses results of realisation of curricular teaching process;
Make proposal on measures for teaching improvement;
Decide on student objections to the Dean decisions on student rights and obligations;
Decide in second degree on student rights and obligations;
Perform other duties in accordance with the UNSA Statute and other general regulations of UNSA faculties.

The Dean

Authority of the Dean is defined in Article 125 of the Act on Higher Education and in the Article 95 of the UNSA Statute. The Dean heads and represents VFS. The Dean is a member of academic personnel and manages business activity of VFS, and performs other duties defined by the Act, the UNSA Statute and other regulations of UNSA and VFS. The Dean is responsible for legality of all VFS activities and represents VFS administrative body for non-budgetary activities.

Authorities of the Dean of VFS are to:

- Manage VFS business and sign all documents issued by VFS;
- Propose VFS business policy and order execution of VFS financial plan;
- Dispose VFS funds according to the UNSA Statute and VFS financial plan;
- Propose general regulations of VFS;
- Organize and chair sessions of the TSC VFS in line with general regulations of VFS;

8The Statute of the University of Sarajevo from June 28, 2013
9The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)
- Initiate disciplinary process and make decision on disciplinary measures in first degree;
- Propose issues to be discussed by the TSC VFS;
- Decide on working rights and obligations of employees in accordance with relevant legislation and general UNSA and VFS regulation;
- Perform transposed duties of the Rector of UNSA;
- Perform other duties in accordance with the Act, the UNSA Statute and other general regulations of UNSA and VFS.

**The VFS Collegium**

The VFS Collegium is an expert and consultative body consisted of Vice-Deans and Heads of Divisions (main organisational units of VFS). The goal of the Collegium is to work on quality improvement of organisation of work of VFS. Authorities of the Board of VFS are defined by the Regulation of VFS\(^\text{10}\).  

**Commissions/Committees**

To carry out certain activities from their authority, the TSC VFS and The Dean appoint permanent and ad-hoc commissions/committees to perform various tasks, procedures and duties at the Faculty within defined deadlines. Currently, VFS has the Commission for International Cooperation of VFS (CIC VFS) and the Quality Assurance Committee of VFS (QAC VFS).

**The Commission for International Cooperation of VFS (CIC VFS)**

CIC VFS was appointed\(^\text{11}\) to:

- Continuously observe and analyse cooperation with scientific, teaching and other institutions from abroad, as well as with other establishments to improve core activities of VFS;
- Develop and propose the Program of international cooperation of VFS;
- Observe, harmonise and direct realisation of the Program and agreements on international cooperation;
- Analyse and define proposals for student and teaching staff exchange on international level;
- Develop expert materials and reports from the domain of international cooperation;
- Provide expert preparation for establishment of the Office for International Cooperation of VFS;
- Collaborate with the Office for International Cooperation of UNSA and other universities in B&H;
- Continuously report to the Dean on open calls, projects and other opportunities for realisation of international cooperation;
- Perform other duties assigned by the Dean.

\(^{10}\) The Regulation of Veterinary Faculty of the University of Sarajevo no. 01-02—180-29/00 from September 26, 2005  
\(^{11}\) The Decision of the Dean of VFS no. 02-12-485-1/12 from July 20, 2013
The Quality Assurance Committee of VFS (QAC VFS)

QAC VFS was appointed by the TSC VFS\(^{12}\) with a major duty to work on fulfilling the objectives set by the VFS 2012-2022 Strategy\(^{13}\). Detailed description of duties and main activity of QAC VFS are given in Chapter 5., Section 5.1.2.

- *Indicate the involvement of the veterinary profession and general public in the running of the Faculty.*

Continuing education of veterinarians through lifelong learning (LLL) implies all activities of VFS related to continuing education and taken in accordance with the LLL concept to improve knowledge, skills and expertise of veterinarians. The TSC VFS adopted VFS Plan for Continuing Education in 2013 and thus took the responsibility for its realisation, which means that academic personnel of VFS independently choose and organise education courses.

The VFS Clinics has the Cooperative Agreement with the Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, Gainesville, Florida (USA)\(^{14}\), which is aimed toward develop cooperation between the two faculties and implies exchange of academic personnel. In addition, the Agreement also obligates VFS to annually engage American colleagues and organises their lectures for VFS teaching staff and field veterinarians within the “Symposium of Large and Small Animal Practice Veterinarians of Bosnia and Herzegovina with International Participation”.

VFS also closely cooperates with the Veterinary Chamber of the Federation of Bosnia and Herzegovina on LLL programs. In addition, there is cooperation with the Federal Ministry of Agriculture, Water Management and Forestry – Veterinary Sector, mainly in the field of animal health control and protection, introduction of modern methods of diagnostics of infectious diseases of animals, as well as to improve food safety system in B&H (see Chapter 11).

**2.2 COMMENTS**

- *Add any comments on the organisation and functioning of the Faculty that you feel useful for completing the description.*

Adoption of the VFS 2012-2022 Strategy clearly defines all organisational and functioning objectives of VFS, as well as guidelines of its further development, which mean not only that VFS takes responsibility for own future, but also challenges all of its employees and students to reach the objectives.

The Strategy itself defines VFS objectives by optimization of its resources and organization through national and international collaboration and networking of VFS, and implies a strong commitment to creation of a specific profile of VFS in line with the EAEVE requirements. Clearly defined objectives of the Strategy are aimed toward improvement of quality of

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\(^{12}\) The Decision of the Teaching and Scientific Council of VFS no. 02-05-773-3/11 from February 13, 2013


teaching to ensure that VFS graduates acquire the **Day-One Skills**, which concept and requirements are clearly defined by relevant EU legislation.\(^{15}\)

Thus, we believe that, from adoption of the Strategy, a significant step forward has been done toward fulfilment of the strategic objectives. All the details of the VFS improvement through realization of objectives of the Strategy are clearly presented in following chapters of this report.

### 2.3 SUGGESTIONS

>- **If you are not satisfied with the situation, please list your suggestions for change in order of importance and describe any factors which are limiting the further development of your Faculty.**

Having in mind that VFS is currently in a phase of legal transition due to the ongoing integration of UNSA, and due to UNSA preparation for national accreditation as well, our standpoint is that such a situation may be prolonged and, unfortunately, slow down work and development of VFS.

The adopted VFS Plan for Continuing Education in 2013 (Chapter 11, Table 11.1) was greatly influenced by current unenviable financial situation. Thus, our LLL program has been primarily deployed with an aim to improve our finances, by which real educational needs have been possibly ignored. Having in mind that mentioned continuing education program was requested, but never realized by the Veterinary Chamber of the Federation of Bosnia and Herzegovina, it is clear that participation of veterinarians in this segment is, unfortunately, minimal, and it is necessary to redesign and further improve this cooperation.

In spite of a traditional long-term cooperation, governmental institutions, such as the Veterinary Sector of the Federal Ministry of Agriculture, Water Management and Forestry, the State Veterinary Administration of Bosnia and Herzegovina or the Food Safety Agency of Bosnia and Herzegovina do not show enough interests for cooperation in the field of animal health control and protection, diagnostics of infectious diseases of animals, and improvement of food safety system in B&H. Thus, there is a clear need for advancement of cooperation between VFS and competent authorities.

For further suggestions please see Chapter 1, Section 1.3.

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\(^{15}\)Directive no. 2005/36/EC and no. 2013/55/EU
Chapter 3: FINANCES

3.1 FACTUAL INFORMATION

As a full UNSA member, VFS is funded from budget based on criteria for financing public higher education establishments, which are decided by the Founder of UNSA, the Government of the Canton of Sarajevo, Ministry of Education, Science and Youth. Proposal of financial plan of VFS is a part of the consolidated financial plan of UNSA, which ensures annual funds from the budget of the Ministry.

Financial needs of VFS for covering its total operational, maintenance, and personnel salary costs are higher than funds allocated from the cantonal budget, which makes 65.44 % of total VFS income. This amount of income is included in annual fiscal plan of VFS, made in line with the mentioned cantonal criteria. Nevertheless, having in mind that VFS was not able to influence on the amount of the budget funds during this and previous years, a part of operational and maintenance expenses are covered from income generated from VFS, which equals to 31.56 % of total VFS income.

This Chapter displays data on overall financial business of VFS in relation to VFS incomes and revenues in three last years.

3.1.1 GENERAL INFORMATION

- Indicate whether the Faculty’s current financial model (system) meets the Faculty’s mission.

VFS works in accordance with an annual plan for all of its activities. However, the funds for teaching process allocated from the Government of the Canton of Sarajevo are not sufficient to provide for mission of veterinary education. The major part of VFS income is allocated from the cantonal budget (65.44 %). Full implementation of financial integration of UNSA enforced in legal\(^1\) and UNSA\(^2\) regulations is expected in near future, which practically means that the budget funds will be allocated on a flat-rate and transferred to UNSA, which will distribute the funds to member faculties in accordance with a defined module. In such financial model own incomes will become extremely important element of business of each UNSA member, particularly in segment of intellectual and professional services, clinical work and organisation of specialised trainings and workshops.

Therefore, the VFS 2012-2022 Strategy\(^3\) estimates an increase of own income of VFS up to 50% of total revenues. In addition, such increase would allow co-financing of developmental projects and investments in capital equipment and renovation of VFS buildings.

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\(^1\) The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)

\(^2\) The Statute of the University of Sarajevo from June 28, 2013

Planned activities:

a. To define a five-year project to increase own income of each VFS organisational unit (see Appendix 2 and 3) market to make income on market. Project leaders are heads of organisational units (VFS Collegium), and coordinators are the Dean and the Vice-Dean for Financial and Business Affairs

b. To make an action plan for defining a list of priorities for investment of VFS own income according to priorities of VFS Divisions and Clinics. Project leaders are heads of organisational units (VFS Collegium), and coordinators are the Dean and the Vice-Dean for Financial and Business Affairs

c. To establish a model of co-financing of developmental projects and capital equipment for each organisational unit. Project leaders are heads of organisational units (VFS Collegium), and coordinators are the Dean and the Vice-Dean for Financial and Business Affairs

It has been planned to realize the activities in period of three to five years.

- How the allocation of funding (including public funding) to the Faculty is determined, and by what body?

Funds from the budget of the Government of the Canton of Sarajevo are allocated based on the VFS Annual Financial Plan, which VFS regularly submits to UNSA at the end of a current year for the next year. The Plan includes 65.44% of funds from the cantonal budget, 31.56% of funds from own income, and 3% from other incomes.

The budget funds are allocated for salaries and minimally for payment of material costs (electricity, water, heating, public utilities and maintenance). Allocation of own income within VFS is done in line with provisions of the Regulation on Allocation of Own Income of VFS.

- If the allocation of funds, or any significant proportion of it, is linked to a particular factor (e.g. student numbers, research output), please describe this.

Amount of funds from the budget of the Canton of Sarajevo is not allocated to VFS in accordance with the number of students, but with the number of academic, administrative and other support personnel necessary for running regular teaching process.

- How the basis for funding the Faculty compares with those teaching other courses (e.g. whether veterinary training receives a higher budget weighting compared to other disciplines)?

VFS owns laboratory and clinical facilities for teaching process, organises practical field training for students in veterinary establishments and food industry facilities located all over B&H, and almost independently from the budget funds finances public and maintenance costs. In spite of this, VFS does not receive higher budget funds compared to other UNSA faculties. As previously said (see Introduction), funding of the teaching process and operative laboratory diagnostic work of the VFS Veterinary Institute by the Government of Canton Sarajevo is not adequate and sufficient in relation to the needs of functioning of all VFS segments. The budget provides finances only for 140 VFS employees and 4 external teaching

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4 Enforced by the VFS Management Board, document no. 01-02-531-1/12 from September 11, 2012
associates. Currently, the funds for gross salary for 140 employees and a small part of communal and maintenance expenses (additional 10% to total gross salaries only) are allocated from the budget, while VFS covers expenditures for salaries for the rest of 26 employees, as well as rest of communal and maintenance expenditures solely from its own incomes.

- **How the allocation of funds within the Faculty is decided?**

Allocation of the budget funds within VFS is done according to their type and purpose. The funds allocated for research projects are realised according to research contracts. Allocation of own income within VFS is done in line with provisions of the Regulation on Allocation of Own Income of VFS. Decision on the allocation is made by the Dean in line with proposals of heads of organisational units and postgraduate study cycles.

- **What are the mechanisms for funding major equipment and its replacement?**

The major part of equipment purchase and replacement is financed from international projects and donations, as well as from own income from VFS laboratories and clinics. For VFS units which does not generate incomes, purchase and replacement of equipment is done by relocation of other VFS incomes.

- **The mechanism(s) for funding capital expenditure (e.g. building work, major items of equipment) and how decisions are taken in this matter.**

VFS plans funds for building works and capital equipment on an annual basis. Unfortunately, due to very vague political and economic situation in B&H, VFS has not have an appropriate support for capital investments from governmental institutions. To finance capital building and equipment expenditures, VFS also uses funds available through donations of international organisations and institutions, such as UNDP, USAID, SIDA, EC, etc., and, to a small extent, by funds from its own income. In the last five years, VFS invested in total 895,837.00 EUR in reconstruction of facilities and purchase of equipment, out of which 455,634.00 EUR for reconstruction of buildings, and the rest of 440,203.00 EUR for equipment. Most of those funds (58.81 %) was allocated by capital investment support from governmental institutions (governments of the Federation of B&H, the Canton of Sarajevo and municipalities), 10.15 % by donations, and 31.04 % from VFS own income. Most of the funds were spent to purchase diagnostic and teaching equipment, which allowed modernisation of diagnostic, clinical and teaching facilities of VFS.

- **The mechanism(s) to provide the necessary support for building maintenance and how decisions are taken in this matter.**

Due to insufficient funding for the budget of the Canton of Sarajevo, funds for covering building maintenance expenses are mainly ensured for VFS own income in line with the VFS Annual Financial Plan.

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5 Enforced by the VFS Management Board, document no. 01-02-531-1/12 from September 11, 2012
3.1.2. INFORMATION ON EXTRA INCOME

- What percentage of income from the following sources does the veterinary teaching Faculty have to give to other bodies (university, etc.)?
  - clinical or diagnostic work;
  - research grants;
  - other (please explain).

Financial allocation of funds from own income to other bodies is not defined in current regulations. Nevertheless, bearing in mind the ongoing process of integration of UNSA, it is plausible to expect that certain allocation of own income will be required to finance UNSA administration. The only source to provide for such obligation is own income generated by clinical and diagnostic work, which will surely represent an unfavourable financial burden for anyway deprived financial standing of VFS.

- Please indicate whether students:
  - pay tuition/registration fees,
  - how much these are,
  - how they are decided,
  - how the funds are distributed.

As imposed in the Decision of the Government of the Canton of Sarajevo, VFS is allowed to charge a defined registration fee of 51.13 EUR to budget students for initial enrolment in a study year. Certain social categories of students are exempted from the registration fee.

Annual tuition fee for self-financing students is 1,533.88 EUR, as it is defined in the above mentioned Decision. In the 2013/2014 academic year, 33 self-financing students were enrolled. Four students from ex-Yugoslavian countries were charged with registration fee of 51.13 EUR, and one student from the category of other countries paid a tuition fee of 1,840.65 EUR. The rest of students paid 51.13 EUR each.

The funds from registration/tuition fees are distributed in accordance with provisions of the Regulation on Allocation of Own Income of VFS.

Table 3.1: Income/Revenue (EUR)

<table>
<thead>
<tr>
<th>Year</th>
<th>State (government)</th>
<th>Income generated by the Faculty</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To university administered outside the Faculty</td>
<td>Direct to Faculty</td>
<td>Income from services provided</td>
</tr>
<tr>
<td>N* (2013)</td>
<td>1,850,021</td>
<td>851,577</td>
<td>241,687</td>
</tr>
<tr>
<td>N-1 (2012)</td>
<td>1,809,717</td>
<td>912,541</td>
<td>196,560</td>
</tr>
<tr>
<td>N-2 (2011)</td>
<td>1,966,992</td>
<td>609,831</td>
<td>175,148</td>
</tr>
</tbody>
</table>

*Year prior to visitation

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6 The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)
7 The Statute of the University of Sarajevo from June 28, 2013
8 The Decision of the Government of the Canton of Sarajevo no. 02-05-19288-9/09 from June 11, 2009
9 Enforced by the VFS Management Board, document no. 01-02-531-1/12 from September 11, 2012
Table 3.2: Expenditure (EUR)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pay Salaries</th>
<th>Non Pay Teaching support</th>
<th>Research support</th>
<th>Clinical support</th>
<th>Other¹</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>N* (2013)</td>
<td>2.231.203</td>
<td>194.296</td>
<td>146.324</td>
<td>41.000</td>
<td>328.891</td>
<td>2.941.713</td>
</tr>
<tr>
<td>N-1 (2012)</td>
<td>2.197.311</td>
<td>170.565</td>
<td>89.983</td>
<td>17.499</td>
<td>322.958</td>
<td>2.798.315</td>
</tr>
<tr>
<td>N-2 (2011)</td>
<td>2.151.391</td>
<td>129.784</td>
<td>98.805</td>
<td>11.578</td>
<td>419.297</td>
<td>2.810.854</td>
</tr>
</tbody>
</table>

*Year prior to visitation, ¹ = energy and water supply expenditures, communal taxes and other material expenses.

3.2 COMMENTS

- Teaching establishments never have enough finance. Please comment on any of the “Guidelines and Requirements” that are particularly difficult to fulfil in the present financial situation. Please make any comments that you feel would help the experts concerning the Faculty’s finances.

Since the overall VFS finances are essentially influenced by the budget of the Canton of Sarajevo which is adopted by the end of current for the following year, it is very difficult to effectively plan and cover the maintenance and communal expenses. This is particularly important having in mind that those costs are constantly increasing from public enterprises that have a monopole in providing communal services, which finally results in a deficit of balance of coverage of the expenses.

Salaries for VFS employees are defined by the cantonal government¹⁰, i.e. according to salary coefficients for employees of higher education and research establishments financed from the budget of the canton of Sarajevo. Extra-salary payments of employees are regulated by VFS internal acts¹¹ ¹².

As for research work, funds allocated for research projects by the Ministry of Education, Science and Youth of the Canton of Sarajevo are insufficient even for covering expenditures of basic material and consumables. For more, due to generally unfavourable economic situation, cantonal research funding has been completely abolished lately. The only domestic research funds are those available from the Ministry of Education and Science of the Federation of B&H, but available amounts are more than scarce (ranging from 5.000 to 10.000 EUR for total costs per project).

A brief insight in monthly allocation of funds from the budget of the Canton of Sarajevo and overall VFS expenditures is given in Table 3.3.

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¹⁰ The Decision of the Government of the Canton of Sarajevo no. 02-05-22186-6/07 from August 23, 2007
¹¹ The Regulation of Veterinary Faculty of the University of Sarajevo no. 01-02-598-2/06 from December 07, 2006
¹² The Amendment of the Regulation of Veterinary Faculty of the University of Sarajevo no. 01-02-598-4/06 from September 09, 2007
Table 3.3. Distribution of monthly income from the budget of the Government of the Canton of Sarajevo and real needs (expenditures) of VFS in 2014.

<table>
<thead>
<tr>
<th>A) Monthly funds allocated from the budget of the Government of the Canton of Sarajevo</th>
<th>EUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Funds allocated for salaries and other extra salary personal incomes</td>
<td></td>
</tr>
<tr>
<td>Gross salary</td>
<td>123,924.65</td>
</tr>
<tr>
<td>Daily food remuneration (4.1 EUR per employee/working day)</td>
<td>11,785.28</td>
</tr>
<tr>
<td>Transportation fee</td>
<td>3,319.82</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>139,029.75</strong></td>
</tr>
<tr>
<td>2. Funds allocated for material expenditures</td>
<td><strong>12,517.96</strong></td>
</tr>
<tr>
<td>3. Funds allocated for salaries of external associates</td>
<td><strong>1,257.27</strong></td>
</tr>
<tr>
<td><strong>TOTAL MONTHLY BUDGET ALLOCATION (1+2+3)</strong></td>
<td><strong>152,804.98</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B) Real monthly needs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Funds needed for salaries and other extra salary personal incomes</td>
<td></td>
</tr>
<tr>
<td>Gross salary</td>
<td>146,368.00</td>
</tr>
<tr>
<td>Additional personal income for managerial positions in accordance with internal VFS regulations</td>
<td>12,025.59</td>
</tr>
<tr>
<td><strong>Total gross salary expenditure</strong></td>
<td><strong>158,393.59</strong></td>
</tr>
<tr>
<td>Daily food remuneration (4.1 EUR per employee/working day)</td>
<td>14,058.15</td>
</tr>
<tr>
<td>Transportation fee</td>
<td>3,771.31</td>
</tr>
<tr>
<td><strong>Total funds needed for salaries and other extra-salary personal incomes</strong></td>
<td><strong>176,223.05</strong></td>
</tr>
<tr>
<td>2. Funds needed for basic material expenditures</td>
<td><strong>14,762.53</strong></td>
</tr>
<tr>
<td>3. Funds needed for salaries of external associates</td>
<td><strong>1,257.27</strong></td>
</tr>
<tr>
<td><strong>TOTAL MONTHLY NEEDS (1+2+3)</strong></td>
<td><strong>192,242.85</strong></td>
</tr>
</tbody>
</table>

It is notable from the above data that additional monthly amount of 39,437.87 EUR is necessary to ensure a regular functioning of VFS, as indicated below:

1. For funding the salaries, daily food allowance and transportation fees:

   - Budget allocation: = 139,029.75 EUR
   - Real needs = 176,223.05 EUR
   - Difference = 37,193.30 EUR

2. For payment of basic material expenditures and salaries of external associates:

   - Budget allocation = 13,775.23 EUR
   - Real needs = 16,019.80 EUR
   - Difference = 2,244.57 EUR
What is your number one priority for the use of any increased funding?

Our main priority in any case of increased funding is to provide for teaching material and equipment, as well as for maintenance of teaching facilities.

Comment on the degree of autonomy and flexibility available to the Faculty in financial matters.

VFS has an autonomy and flexibility in using own income funds. Funds from student registration and tuition fees, research projects, as well as the budget funds allocated for material expenditures are spent purposely in line with VFS business financial plan.

Comment on the percentage of income from services that the Faculty is allowed to retain for its own use, and in particular on the extent to which loss of this income acts as a disincentive for the services concerned

Allocation of own income generated through business cooperation with various companies and institutions is realised without any external influence. Due to an insufficient budget financing of teaching process (including personnel salaries), any decrease of own income has a very negative impact on quality of teaching. In other words, regular realisation of teaching at VFS would not be possible if the Faculty does not provide own income funds.

Please make any other general comments that you feel would help the experts concerning the Faculty’s finances.

It is extremely important that the Government of the Canton of Sarajevo and UNSA review the system for allocation of funds for all of faculties of the group of biomedical sciences, primarily because of the facts that VFS is the only veterinary faculty in B&H and that teaching expenditures in veterinary medicine curriculum are the highest among all of UNSA members.

3.3 SUGGESTIONS

If you are not satisfied with the situation, please list any shortcomings and provide suggestions - in order of importance and describe any factors which are limiting the further development of your Faculty.

Current model for budget financing of teaching and research activities does not provide for satisfactory educational and scientific developments. The government of the Canton of Sarajevo should completely change its policy of financing education and science.

It is necessary that the Government provide sufficient funds for realisation of teaching process, maintenance of existing and construction of new buildings required for a modern veterinary education in line with the EAEVE standards.

Having in mind such an insufficient and inadequate model of budget financing of higher veterinary education, as well as previously mentioned complex and unenviable current political and economic situation in B&H, we do not expect any significant changes to solve this substantial problem. In order to increase the existing level of scientific productivity of VFS to a European level, the only way out we see in application to European financial resources.
Chapter 4: CURRICULUM

4.1 FACTUAL INFORMATION

❖ Indicate whether there is a defined national curriculum and (if applicable) how and by what body decisions are taken on this.

VFS carries out undergraduate teaching in accordance with the Curriculum of the Integrated First and Second Cycle Study of Veterinary Medicine, which is adjusted to the Bologna Principles and adopted by the UNSA Senate in 2013\(^1\), with a legal obligation to allow completion of undergraduate education for students who commenced the study in accordance with preceding (pre-Bologna) curriculum until September 01, 2015\(^2\). With commencement of academic 2014/2015 year the last generation of students will be enrolled in 9th and 10th semester, which will practically terminate application of the “old” (pre-Bologna) curriculum.

In accordance with procedure set in the UNSA Statute\(^3\), the Senate of UNSA Senate makes decision on a new and/or amended curriculum proposed by the TSC VFS.Having in mind that VFS is the only veterinary faculty in B&H, and the fact that higher education in B&H is under jurisdiction of ministries of cantons (inFB&H), the entity of Republic of Srpska, and the Government of the Brčko District, i.e. nonexistence of a state-level ministry of education, there is not a national curriculum for study of veterinary medicine.

❖ Describe the degree of freedom that the Faculty has to change the curriculum.

Curriculum is subject of evaluation and amendments at least once upon finishing the study cycle in which it was realised. The Faculty has a full autonomy to propose amendments to its curriculum. Additionally, in order to provide education of professionals of certain qualifications of public interest or to ensure certain objectives of development of higher education, the UNSA Founder\(^4\) may require from the Faculty to amend existing or introduce a new curriculum. Amendments to an existing curriculum are done in accordance with the same procedure as for establishment of a new curriculum. It is not allowed to amend a curriculum retroactively in terms of assignment of new obligations to a student for study years that he/she successfully completed. The Faculty is obliged to fully implement an official curriculum.

❖ Outline how decisions on curriculum matters and course content are taken within the Faculty.

Implementation of curriculum is monitored by the TCS VFS, which is allowed to initiate its amendment taking into account requirements of students and professional market. The Dean appoints a working group, which collects and process data necessary for drafting of a new or amended curriculum. The draft is then distributed to the TSC VFS, which discuss the draft and defines an official proposal of the curriculum to be distributed to the UNSA Senate,

\(^1\) The Decision of the Senate of University of Sarajevo no.01-38-2927/13 from September 25, 2013
\(^2\) The Act on Higher Education in the Canton of Sarajevo ("Official Gazette of the Canton of Sarajevo", no. 42/13)
\(^3\) The Statute of the University of Sarajevo from June 28, 2013
\(^4\) The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth
which finally adopts (or not) the new (or amended) curriculum.

Syllabus for each teaching course includes a statement of purpose of the subject and a short course content, types of training with number of teaching hours expressed by methodical teaching content and total number of teaching hours by semesters and study years, as well as compulsory and additional literature and examination criteria. Curriculum is published on the web site\(^5\), and also may be published in a brochure which shall be available to students\(^6\). Curriculum is subject of evaluation and amendments at least once upon finishing the study cycle in which it was realised. Amendments to existing curricula and syllabi are done in accordance with the same procedure as for creation of new ones. Any retroactive amendment of an existing curriculum or syllabus is not permitted in terms of assignment of new obligations to a student for study years that he/she successfully completed.

The Commission for Curriculum and ECTS existed previously at VFS and it was appointed to prepare a draft of a new curriculum and syllabi. The new curriculum was completely drafted through the previously mentioned project „Curriculum Development According to the Bologna Principles”\(^7\) based on the following inputs:

- legal provisions of higher education in the Canton Sarajevo that was in force in the time of the project realisation;
- the EAEVE propositions;
- previous UNSA regulations;
- results of research entitled „Veterinary Professional Profile in Line with Economical and Labour Market Needs in Bosnia and Herzegovina“, which was carried out in 2006 and 2007 through the project;
- previous experiences in veterinary education;
- analyses of curricula of other veterinary faculties Europe and the region aimed toward harmonisation of the new curriculum;
- student opinions on curriculum and overall teaching process (questionnaires);
- analyses and discussions of the drafted curriculum with VFS employees and students.

During discussions with VFS teaching personnel, the drafted curriculum underwent significant changes mainly aimed toward an increase the number of curriculum-hours and keeping with “old” teaching courses and syllabi, which is one of main reasons why the current VFS curriculum lacks some of the EU-listed subjects. Another important reason for failing to fully adopt and implement a modern and EU-harmonized curriculum was an inadequate national legislation in that period.

- Outline how decisions are taken on the allocation of hours between the various subjects and on the balance between theoretical and practical teaching (Tables 4.1, 4.2 and 4.3).

TCS VFS determines general, basic, professional and elective teaching subjects. Curriculum defines all teaching subjects, which includes their official titles, status of subjects (core or elective) and their codes, number of ECTS points and the total number of hours of lectures, practicals and other types of teaching.

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\(^5\)http://vfs.unsa.ba/web/index.php/nastava/diplomska/np-i-godina-i-ciklusa
\(^6\)http://vfs.unsa.ba/web/images/dokumenti/stud_vodic_guide/VFS_STUDENT_BIH_ENG.zip
\(^7\)http://siu.no/eng/Front-Page/Global-menu/Publications/Publication-database/(view)/463
During discussion of basics of an integrated curriculum and its compulsory harmonisation, all of teaching staff included in its realisation are obligated to provide, in accordance with relevant regulations, concrete information on number of teaching hours, planned types of training and of semester in which the subject shall be taught. This activity is carried out prior defining a draft curriculum or its amendments.

Decision on number of teaching hours for each core and elective subject is made based on its syllabus. Total number of teaching hours includes all the hours necessary for complete realisation of all the planned methodology units of the course content within teaching 15 weeks of a semester through lectures, practicals and other types of training. Number of teaching hours for VFS students shall not be less than 20 and more than 30 hours per week.

- *Indicate the presence and disposition of an integrated curriculum. Describe the degree of integration present and the amount of time devoted for EU- and non-EU-listed subjects (Table 4.4)*

The current undergraduate VFS curriculum represents an integrated study program for first and second cycle of higher veterinary education in total length of 5 years (10 semesters) and a total of 300 ECTS points. By completion the study program a student earns the professional degree “Doctor of Veterinary Medicine”. The curriculum includes 60 core subjects (Table 4.1.1.) and 21 elective subjects (Table 4.1.2.). Each student has to choose and take 9 of the electives. Some of the EU-listed core subjects (taken by each student) do not exist as independent subjects. They are incorporated in other relative subjects; i.e. teaching contents of these subjects are taught in cooperation with teacher of the curricular subject through a certain number of teaching hours.

The total number of hours of the 5-year study program is 5,982, distributed by study years and types of training as shown in Table 4.1.1. If observed in line with the EAEVE groups of subjects, the distribution is as follows:

- Basic Subjects: 186 curriculum hours,
- Basic Sciences: 1,740 curriculum hours,
- Clinical Sciences: 2,026 curriculum hours,
- Animal Production: 589 curriculum hours,
- Food Hygiene/Public Health: 305 curriculum hours, and,
- Professional Knowledge: 25 curriculum hours.

The core EU-listed subjects (Table 4.2) total in 4,871 curriculum hours, while the EU-listed subjects offered and to be taken as electives sums in 315 curriculum hours (Table 4.3), out of which each student has to take 135 hours. Curriculum hours in core subjects that are not listed in Table 4.2 are shown in Table 4.4, with an annotation that the current VFS curriculum does not require completion of a final graduation work/thesis. These subjects total in 913 curriculum hours. It is important to emphasize that some teaching contents of the EU-listed subjects are included and taught in syllabi of the subjects from Table 4.4.
4.1.1 POWER OF SUBJECTS AND TYPES OF TRAINING

4.1.1.1 POWER OF SUBJECTS

- "Core" subjects taken by every student;
  During the 5-year study programme, every student is obligated to take 60 core subjects. In that way a student earns 291 out of 300 ECTS points required in total (Table 4.1.1).

- "Electives" which each student must select from a list of permissible subjects;
  Starting from second study year, every student must select and take 9 subjects from the list of 21 offered elective subjects (Tab. 4.1.2.). By this way a student earns the rest of 9 ECTS out of 300 ECTS points required in total.

- Obligatory extramural work.
  Obligatory extramural work is realised in 4th and 5th study year, with a total of 330 curriculum hours (Table 4.5). The work is organized in different forms: as extramural practice, through core subjects Ambulatory Clinics II and Ambulatory Clinics III where students acquire skills in various establishments and institutions, as well as through visiting food processing facilities (the list of contracted institutions is provided in The Introduction Chapter). Obligatory extramural work takes 7.23% of the total study time, out of which 1.31 % is realised in 4th, and 5.91 % in 5th study year. In addition, every year VFS organises a special mode of extramural practice at the Veterinary Faculty in Istanbul (Turkey) for a certain number of students of 4th and 5th year (Table 4.5.1) and represents additional 5.26 % of extramural work. Average annual enrolment in such abroad extramural practice ranges from 15 to 20 students.

4.1.1.2 TYPES OF TRAINING

- There cannot be absolute distinction between the terms used to distinguish between different types of training. Overlap is inevitable. The following descriptions are derived from the definitions presented in the section 'Main Indicators' of Annex I.

4.1.1.2.1 Theoretical training

- Lectures convey theoretical knowledge. Lectures are given to an entire or partial annual intake of students. Teaching may be with or without the use of teaching aids or of demonstration animals or specimens. The essential characteristic is that there is no active involvement of the students in the material discussed. They listen and do not handle.

- Seminars (sometimes called tutorials or supervised group work) are teaching sessions directed towards a smaller group of students during which they work on their own, or as a team, on part of the theory, prepared from manuscript notes, photocopied documents, articles and bibliographic references. Information is illustrated and knowledge extended by the presentation of audio-visual material, exercises, discussions and, if possible, case work.

- Self-directed learning are sessions of individual students making use of defined teaching material provided by the Faculty (e.g. e-learning)
4.1.1.2.2 SUPERVISED PRACTICAL TRAINING

- **Laboratory and desk based work.** Includes teaching sessions where students themselves actively perform laboratory experiments, use microscopes for the examination of histological or pathological specimens. It also includes work on documents and idea-formulation without the handling of animals, organs, objects or products (e.g. essay work, clinical case studies, handling of herd-health monitoring programmes, risk-assessment computer-aided exercises).

- **Non-clinical animal work.** These are teaching sessions where students themselves work on normal animals, on objects, products, carcasses etc. (e.g. animal husbandry, ante mortem and post mortem inspection, food hygiene, etc.) and perform dissection or necropsy.

- **Clinical work.** These are strictly hands-on procedures by students which include work on normal animals in a clinical environment, on organs and clinical subjects including individual patients and herds, making use of the relevant diagnostic data. Surgery or propaedeutical hands-on work on organ systems on cadavers to practice clinical techniques are also classified as clinical work.

Types of practical training (practicals) comprise a form of teaching which allows VFS students to directly acquire knowledge and skills included in syllabus of a teaching subject. During the practicals other useful forms of teaching, such as demonstrations and consultations, may be organised as well.

4.1.2 UNDERGRADUATE CURRICULUM FOLLOWED BY ALL STUDENTS

4.1.2.1 CURRICULUM HOURS

- **This section makes a distinction between curriculum hours to be taken by every student and those offered as electives or within a given track. Specific information is also requested on subjects other than those specified in Table 4.2.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>First</td>
<td>450</td>
<td>0</td>
<td>320</td>
<td>187.5</td>
</tr>
<tr>
<td>Second</td>
<td>450</td>
<td>30</td>
<td>272</td>
<td>261</td>
</tr>
<tr>
<td>Third</td>
<td>413</td>
<td>30</td>
<td>265</td>
<td>172.5</td>
</tr>
<tr>
<td>Fourth</td>
<td>421</td>
<td>0</td>
<td>295</td>
<td>0</td>
</tr>
<tr>
<td>Fifth</td>
<td>322.5</td>
<td>37.5</td>
<td>270</td>
<td>60</td>
</tr>
<tr>
<td>UKUPNO</td>
<td>2,056.5</td>
<td>97.5</td>
<td>1,422</td>
<td>681</td>
</tr>
</tbody>
</table>

(A) = Lectures; (B) = Seminars; (C) = Self-directed learning; (D) = Laboratory and desk based work; (E)=Non-clinical animal work; (F) = Clinical work;
<table>
<thead>
<tr>
<th>CORE SUBJECTS</th>
<th>CURRICULUM HOURS</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lectures</td>
<td>Seminars</td>
<td>Practicals</td>
<td>Total</td>
<td>ECTS</td>
</tr>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Biophysics in Veterinary Medicine</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>2. Biology in Veterinary Medicine</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>3. Veterinary Biochemistry I</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>4. Anatomy of Domestic Animals I</td>
<td>45</td>
<td>0</td>
<td>90</td>
<td>135</td>
<td>9.5</td>
</tr>
<tr>
<td>5. Veterinary Medicine – Introduction and History</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>1.5</td>
</tr>
<tr>
<td>6. Sociology</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>2.0</td>
</tr>
<tr>
<td>7. Gymnastics-Sport</td>
<td>-</td>
<td>0</td>
<td>30</td>
<td>30</td>
<td>2.0</td>
</tr>
<tr>
<td>8. Veterinary Biochemistry II</td>
<td>60</td>
<td>0</td>
<td>45</td>
<td>105</td>
<td>7.0</td>
</tr>
<tr>
<td>9. Anatomy of Domestic Animals II</td>
<td>60</td>
<td>0</td>
<td>90</td>
<td>150</td>
<td>10.0</td>
</tr>
<tr>
<td>10. Zoohygiene and Prophylaxis of Animal Diseases I</td>
<td>15</td>
<td>0</td>
<td>15</td>
<td>30</td>
<td>2.0</td>
</tr>
<tr>
<td>11. Molecular Biology and Biotechnology</td>
<td>15</td>
<td>0</td>
<td>15</td>
<td>30</td>
<td>2.0</td>
</tr>
<tr>
<td>12. Animal Husbandry with Biostatistics in Veterinary Medicine I</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>13. English Language in Veterinary Medicine</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Veterinary Histology with Embryology</td>
<td>45</td>
<td>15</td>
<td>45</td>
<td>105</td>
<td>7.5</td>
</tr>
<tr>
<td>15. Physiology of Domestic Animals I</td>
<td>60</td>
<td>0</td>
<td>45</td>
<td>105</td>
<td>7.5</td>
</tr>
<tr>
<td>16. Animal Husbandry with Biostatistics in Veterinary Medicine II</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>4.5</td>
</tr>
<tr>
<td>17. Animal Feed and Nutrition I</td>
<td>60</td>
<td>0</td>
<td>45</td>
<td>105</td>
<td>7.5</td>
</tr>
<tr>
<td>18. Physiology of Domestic Animals II</td>
<td>60</td>
<td>15</td>
<td>30</td>
<td>105</td>
<td>6.5</td>
</tr>
<tr>
<td>19. Animal Feed and Nutrition II</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>4.0</td>
</tr>
<tr>
<td>20. Veterinary Microbiology with Immunology I</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>4.0</td>
</tr>
<tr>
<td>21. Pathology of Domestic Animals I</td>
<td>30</td>
<td>0</td>
<td>45</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>22. Pathologic Physiology of Domestic Animals I</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>60</td>
<td>4.0</td>
</tr>
<tr>
<td>23. Veterinary Parasitology</td>
<td>45</td>
<td>0</td>
<td>45</td>
<td>90</td>
<td>5.5</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Veterinary Microbiology with Immunology II</td>
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</tr>
<tr>
<td>25. Pathology of Domestic Animals II</td>
<td>45</td>
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</tr>
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<td>26. Pathologic Physiology of Domestic Animals II</td>
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<tr>
<td>27. Animal Parasitic Diseases</td>
<td>30</td>
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</tr>
<tr>
<td>28. Veterinary Pharmacology and Toxicology I</td>
<td>45</td>
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<td>29. Ethology and Animal Welfare</td>
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</tr>
<tr>
<td>30. Veterinary Pharmacology and Toxicology II</td>
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<td>30</td>
<td>75</td>
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</tr>
<tr>
<td>31. Internal Diseases of Equines, Carnivores and Swine with Propaedeutics I</td>
<td>30</td>
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<td>45</td>
<td>75</td>
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<tr>
<td>32. Internal Diseases of Ruminants and Rabbits with Propaedeutics I</td>
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<tr>
<td>33. Physiology and Pathology of Reproduction of Domestic Animals I</td>
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<tr>
<td>34. Obstetrics and Udder Diseases I</td>
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</tr>
<tr>
<td>35. Surgery with Onychology and Ophthalmology I</td>
<td>30</td>
<td>0</td>
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<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>36. Veterinary Roentgenology and Physical Therapy</td>
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<tr>
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<td>45</td>
<td>75</td>
<td>5.0</td>
</tr>
<tr>
<td>Internal Diseases of Ruminants and Rabbits with Propaedics II</td>
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<td>45</td>
<td>75</td>
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</tr>
<tr>
<td>Physiology and Pathology of Reproduction of Domestic Animals II</td>
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<td>30</td>
<td>60</td>
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<tr>
<td>Obstetrics and Udder Diseases II</td>
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<td>0</td>
<td>30</td>
<td>60</td>
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<td>45</td>
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<td>30</td>
<td>60</td>
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</tr>
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<td>45</td>
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<tr>
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<td>45</td>
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<tr>
<td>Veterinary Radiobiology with Radiation Hygiene</td>
<td>45</td>
<td>0</td>
<td>30</td>
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<td>5.0</td>
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<tr>
<td>Ambulatory Clinics I</td>
<td>15</td>
<td>0</td>
<td>45</td>
<td>60</td>
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<td>60</td>
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<td><strong>FIFTH YEAR</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Breeding, Production and Health Protection in Poultry Farming II</td>
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<td>30</td>
<td>60</td>
<td>4.0</td>
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<tr>
<td>Animal Infectious Diseases with Epizootiology I</td>
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<td>0</td>
<td>45</td>
<td>90</td>
<td>6.0</td>
</tr>
<tr>
<td>Hygiene and Technology of Meat and Meat Products II</td>
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<td>0</td>
<td>45</td>
<td>90</td>
<td>6.0</td>
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<tr>
<td>Economics of Animal Health and Production</td>
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<td>75</td>
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<td>Diseases of Fish, Crustaceans and Molluscs</td>
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<td>Diseases and Health Management of Game</td>
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<td>15</td>
<td>30</td>
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<tr>
<td>Ambulatory Clinics II</td>
<td>-</td>
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<td>60</td>
<td>60</td>
<td>4.0</td>
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<tr>
<td>Zoohygiene and Prophylaxis of Animal Diseases II</td>
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<td>45</td>
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<td>5.0</td>
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<td>Zoonoses</td>
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<td>7.5</td>
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<td>2.0</td>
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<tr>
<td>State Veterinary Medicine with Organisation and Economics of Veterinary Measures</td>
<td>30</td>
<td>15</td>
<td>15</td>
<td>60</td>
<td>4.0</td>
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<tr>
<td>Forensic Veterinary Medicine</td>
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<td>15</td>
<td>60</td>
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<td>Ambulatory Clinics III</td>
<td>0</td>
<td>0</td>
<td>210</td>
<td>210</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>1,987.5</td>
<td>97.5</td>
<td>2,340</td>
<td>4,425</td>
<td>291</td>
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</table>
Table 4.1.2: Elective subjects and their curriculum hours of the Integrated First and Second Cycle Study of Veterinary Medicine. Each VFS student must elect and take 9 subjects.

<table>
<thead>
<tr>
<th>ELECTIVE SUBJECTS</th>
<th>CURRICULUM HOURS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Lectures</td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>1. Laboratory Animals and Basics of Laboratory Techniques</td>
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<tr>
<td>2. Animal Dental Morphology</td>
<td>7.5</td>
</tr>
<tr>
<td>3. Cynology and Felinology</td>
<td>7.5</td>
</tr>
<tr>
<td>4. Horse Breeding and Sport</td>
<td>7.5</td>
</tr>
<tr>
<td>5. Pigeonology</td>
<td>7.5</td>
</tr>
<tr>
<td>6. Breeding and Production of Rabbits and Fur-Bearing Animals</td>
<td>7.5</td>
</tr>
<tr>
<td>7. Poultry Morphophysiology</td>
<td>7.5</td>
</tr>
<tr>
<td>8. Basics of Feed Hygiene and Safety</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>9. Aquaristics</td>
<td>7.5</td>
</tr>
<tr>
<td>10. Aquaculture</td>
<td>7.5</td>
</tr>
<tr>
<td>11. Pharmacognosy</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>12. Veterinary Clinical Haematology and Biochemistry</td>
<td>7.5</td>
</tr>
<tr>
<td>13. Veterinary Clinical Endocrinology</td>
<td>7.5</td>
</tr>
<tr>
<td>14. Pets</td>
<td>7.5</td>
</tr>
<tr>
<td>15. Veterinary Special Radiology Diagnostics</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td></td>
</tr>
<tr>
<td>16. Veterinary Clinical Pharmacology and Toxicology</td>
<td>7.5</td>
</tr>
<tr>
<td>17. Parasitic Diseases in Public Health</td>
<td>7.5</td>
</tr>
<tr>
<td>18. Environmental Protection</td>
<td>7.5</td>
</tr>
<tr>
<td>19. Management in Veterinary Medicine</td>
<td>7.5</td>
</tr>
<tr>
<td>20. Unconventional Animal Production</td>
<td>7.5</td>
</tr>
<tr>
<td>21. Veterinary Public Health</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>157.5</td>
</tr>
<tr>
<td><strong>Total hours after election</strong></td>
<td>135</td>
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</table>

³Total number of curriculum hours of elective subjects. Each student is obligated to elect and take 9 subjects with a total of 135 curriculum hours.
### Table 4.2: Curriculum hours in EU-listed subjects taken by each student.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other (G)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td><strong>1. Basic subjects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Physics(^9)</td>
<td>45</td>
<td>0</td>
<td>0</td>
<td>30</td>
</tr>
<tr>
<td>b) Chemistry</td>
<td>45</td>
<td>0</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>c) Animal biology(^10)</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>d) Plant biology</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>e) Biomathematics</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td><strong>1 –Total number of hours</strong></td>
<td>100</td>
<td>0</td>
<td>20</td>
<td>66</td>
</tr>
<tr>
<td><strong>2. Basic sciences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Anatomy (incl. histology and embryology)</td>
<td>150</td>
<td>15</td>
<td>300</td>
<td>45</td>
</tr>
<tr>
<td>b) Physiology</td>
<td>120</td>
<td>15</td>
<td>200</td>
<td>37.5</td>
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<tr>
<td>c) Biochemistry, cellular and molecular biology(^11)</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>45</td>
</tr>
<tr>
<td>d) Genetics (incl. molecular genetics)(^12)</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>e) Pharmacology and pharmacy</td>
<td>45</td>
<td>0</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>f) Toxicology (incl. environmental pollution)</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>g) Microbiology (incl. virology, bacteriology and mycology)</td>
<td>45</td>
<td>0</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>h) Immunology</td>
<td>30</td>
<td>0</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>i) Epidemiology (incl. scientific and technical information and documentation methods)(^13)</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>j) Professional ethics</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>2 –Total number of hours</strong></td>
<td>563</td>
<td>30</td>
<td>620</td>
<td>301.5</td>
</tr>
</tbody>
</table>

(A) = Lectures; (B) = Seminars; (C) = Self-directed learning; (D) = Laboratory and desk based work; (E)=Non-clinical animal work; (F) = Clinical work;

---

\(^9\) Physics is taught as Biophysics.

\(^10\) Biology of fish and bees are taught in Biology in Veterinary Medicine.

\(^11\) Cellular and molecular biology are taught in Biology in Veterinary Medicine and Molecular Biology and Biotechnology.

\(^12\) Genetics (incl. molecular genetics) is taught in Biology in Veterinary Medicine.

\(^13\) Epidemiology is taught in Animal Infectious Diseases with Epizootiology and Economics of Animal Health and Production.
Table 4.2: Curriculum hours in EU-listed subjects taken by each student (continued).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other (G)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>a) Obstetrics</td>
<td>60</td>
<td>0</td>
<td>10</td>
<td>0</td>
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<tr>
<td>b) Pathology (incl. pathological anatomy)</td>
<td>75</td>
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<td>10</td>
<td>0</td>
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<tr>
<td>c) Parasitology</td>
<td>75</td>
<td>15</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>d) Clinical medicine and surgery (incl. anaesthesiology)</td>
<td>149</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>e) Clinical lectures on various domestic animals, poultry and other animal species</td>
<td>25</td>
<td>0</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>f) Field veterinary medicine (ambulatory clinics)</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>g) Preventive medicine</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>h) Diagnostic imaging (incl. radiology)</td>
<td>17</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>i) Reproduction and reproductive disorders</td>
<td>60</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>j) Veterinary state medicine and public health</td>
<td>30</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>k) Veterinary legislation and forensic medicine</td>
<td>25</td>
<td>15</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>l) Therapeutics</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>m) Propaedautics (incl. laboratory diagnostic methods)</td>
<td>66</td>
<td>0</td>
<td>20</td>
<td>45</td>
</tr>
</tbody>
</table>

3 – Total number of hours                                               | 630                  | 45                            | 220       | 68    | 186 | 817 | 60  | 2,026 |

(A) = Lectures; (B) = Seminars; (C) = Self-directed learning; (D) = Laboratory and desk based work; (E)=Non-clinical animal work; (F) = Clinical work;

14 The shown curriculum hours include hours of Animal Parasitic Diseases.
15 Clinical lectures on various domestic animals, poultry and other animal species are taught in Breeding, Production and Health Protection in Poultry Farming II.
16 Preventive medicine is taught in Zoohygiene and Prophylaxis of Animal Diseases I, Zoohygiene and Prophylaxis of Animal Diseases, and Breeding, Production and Health Protection in Poultry Farming I.
17 Diagnostic imaging is taught in Veterinary Roentgnology and Physical Therapy.
18 Therapeutics is taught in Veterinary Roentgnology and Physical Therapy.
19 Propaedautics is taught in Internal Diseases of Ruminants and Rabbits with Propaedautics I, Internal Diseases of Equines, Carnivores and Swine with Propaedautics I, Surgery with Onychology and Ophthalmology I, and Pathologic Physiology of Domestic Animals II.
Table 4.2: Curriculum hours in EU-listed subjects taken by each student (continued).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other (G)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>4. Animal Production</td>
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<td></td>
</tr>
<tr>
<td>a) Animal production</td>
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<td>0</td>
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<tr>
<td>b) Animal nutrition</td>
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<td>22</td>
<td>72</td>
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<tr>
<td>c) Agronomy</td>
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<td>0</td>
<td>3</td>
</tr>
<tr>
<td>d) Rural economics</td>
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<td>24</td>
</tr>
<tr>
<td>e) Animal husbandry</td>
<td>75</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>f) Veterinary hygiene</td>
<td>31</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>g) Animal ethology and protection</td>
<td>15</td>
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<td>0</td>
<td>15</td>
</tr>
<tr>
<td><strong>4 – Total number of hours</strong></td>
<td><strong>275</strong></td>
<td><strong>0</strong></td>
<td><strong>57</strong></td>
<td><strong>114</strong></td>
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<tr>
<td>5. Food Hygiene/Public Health</td>
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</tr>
<tr>
<td>a) Inspection and control of animal</td>
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<td>22</td>
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<tr>
<td>foodstuffs and the respective</td>
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<tr>
<td>b) Food hygiene and technology</td>
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<td>31</td>
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<tr>
<td>c) Food science incl. legislation</td>
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<td>10</td>
<td>19</td>
</tr>
<tr>
<td>d) Practical work (incl. practical</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td>work in places where slaughtering</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and processing of foodstuffs takes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>place)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5 – Total number of hours</strong></td>
<td><strong>120</strong></td>
<td><strong>0</strong></td>
<td><strong>50</strong></td>
<td><strong>126</strong></td>
</tr>
<tr>
<td>6. Professional knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Practice management</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>b) Veterinary certification and</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>report writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Career planning and opportunities</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>6 – Total number of hours</strong></td>
<td><strong>12</strong></td>
<td><strong>0</strong></td>
<td><strong>13</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

(A) = Lectures; (B) = Seminars; (C) = Self-directed learning; (D) = Laboratory and desk based work; (E)=Non-clinical animal work; (F) = Clinical work;

Establishments, which due to the character of their curriculum feel unable to complete Table 4.2 may – alternatively – provide a detailed outlay of their curriculum. This should allow conclusions to be drawn about the extent to which the requirements laid down in directive 2005/36/EC are met. The values for ratios R6, R7 and R8 (Annex I, 2.10) must be given.

---

20 Agronomy is taught in Animal Feed and Nutrition I.
21 Food Hygiene/Public Health is taught in Hygiene and Technology of Milk and Milk Products, Hygiene and Technology of Meat and Meat Products I, and Hygiene and Technology of Meat and Meat Products II.
22 Practice management is taught in Diseases and Health Management of Game.
23 Veterinary certification and report writing is taught in Forensic Veterinary Medicine.
24 Career planning and opportunities is taught in elective subject Management in Veterinary Medicine (Table 4.1.2).
### Table 4.3: Curriculum hours in EU-listed subjects offered and to be taken as electives.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other</th>
<th>Hours to be taken by each student per subject group[^1]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seminars</td>
<td>Self-directed learning</td>
<td>Laboratory and desk based work</td>
<td>Non-clinical animal work</td>
</tr>
<tr>
<td>Basic Subjects</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Basic Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Animal Dental Morphology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>2 Laboratory Animals and Basics of Laboratory Techniques</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>3 Poultry Morphophysiology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>Clinical Sciences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Pharmacognosy</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>5 Veterinary Clinical Haematology and Biochemistry</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>6 Veterinary Clinical Endocrinology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>7 Veterinary Special Radiology Diagnostics</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>8 Veterinary Clinical Pharmacology and Toxicology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>Animal Production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Cynology and Felinology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>10 Horse Breeding and Sport</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>11 Breeding and Production of Rabbits and Fur-Bearing Animals</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>12 Unconventional Animal Production</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>13 Pets</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>14 Pigeonology</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>15 Aquaristics</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>16 Aquaculture</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>Food Hygiene/Public Health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Parasitic Diseases in Public Health</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>18 Veterinary Public Health</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>19 Basics of Feed Hygiene and Safety</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
<tr>
<td>20 Environmental Protection</td>
<td>7,5</td>
<td>7</td>
<td>7,5</td>
<td>0</td>
</tr>
</tbody>
</table>

[^1]: Current VFS undergraduate curriculum does not oblige students to elect a certain number of teaching hours from a defined group of elective subjects. Each student takes elective subjects according to her/his own affinity.
Professional Knowledge

<table>
<thead>
<tr>
<th></th>
<th>7,5</th>
<th>7</th>
<th>7,5</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management in Veterinary Medicine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>157,5</td>
<td>147</td>
<td>157,5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>462</td>
</tr>
<tr>
<td>Total hours after election</td>
<td>67,5</td>
<td>63</td>
<td>67,5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>198</td>
</tr>
</tbody>
</table>

- The inherent nature of an elective is, that students make a distinction and select. However, the total number of hours to be taken by each student out of the various subject groups should be stated.

Starting from the second study year, every student must take 9 subjects from the above list of 21 offered elective subjects. By this way each student includes additional 198 curriculum hours and earns 9 ECTS points.

During the 2nd study year, a student is required to take 5 from 8 offered elective subjects (3 subjects from Basic Sciences group, 4 subjects from Animal Production group, and 1 subject from Food Hygiene/Public Health group). Similarly, in the 3rd study year, a student must choose 1 out of 3 offered elective subjects (1 subject from Clinical Sciences group and 2 subjects from Animal Production group). Along the 4th study year, each student has to take 2 from 4 offered elective subjects (3 from the Clinical Sciences group and 1 in Animal Production group). Finally, every student of the last (5th) undergraduate year has to take 2 out of 6 offered elective subjects (3 subjects from Food Hygiene/Public Health group, 1 subject from Professional Knowledge group and 1 subject from Animal Production group).

Current VFS undergraduate curriculum does not oblige students to elect a certain number of teaching hours from a defined group of elective subjects. Each student takes elective subjects according to her/his own affinity.

- Where a Faculty runs a “Tracking system” this should be indicated when completing Table 4.3. Separate tables should be provided for each track, e.g. Table 4.3a: Curriculum hours in EU-listed subjects to be taken in the “equine medicine track”.

The current VFS undergraduate study programme does not contain tracking or orientation programmes.

- Table 4.4 requests information concerning curriculum hours in subjects not listed in Table 4.2 to be taken by every student. If offered as electives or within a special track, please develop separate tables (e.g. 4.4a, b...).
Table 4.4: Curriculum hours in subjects not listed in Table 4.2 to be taken by each student, including Diploma work (final graduation thesis, or final graduation work).

<table>
<thead>
<tr>
<th>Subject</th>
<th>Theoretical training</th>
<th>Supervised practical training</th>
<th>Other (G)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>1  Veterinary Medicine – Introduction and History</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2  Sociology</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3  English Language in Veterinary Medicine</td>
<td>30</td>
<td>0</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>4  Pathologic Physiology of Domestic Animals I</td>
<td>30</td>
<td>35</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>5  Honey Bee Diseases</td>
<td>15</td>
<td>15</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>6  Animal Infectious Diseases with Epizootiology I</td>
<td>37</td>
<td>0</td>
<td>89</td>
<td>24</td>
</tr>
<tr>
<td>7  Animal Infectious Diseases with Epizootiology II</td>
<td>45</td>
<td>0</td>
<td>105</td>
<td>45</td>
</tr>
<tr>
<td>8  Veterinary Radiobiology with Radiation Hygiene</td>
<td>45</td>
<td>0</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>9  Diseases of Fish, Crustaceans and Molluscs</td>
<td>15</td>
<td>0</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>10 Diseases and Health Management of Game</td>
<td>8</td>
<td>0</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>11 Zoonoses</td>
<td>22.5</td>
<td>2.5</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>12 Gymnastics-Sport</td>
<td>0</td>
<td>0</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>292.5</td>
<td>2.5</td>
<td>402</td>
<td>189</td>
</tr>
</tbody>
</table>

(A) = Lectures; (B) = Seminars; (C) = Self-directed learning; (D) = Laboratory and desk based work; (E) = Non-clinical animal work; (F) = Clinical work;

Note: the current VFS undergraduate curriculum does not require completion of a final graduation work/thesis.

4.1.3 FURTHER INFORMATION ON THE CURRICULUM

- Provide the visiting team with highlights and any unusual or innovative aspects of the teaching programme, e.g. tracking and orientation programmes.

The current VFS undergraduate study programme does not contain tracking or orientation programmes.

- State the parts of the programme that must be attended as obligatory by the students and how the attendance is verified.

The required teaching load (60 core and 9 taken elective subjects) is mandatory for all students. According to the TSC VFS Decision\(^{26}\), which is proposed by the Quality Assurance Committee of VFS, verification of student attendance is mandatory for every type of teaching. Attendance records are done on an official sheet by student signature in the beginning of the class, and the teacher verifies the attendance at the end of the class. Final verification and archiving of each record is done by the Head of Department responsible for the subject.

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\(^{26}\) The Decision on Verification of Teaching Attendance of Students, no. 04-01-728-1/13 from October 03, 2013.
Please provide specific information on the practical clinical training; If clinical training is provided through obligatory clinical rotations in different areas, please give an outline description of how this is structured, in terms of:

- Are such rotations a structured part of the training given to all undergraduate students?
  Yes.

- The total number of days or weeks of such rotations;
  The rotations take 15 weeks, for days a week, i.e. 60 working days in total.

- The year(s) in which they occur;
  The rotations are carried out in the 4th study year (7th and 8th semester) within the Ambulatory Clinics I subject (Table 4.1.1), with a total teaching load of 45 curriculum hours of practicals.

- The different areas covered and the time spent in each area;
  The areas covered by the rotations and respective time spent in work with patients are:
  - Internal Diseases 30 hours;
  - Surgery 10 hours
  - Diagnostic Imaging 3 hours;
  - Small Animal Obstetrics 2 hours.

- Whether attendance is full-time, for part of the day, and/or other (e.g. based on case needs);
  Students attend the rotation from 8:30 to 14:00 hours or longer if a concrete clinical case is not completed.

- The activities and case responsibilities that students are expected to undertake;
  Students attend a patient and its owner from the Reception Section and, based on anamnestic and triage findings, escort them to appropriate clinic. The patient is received by the clinical personnel at the clinic and students participate in further clinical work in line with instructions of present clinical teacher. Student participation in clinical work includes fixation, collection of triage findings, and habitus assessment of the patient. In addition, students are trained in practical diagnostic approach to the patient and in its treatment. The training is supervised by teaching staff of subject Ambulatory Clinics I in collaboration with the Head of Clinics and operative clinical teaching assistants. The Vice-Dean for Education, the Head of VFS Clinics, and Heads of VFS Departments included in teaching of the 4th year students regularly receive daily lists of students enrolled in ambulatory teaching. Under supervision of teaching staff, VFS students also actively participate in imaging (X-ray and ultrasound) diagnostics of small animals, preoperative preparation, surgery and postoperative care and treatment of patients, as well as in general therapy and application of some of preventive measures (dehelmintisation). It is expected from students to work on clinical cases, from reception to discharge of a patient. Students are responsible to deliver a serious and adequate approach to the patient and its owner. Also, they are requested to keep their log files on each clinical case, which are verified by responsible teacher/assistant.
The group sizes in the clinical rotations.

Clinical rotations are carried out in small groups of 6 students. Grouping of the students is based on a logical selection from other student groups (one student from a group made for the purpose of other practical training), which avoids absence of more than one student from classes regularly scheduled in other subjects. The next rotation of a student group in the same teaching area is organised on a different week day (for example, first rotation of a group on Monday, next time on Tuesday, etc.).

Describe clinical exercises in which students are involved prior to the commencement of clinical rotations.

Prior to the commencement of the rotations, students are trained in patient fixation, drug administration techniques and clinical record keeping, which are done within clinical subjects taught in preceding (6th) semester.

Outline the student involvement in the emergency and hospitalisation activities of the clinics.

Emergency service is not organised at VFS Clinics, except as the on-call service by dialing private telephone numbers of qualified veterinarians of the Clinics. As for hospitalisation activities, students are responsible for reception, monitoring and daily care of hospitalised patients.

Specify student participation in the activities of the mobile clinic and indicate whether or not the hours spent in the mobile (ambulatory) clinic are included in those in Table 4.2.

VFS does not have a mobile (ambulatory) clinic and, thus, does not provide such service outside the VFS building.

4.1.4 OBLIGATORY EXTRAMURAL WORK

These are training periods that are an integral part of the curriculum, but which are taken outside the Faculty. Please make a distinction in respect to the nature of the work, for instance work on farms, training in a veterinary practice or in Food Hygiene/Public Health with a commercial or government organisation. Please indicate the guidelines pertaining to this activity, and the manner by which it is assessed.
Table 4.5: Obligatory extramural work that students must undertake as part of their course.

<table>
<thead>
<tr>
<th>Nature of work</th>
<th>Minimum period</th>
<th>Maximum period</th>
<th>Year in which work is carried out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% of total study time</td>
<td>Hours</td>
</tr>
<tr>
<td>Extramural Work(^{27})</td>
<td>60</td>
<td>1.31</td>
<td>-</td>
</tr>
<tr>
<td>Ambulatory Clinics II(^{28})</td>
<td>60</td>
<td>1.31</td>
<td>-</td>
</tr>
<tr>
<td>Ambulatory Clinics III(^{29})</td>
<td>210</td>
<td>4.60</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>330</strong></td>
<td><strong>7.23</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

1 = If these periods of extramural work take place during vacations, then the preceding academic year should be entered in the last column of Table 4.5; 2 = Where applicable.

To provide for extramural work, VFS management contracted teaching, research and professional collaboration with farms, meat and milk processing companies, veterinary diagnostic institutions and stations, ZOO garden, fish farms and other establishments (please see Introduction). Extramural work is organised for the 4\(^{th}\) year students (at the end of 8\(^{th}\) semester) as an obligatory type of training under supervision of VFS clinical teaching staff. In line with the Contract\(^{30}\), the work is organised in Sanski Most for a total of 3 weeks, where each week a new group of 26 students arrives and works 7 days. The work is planned and carried out in line with working plans of municipal veterinary stations of the Una-Sana Canton. The work implies all-day field trips of student groups (8 students supervised by a VFS clinical teacher/assistant and with a field veterinarian). Under the supervision of the VFS teacher/assistant and in line with instructions of the field veterinarian, students perform planned daily clinical work and keep their personal daily log files (“Working Diary”), which are signed and verified by the teacher/assistant.

Work on cattle farm of the Agriculture High School "Sanus Futurum" in Sanski Most allows to student practical training in animal hygiene, nutrition, as well as in milking and in udder hygiene, clinical examination and treatment of intramammary infections and other disorders of dairy cattle.

Currently, there are not written student guidelines pertaining to the extramural work. Such work allows clinical training of students in large animal practice. It includes supervised daily health care duties of field veterinary service planned in line with demands of owners of animals and relevant legislation. Students perform field clinical diagnostic methods, propose and administer related therapy, perform artificial insemination, actively participate in field obstetric and surgical interventions. Also, students are trained in keeping of official documentation of field veterinarians.

Supervised practical clinical training outside VFS takes place in subjects Ambulatory Clinics II and Ambulatory Clinics III in 5\(^{th}\) year (Table 4.5). The training is organised under the contracted arrangement with the Cantonal Public Agriculture Company “Butmir” and takes

\(^{27}\) Carried out under supervision of VFS teaching staff in Sanski Most (in northwest of B&H) in collaboration with the regional veterinary stations.

\(^{28}\) During the 10\(^{th}\) semester supervised practical training in clinical subjects is carried out on horse, cattle, sheep, pig, poultry and fish farms.

\(^{29}\) Supervised practical training in clinical subjects, as well as in food hygiene subjects carried out in establishments which signed contracts on cooperation (please see Introduction);

\(^{30}\) The Contract on Teaching, Scientific and Professional Collaboration with the Agriculture High School "Sanus Futurum" in Sanski Most, no.01-04-245-1/13 from February 07, 2013.
place on the Cattle Farm “Bojnik”. It includes student hands-on practice in cattle manual fixation methods, as well as in keeping the daily logs (“Working Diary”). In addition, students actively perform general and special clinical diagnostics of cattle (diseases of respiratory, digestive, urogenital, and locomotory tract). Student practical training also includes taking the animal specimens for laboratory examinations, as well as supervised individual administration of veterinary drugs.

All of those practical field activities are previously taught during intramural training.

A specific form of abroad extramural work is shown in Table 4.5.1. The work is done at clinics of the Faculty of Veterinary Medicine, University of Istanbul (Turkey) within student exchange program as a form of collaboration between the two Faculties. VFS students, with a grade point average of 8.0 or higher, are allowed to apply for the exchange program, which is annually announced on VFS web site and carried out by VFS management and the Association of Students of Veterinary Faculty Sarajevo (ASVF). After being selected in accordance with their GPA, 15-20 students stay at the Faculty of Veterinary Medicine in Istanbul during May and August, where they work at internal, surgery, reproduction and obstetric clinics under the supervision of Turkish clinical teachers. Student work is monitored and assessed by the Turkish colleagues, who officially inform VFS management on working performance of our students.

Table 4.5.1: Specific form of abroad extramural work (student exchange program with the Faculty of Veterinary Medicine, University of Istanbul, Turkey)

<table>
<thead>
<tr>
<th>Nature of work</th>
<th>Minimum period</th>
<th>Maximum period</th>
<th>Year in which work is carried out</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% of total study time</td>
<td>Hours</td>
</tr>
<tr>
<td>Extramural work A&lt;sup&gt;31&lt;/sup&gt;</td>
<td>160</td>
<td>3.50</td>
<td>-</td>
</tr>
<tr>
<td>Extramural work B&lt;sup&gt;32&lt;/sup&gt;</td>
<td>80</td>
<td>1.75</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>240</strong></td>
<td><strong>5.26</strong></td>
<td>-</td>
</tr>
</tbody>
</table>

1 = If these periods of extramural work take place during vacations, then the preceding academic year should be entered in the last column of Table 4.5; 2 = Where applicable.

4.1.5 **SPECIFIC INFORMATION ON THE PRACTICAL TRAINING IN FOOD HYGIENE/PUBLIC HEALTH**

- Describe arrangements for teaching in a slaughterhouse and/or in premises for the production, processing, distribution/sale or consumption of food of animal origin.

- Indicate the distance to slaughterhouses where students undergo training, and the species covered. Outline the structure and the frequency of these visits (group size, number of trainers, duration, etc.).

The practical training in the area of food hygiene and technology is carried out in subjects Hygiene and Technology of Milk and Milk Products (9<sup>th</sup> semester) and Hygiene and Technology of Meat and Meat Products (9<sup>th</sup> and 10<sup>th</sup> semester) by teaching personnel of the Department for Food Hygiene and Technology.

<sup>31</sup> The best students of the 4<sup>th</sup> and 5<sup>th</sup> study year are enrolled during 8<sup>th</sup> and 10<sup>th</sup> semester (in May).

<sup>32</sup> The best students of the 4<sup>th</sup> and 5<sup>th</sup> study year are enrolled during summer vacations.
Practical training in meat examination takes place through one-day visits to slaughterhouses for large and small ruminants and poultry where students get familiarized with the slaughtering process and production of fresh and frozen meat, as well as with the respective legal sanitary and technical criteria. Slaughterhouse of the “Mujanić Ltd” Meat Processing Company is located in the vicinity of Sarajevo, some 10 km from VFS. It is a semi-industrial slaughterhouse for cattle and sheep with an implemented HACCP system. The other slaughterhouse (Meat Industry “Bajra Ltd”) is situated in the vicinity of Travnik (a town in the central part of B&H), approximately 90 km from VFS. It is an industrial exporting slaughterhouse for small and large ruminants certified in accordance with the ISO 9001, and the HACCP and HALAL standards. The industrial poultry slaughterhouse of “Brovis Ltd” is located in Visoko, some 37 km from VFS to the west. It is also certified according to the ISO 9001, ISO 14001, the HACCP, and the HALAL standards as well.

The visits are carried out in groups of 12 students according to a defined teaching schedule and under supervision of a teaching assistant (a teaching load of 3 curriculum hours per week; one semester takes 15 weeks). The production process in those facilities is under control of veterinary inspection, which allows students to get familiarised with respective duties and responsibilities of the inspection, particularly in process of control of slaughtering operations.

During the visits students observe all phases of the production process, as well as all of the slaughterhouse facilities and premises, including pens for animal reception, rest and ante-mortem examination, premises for slaughtering, bleeding, exenteration, post-mortem meat examination and cutting premises, meat chilling and storage facilities, etc. Students get familiarised in details with the ante-mortem and post-mortem examinations and other duties of a veterinary inspector in a slaughterhouse before, during and after the slaughter. The teaching assistant is responsible for carrying out and control of the teaching, as well as to provide the students with all required information during all of the slaughtering and meat processing phases performed by the slaughterhouse workers and the veterinary inspector. The objective of the training is to familiarise students with the role of veterinarians and veterinary inspectors in a slaughterhouse environment and to highlight the differences among various types of abattoirs. The carcasses and organs left for veterinary meat inspection are shown to students with demonstrations and explanations on differences in preforming various techniques of meat examination and obligatory meat stamping. Also, during the training students are instructed on key requirements of the mentioned certification standards.

However, it is important to underline that the described teaching mode does not allow a hands-on training of students in post-mortem meat examination, but only its observation in the slaughterhouse environment. To address this problem, students do regular examination of slaughter animal organs under a strict supervision of teaching assistants prior to the visits. Each student individually does examination of head, lungs, heart, oesophagus and liver of small and/or large ruminants. Having in mind that VFS does not have an adequate intramural premise for the meat examination training, it takes place in the VFS Necropsy Hall.

Nevertheless, it is important to underline that, our Faculty is not able to provide a permanent supply of the organs for hands-on training of students, but the intramural training seldom takes place. Such teaching shortage is due to unenviable financial circumstances of VFS work and disability to buy the organs/carcasses, and, on the other side,
private profit-oriented slaughterhouses and meat processing companies are unwilling to either allow student hands-on practice using their material, or to donate organs to VFS.

Practical training of students in the area of hygiene and technology of foodstuffs of animal origin is carried out in the mentioned industrial production and processing facilities. Students become acquainted with technology of production of pasteurised and sterilised milk and milk products, as well as with duties of veterinary officers, reception and control of raw milk and of final products in facilities of „Milko’S Ltd.” Dairy Company located in Sarajevo, some 10 km from VFS. By visiting the mentioned „Mujanić Ltd” Meat Processing Company in Sarajevo they get accustomed with technology of production of raw minced-meat products (raw sausages, hamburgers, etc.), while they become familiar in technology of production of various types of beef sausages, canned meats, dry meats, and others by visiting premises of the Meat Industry “Akova Ltd” in Sarajevo (10 km from VFS) and the mentioned Meat Industry “Bajra Ltd” in Travnik. Technology of production of chicken and turkey pates is shown in details at industrial premises of the Meat Industry “Argeta” in Sarajevo (10 km from VFS), while technology of production of poultry frankfurters and other sausages is shown to students at premises of the Meat Industry „Perutnina” in Breza (a small town some 30 km away from VFS). All the mentioned companies are certified in line with requirements of the ISO 9001, ISO 14001, the HACCP and the HALAL standards, which allows a practical familiarisation of students with their requirements.

Supervised laboratory practical training in food hygiene and technology (microbiological, physico-chemical, and sensory testing of foodstuffs) is carried out in VFS practical training rooms and laboratories (Chapter 6, Table 6.5.1). The training takes place through initial demonstrations and clarifications by teaching assistants followed by supervised individual practical work of students. The objective of that teaching segment is acquisition of necessary basic knowledge and skills in:

- Microbiological, physico-chemical, and sensorial characteristics of foodstuffs of animal origin;
- Microbiological, physico-chemical, and sensory testing in line with requirements of relevant ISO methods;
- Interpretation of results of the testing in line with the relevant legislation;
- General functioning of the ISO 17025 accredited laboratories;
- Food sampling and delivery of food samples to laboratories;
- Official correspondence of food safety laboratories with veterinary inspection and other competent authorities.

Students are adequately supplied with necessary samples of the foodstuffs because a constant flow of the samples is secured through the commercial diagnostic service of our food testing laboratories accredited in accordance with the 17025 standard (Appendix 3). Teaching in physico-chemical analyses include basic (gravimetry and volumetry) and advanced laboratory techniques (ELISA, spectrophotometry), as well as observation and brief introduction in sophisticated techniques, such as high-performance liquid chromatography, gas chromatography, gas spectrometry and other.
4.1.6 RATIOS

These must be delineated from Table 4.1, 4.2 and 4.3. For explanation about ratios, see the section 'Main Indicators' of Annex I. The indicator derived from the ratios established is the denominator when the numerator is set $1^{33}$.

4.1.6.1 GENERAL INDICATORS TYPES OF TRAINING

As indicated in tables 4.1, 4.2 and 4.3, the figures for the numerators and denominators are defined as follows:

<table>
<thead>
<tr>
<th>Figure</th>
<th>Total no teaching hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Lectures</td>
</tr>
<tr>
<td>B</td>
<td>Seminars</td>
</tr>
<tr>
<td>C</td>
<td>Self-directed learning</td>
</tr>
<tr>
<td>D</td>
<td>Laboratory and desk based work</td>
</tr>
<tr>
<td>E</td>
<td>Non-clinical animal work</td>
</tr>
<tr>
<td>F</td>
<td>Clinical work</td>
</tr>
<tr>
<td>G</td>
<td>Other</td>
</tr>
</tbody>
</table>

> Please give the following values:

<table>
<thead>
<tr>
<th>VFS</th>
<th>EAEVE ref. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 6</td>
<td></td>
</tr>
</tbody>
</table>

$$ \frac{(D+E+F)}{(A+B+C)} = \frac{2,316}{3,576} = 0.648 \text{ Min: 0.602}$$

| R 7     |                  |

$$ \frac{(D+E)}{(A+B+C)} = \frac{1,286}{1,030} = 1.249 \text{ Max: 1.809}$$

| R 8     |                  |

$$ \frac{(A+B+C+D+E+F+G)}{C} = \frac{5,982}{1,422} = 4.207 \text{ Range: 2.59 – 46.60}$$

4.1.6.2 SPECIAL INDICATORS OF TRAINING IN FOOD HYGIENE/ PUBLIC HEALTH

<table>
<thead>
<tr>
<th>VFS</th>
<th>EAEVE ref. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 9</td>
<td></td>
</tr>
</tbody>
</table>

$$ \frac{5,982}{305} = 19.613 \text{ Range: 8.86 – 31.77}$$

| R 10    |                  |

$$ \frac{22}{305} = 0.072 \text{ Range: 0.074 – 0.556}$$

1=Total as derived in Table 4.1; 2=Total as derived in Table 4.1, subject group no. 5; 3=Figures to be taken from Table 4.5

$^{33}$ The shown equations for calculation of the ratios and their respective reference values recommended by the EAEVE are applied in accordance with the latest edition of the Supplement A, the Annex Ia (dated on February 21, 2014) of the EAEVE document “Evaluation of Veterinary Training in Europe” provided by personal E-mail communication with Professor Dr. Pierre Lekeux, Director of the EAEVE Evaluation/Accreditation Programme.
4.2 COMMENTS

Please comment on:

- The way in which the veterinary curriculum prepares the graduate for the various parts of the veterinary profession, especially under the specific conditions prevailing in your country/region.

When comparing the current VFS curriculum and the EAEVE list of core subjects, it is obvious that the most of subjects that a veterinary curriculum must include is already comprised in our curriculum, either as independent subjects or incorporated and taught in other subjects. Nevertheless, we are completely aware that some of them are missing, particularly subjects in the Professional Knowledge group, which has been tried to compensate through the teaching contents of relative subjects. By a full realisation of its curriculum, VFS prepares students for an independent professional work after graduation. Furthermore, having in mind the current development and structure of animal sector of agriculture in B&H, as well as the population of pets and the legal position of veterinary profession in the area of public health, we consider that the current VFS curriculum enables our students to gain a satisfactory level of professional knowledge and competences of a veterinary graduate. This standpoint is well practically confirmed through successful careers of our numerous graduates in various fields of veterinary medicine and science in country and abroad.

However, the lack of adequate practical training in meat examination shall be addressed as a priority (please see Chapter 6, Sections 6.2 and 6.3).

- The way the curriculum is structured and reviewed.

The current Curriculum of the Integrated First and Second Cycle Study of Veterinary Medicinerepresents a modification of the “old” (pre-Bologna) VFS curriculum, which was adjusted to the main Bologna Principles. Previous two-semester subjects were split and became one-semester subjects, named as, for example, Anatomy of Domestic Animals I and Anatomy of Domestic Animals II. Chemistry changed the name into Veterinary Biochemistry I, Physics into Biophysics in Veterinary Medicine. Also, some new core subjects have been introduced, such as Ethology and Animal Welfare (Table 4.1.1). In contrast to the “old” curriculum, a bigger pool of elective subjects has been offered. Finally, obligatory extramural work has been also introduced, which, in addition to a significant extension of teaching programme in Ambulatory Clinics throughout 3 semesters, greatly contributed to overall emphasis on the Day-One Competence assurance of our graduates.

- The major developments in the curriculum, now and in the near future.

Having in mind that a full implementation cycle of the current VFS curriculum will be completed in two years, a detailed analysis of its implementation and accomplishments has been planned. The analysis will be based on questionnaires delivered to students of the finishing year, our graduates (alumni) and various stakeholders. Such activities will be aimed toward a more precise definition of needs of national veterinary labour market as one of the main input information for creation of a new VFS curriculum. Introduction of new core subjects in line with the EAEVE propositions, reduction of the total volume of contact-hours and a better theoretical training/ practical training ratio are already obvious needs. Other amendments will be based on the detailed analysis of the existing curriculum, current legal frame of higher education and defined national needs for veterinary services and
employment. Also, a possibility to extend the study programme to 6 years will be taken into consideration, where the last year will include teaching of forensic and state veterinary medicine, extramural and diploma work.

- **The local conditions or circumstances that might influence the ratios in 4.1.6.**

Current financial instability caused by irregular and inadequate financing by the Government of the Canton of Sarajevo (Chapter 3) is the major influence on the VFS quality of veterinary education, i.e. on the scope and effectiveness of the mentioned future amendments of curriculum.

**4.3 SUGGESTIONS**

- **If the denominators in 4.1.6 for your Faculty are not meeting the range as indicated in Annex I, Supplement A, what can be done to improve the ratios?**

It may be concluded that the values of R6, R7, R8 and R9 indicators of types of training, calculated on basis of the current integrated VFS curriculum, meet the current EAEVE recommended values\(^{34}\). Similarly, the calculated value for R10 (0.072) almost meets lower level of the respective EAEVE recommended range (0.074-0.556).

However, VFS is absolutely aware of the fact and the need for certain amendments of the current curriculum, which will be driven by the EAEVE recommendations, the requests of the relevant EU regulation on veterinary profession\(^ {35}\), as well as by actual financial and other possibilities dictated by current inevitable financial situation in B&H society.

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\(^{34}\) The respective reference values recommended by the EAEVE are applied in accordance with the latest edition of the Supplement A, the Annex Ia (dated on February 21, 2014) of the EAEVE document “Evaluation of Veterinary Training in Europe” provided by personal E-mail communication with Professor Dr. Pierre Lekeux, Director of the EAEVE Evaluation/Accreditation Programme.

\(^{35}\) Directive no. 2005/36/EC and no. 2013/55/EU
Chapter 5: TEACHING AND LEARNING – QUALITY AND EVALUATION

5.1 FACTUAL INFORMATION

5.1.1 THE TEACHING PROGRAMME

- Describe the measures taken to ensure co-ordination of teaching between different departments, sections, institutes and services.

Currently, undergraduate teaching at VFS is carried out in line with two curriculums. Detailed information on VFS undergraduate curriculums is given in Chapter 4. Last amendment of the VFS curriculum was initiated and carried out within the Norwegian project „Curriculum Development According to Bologna Principles“ (more details on the project are provided in Chapter 4, Section 4.1 and in Section 5.1.2 of this Chapter). Departments, which are organisational units of VFS responsible for organisation and realisation of teaching, were obligated to propose syllabi for their respective subjects. Syllabi included the following details for each subject: general information, definition, objective and mission, position in veterinary education, types of training, expected teaching results (gained competences), compulsory and additional literature, and content of methodological units of theoretical and practical teaching. In that way amended curriculum identified and partially eliminated overlaps of teaching contents among certain functionally and substantially related subjects. Legislation1 enforces revision of curricula every 5 years in order to improve quality and efficacy of teaching process. Thus, a new revision of VFS curriculum in accordance with relevant EU legislation2 is expected.

- Describe the pedagogical approach of the institution. In particular, describe the use of newer approaches, such as problem-based learning, interactive computer-assisted learning, etc.

Undergraduate teaching at VFS is organised through lectures, practicals (supervised practical training) and seminars. Lectures are given on ex–cathedra principle with use of power point presentations. Handouts of the presentations, as supplementary learning resources, are available to students on request or by VFS E-learning system. Interaction between students and teachers is allowed during or at the end of lectures. In addition, establishment of VFS E-mail system for students and teaching staff has facilitated their electronic communication. Depending on organisational skills of teachers, availability of teaching material and teaching content itself, some lectures are given through interactive discussions and case studies. Lectures are given at the same time to all students enrolled in the same study year in line with a defined teaching schedule.

Supervised practical training (practicals) is provided for almost all core (basic and professional) subjects. It is organised in teaching laboratories, classrooms, computer laboratories, demonstration and other teaching facilities (Chapter 6), as well as in training polygons of the contracted establishments and institutions (the list of establishments is given in the Introduction). Clinical supervised training is organised in small groups of students. Detailed description of practicals is given in Chapter 4. Methodological units of practicals are thematically and chronologically synchronised with methodological content of lectures. Practicals are performed in such way that a short oral introduction and

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1The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)
2Directive no. 2005/36/EC and no. 2013/55/EU
demonstration related to the teaching content is given by the teacher, and then follows supervised hands-on work of students. Practical training in conceptual teaching contents and subjects (such as Economics of Animal Health and Production) is organised through simulation scenarios. Here is expected from students to apply methods and skills taught during the related lectures and propose approaches, answers and solutions of a fictive problem. Student performance in some of those subjects and practicals are scored, and the scores are considered for the final grade. Depending of subjects, number of students enrolled in a study year (Chapter 9), and number of working places in classrooms (Chapter 6), supervised practical training is organised in student groups of various size (Chapter 4).

Seminars are organised as independent or group work of students (small group of 3-5 students) through reviews, descriptive analyses, or mini research on assigned topics or on matters proposed by students themselves. Student work is supervised by teaching staff of the subject in question or, occasionally, by teachers of other subject related to the assignment. Curriculum hours allocated to seminars are realised as regularly or additionally scheduled consultations, which are, apart from the work on seminars, also used for other types of communication and work with students. All seminars are scored and taken into consideration for the final grade.

The VFS E-learning system was established in 2004. It operates via the link on the VFS web site. Details on the VFS E-learning system are given in Chapter 8. Every student admitted to VFS is assigned with personal E-mail address, username and password to access the E-learning system. Students of all study years are allowed to access domains of all teaching subjects that exist on the E-Learning system without any restrictions with regard to the study year in which they are currently enrolled. Since the launch of the E-learning system in 2004, the number of courses that use that learning resource has been growing. In addition to general information on teaching subjects and respective teaching materials, E-learning content provides information on course of teaching, examination terms and results, as well as on-line examinations.

- Indicate the extent to which course notes are used to supplement or substitute for the use of standard veterinary textbooks.

During the introduction hour of every subject students are informed on compulsory and recommended supplementary textbooks. Teaching staff recommend basic/compulsory textbooks available at the VFS Library or through open-access bibliographic databases (Chapter 8). Standard veterinary textbooks for almost all subjects are available at the VFS Library, which are either written in native language by domestic or other authors, or translated from foreign languages. The Library also holds a certain number of copies of renowned veterinary textbooks in foreign languages, which are available to students for use at the Library, but not to borrow. Most of the textbook authors from VFS also allow students to borrow their or textbooks of other authors that they possess, or publish PDF versions of their own textbooks on the VFS E-learning. With the exception of compulsory textbooks, supplementary textbooks are usually in foreign languages or difficult to get for students due to their availability and/or price.

In addition to textbook literature, various additional printed or electronic teaching materials are recommended to students as additional learning resources, such as teaching power

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point handouts and scripts, open-access publications (EU, FAO, OIE, etc.), research papers, relevant legislation and other publications.

- **Describe (if applicable) any established or contractual arrangements that support undergraduate teaching between the Faculty and outside bodies, e.g. farms, breeding centers, practitioners, state veterinary services, factories/processing plants, outside laboratories, etc. Briefly describe how these arrangements work out in practice in terms of the contact this provides for all students or for selected students.**

VFS has 16 contractual agreements aimed to provide conditions for extramural work and supervised practical training obligatory for all students. The list of contracted is shown in the Introduction, and it includes 11 farms (dairy and fattening cattle farms, fish farms, reproductive and fattening pig, sheep and goat farms), a field veterinary station, a ZOO garden, 2 horse stables, and an agriculture highschool with its own farm facilities). Most of the contractual agreements have been active for years, while for those established in 2013 concrete plans for organisation and realisation of teaching activities are still in a designing phase.

Besides the contractually arranged training, supervised practical teaching in subjects of some VFS departments is sporadically organised by student visits to other establishments (clinics, diagnostic laboratories and food processing units), which are based on long-term cooperation of those establishments with certain VFS departments.

- **Describe the general learning objectives underlying the veterinary curriculum and how this is ensured.**

General learning objectives are available to students in the “Student Guide”[^4]. The objectives are derived from the VFS curriculum and include:

- Knowledge on structure and function of organism of domestic animals, their genetic and physiological characteristics, and of causes of their pathological alterations;
- Knowledge on breeding and reproduction of animals, nutrition, metabolic and endocrine interactions of animal organism, importance of animal feed and hygiene in livestock production, and significance of food safety and food quality control;
- Knowledge on causative agents of animal diseases, requirements for their occurrence, particularly on infectious and parasitic diseases, their diagnostics and treatment.
- Knowledge on economics of veterinary service and adequate evaluation of expected and observed results.
- Knowledge on veterinary legislation, principles of veterinary ethics and administration procedures.

Scientific areas and professional skills covered by the current VFS curriculum comprise necessary skills and knowledge of VFS graduates defined in general teaching objectives of the veterinary study programme. Mastering the knowledge and skills offered by the teaching process is ensured by:

Defined examination policy and terms and preconditions, which ensures a continued, but also an individually adjusted process of learning and accomplishing the assigned teaching objectives;

- Stimulating the students to rationally construe and link teaching contents of different subjects with an aim to receive a complete insight in expected professional challenges and duties of a veterinarian;

- Permanent modernisation of teaching aids (computer and multimedia equipment) and teaching approaches (web-based, problem-solving oriented, interactive discussions, etc.);

- Referring students to additional sources of information and a need of continuing education through life-long learning programmes, as well as to societal and economic frameworks (national, regional, and global) in which they will build their careers;

- The 55% portion of supervised practical training in total teaching load and by extramural work of VFS students, which emphasizes a hands-on approach to acquisition of the Day-One Skills.

Describe how the Faculty collects the data required to ensure students are equipped with these Day-one skills (evidence of learning).

The main approach of VFS to ensure acquisition of the Day-One Skills is based in examinations during the study programme. After each examination term a report for every subject is created, which include number of entrants, student performance and average grade in the term. Based on those reports, the TSC VFS evaluates need to organise bonus examination terms in order to ensure that all students have enough opportunities to timely take and pass the examinations in subjects of the current study year. In addition, academic performance of students of all study years is annually presented and analysed (Section 5.1.4).

A national questionnaire survey of fellow veterinarians was done within international project “Curriculum Development According to Bologna Principles”. The total questionnaire response was more than 40%, and 83.7% of all surveyed colleagues were VFS graduates. A part of data collected by the questionnaire was addressed to evaluate knowledge and skills gained during the whole study programme, as well as of those acquired by teaching in certain groups of subjects.

5.1.2 THE TEACHING ENVIRONMENT

Describe the available staff development facilities, particularly in relation to teaching skills.

Due to an evident lack of budget funds allocated namely for development of teaching staff (Chapter 3), VFS offers relatively modest opportunities for the development and does not have a systemically designed possibilities for it. However, such shortage has been somewhat compensated by participation in various international developmental programmes and projects, such as Tempus, CEEPUS/VetNest, and others. By visits to European partner veterinary faculties through the below mentioned projects and other forms of cooperation numerous, mainly younger, teaching staff had the opportunity to develop their teaching, research, scientific and professional skills (Table 5.1.2.1).
Table 5.1.2.1: Abroad development of research, teaching and professional skills of VFS staff from 2007 to 2013.

<table>
<thead>
<tr>
<th>Skills</th>
<th>No. of abroad visits</th>
<th>≤ 1 month</th>
<th>1-3 months</th>
<th>3-6 months</th>
<th>&gt; 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>84</td>
<td>72</td>
<td>11</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Teaching</td>
<td>63</td>
<td>69</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Professional</td>
<td>78</td>
<td>78</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>225</td>
<td>213</td>
<td>11</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

As a partner, VFS so far participated in following international projects aimed to general improvement of quality of teaching process and personal skills of the teaching staff, and some of the projects are still ongoing:

- **Tempus JEP program**—project type: CARDS 2006 Curriculum Development; Project ID: 15039-2006⁵; Project title: “Restructuration and improvement of the veterinary curriculum in the Veterinary Faculty of Sarajevo”; duration: 2000-2003; Objectives: to support VFS in aspects of new curriculum, restructuration of existing and new courses, computer- and problem-based learning approach, and clinical teaching; Total budget: 362.042 EUR; Grantholder: Autonomous University of Barcelona, Veterinary Faculty (Spain); Other partners: University of Veterinary Medicine Hannover (Germany), University of Milan, Faculty of Veterinary Medicine (Italy);

- **Tempus JEP program**—project type: CARDS 2006 Curriculum Development; Project ID: 41032-2006⁶; Project title: “Sarajevo JEP II: curriculum and teacher update – ECTS”; duration: 2006-2009; Objectives: to update teaching at the VFS; to improve the knowledge and teaching skills of young teachers; to familiarize VFS to ECTS for future introduction of a credit system according to EU standards. Total budget: 223.060 EUR; Grantholder: University of Milan, Faculty of Veterinary Medicine (Italy); Other partners: University of Porto, Veterinary Faculty (Portugal); Ministry of Education and Science of the Canton of Sarajevo (B&H);

- „**Curriculum Development According to Bologna Principles**“—cooperation project between VFS and the Norwegian School of Veterinary Science - including secondary cooperation with other institutions of veterinary medicine on the Western Balkans (veterinary faculties from Zagreb (Croatia) and Skopje (FYR Macedonia). Project ID: WB 025/06⁷; The project was financed by the Norwegian Ministry of Foreign Affairs, and administered by the Norwegian Centre for International Cooperation in Higher Education (SIU), as part of the Norwegian Cooperation Programme on Research and Higher Education with the Countries on the Western Balkans (CPWB). Duration: 2006-2009. Budget: 1.491.700 NOK The main objective of this project was to adjust VFS curriculum, install ECTS and all ECTS documents, and to install the quality assurance system that would match with the veterinary studies in the countries of this region and Europe, thereby enabling the faculty to be evaluated and accredited.

- **CEEPUS Network**—VFS participated in the CEEPUS II Network from 2008 to 2010; Participation of VFS in the CEEPUS III Program from the 2010/11 to the 2013/14

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⁷http://siu.no/eng/Front-Page/Global-menu/Publications/Publication-database/(view)/463
academic year has been based on development of joint degree master study program „Veterinary Public Health Management” in cooperation with the Faculty of Veterinary Medicine of University of Zagreb (Croatia). This activity includes also ongoing exchange of teaching staff between the two faculties;

- **Cooperation with the „DOGS TRUST Foundation“, UK** — the cooperation has been realized with “Dogs Trust Bosnia and Herzegovina” through 4 single projects aimed to reduce the sources of stray dog population, provide sterilization and micro chipping of stray and owned dogs in Sarajevo region. The main educational goal of VFS partnership has been to train primarily our students, as well as other veterinarians and veterinary technicians in practical surgical sterilization techniques (ovariohisterectomy and orchietomy), premedication and anaesthesia, as well as in animal welfare. The cooperation is contracted for five years starting from 2013, with overall approximate budget of 115.000 EUR, financed entirely by the Foundation.

Ongoing and future projects and collaboration opportunities, which will provide development of VFS teaching staff include:

- **COOPERATIVE AGREEMENT** between VFS and the University of Florida, the Department of Small Animal Clinical Sciences, College of Veterinary Medicine, Gainesville, Florida (USA) from June 27, 2012. Primary objective of the Agreement is the development of cooperative efforts to enhance the academic and research interchange between the two parties;

- **TEMPUS IV - Sixth Call for Proposals - EACEA/35/2012**: IT-TEMPUS-IPCR 544182-TEMPUS-1-2013-1; - “Public Health in the Western Balkans – Improvement in the Field of Public Health and Development of a “One Health” Educational and Scientific Architecture in Western Balkan Countries”; total budget: 668,657.03 EUR; Grantholder: University of Milan, Faculty of Veterinary Medicine (Italy), Other partners: University of Sarajevo, Veterinary Faculty/Medical Faculty, (B&H), University of Porto, Institute of Biomedical Sciences (Portugal), University of Ljubljana, Veterinary Faculty (Slovenia), University of East Sarajevo, Medical Faculty Foča (B&H), University of Pristina, Veterinary Faculty, (Kosovo), Agency of Higher Education Development and Quality Assurance of Bosnia and Herzegovina, WUS - World University Service (Austria). Project goal: to build-up and/or improve the educational and scientific public health architecture in the western Balkan Project Countries and to promote a "One Health" approach as relatively new and modern a concept in addressing public health issues.

Besides the above mentioned, VFS teachers also have other opportunities to improve their teaching competences through academic exchange within the Erasmus Mundus Action II Mobility Programme organised by the VFS Commission for International Cooperation and the UNSA International Relations Office. Similar possibilities for exchange of young researchers are opened by other programmes of international cooperation, such as the

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Coimbra Group Scholarship Programme for Young Researchers from the European Neighbourhood\textsuperscript{12}.

\begin{itemize}
  \item Describe the available systems for reward of teaching excellence (e.g., accelerated promotion, prizes, etc).
\end{itemize}

Rewards for teaching and research excellence are available on VFS and UNSA levels. Current legal\textsuperscript{13} and UNSA\textsuperscript{14} regulations enable accelerated promotion for assistant professors and associate professors who display the excellence after a minimal three-year period spent in previous position. An administrative procedure for accelerated promotions is initiated by heads of organisational units of VFS. For example, during the 2012/2013 academic year such promotion was rewarded for an assistant and an associate professor of VFS.

Additionally, in line with provisions of mentioned legal and UNSA regulation, it is allowed to retired full professors to be honoured and promoted to the title “Professor Emeritus” for their life-long contribution to university teaching, research and international reputation. Certain rewards for excellent teaching, scientific and other accomplishments are also anticipated by VFS\textsuperscript{15} and UNSA\textsuperscript{16} regulations.

\begin{itemize}
  \item Describe other measures taken to improve the quality of teaching and of learning opportunities.
\end{itemize}

As previously emphasized, the existing financial instability of the whole society and particularly in the sector of higher education of B\&H disables a planned and constant allocation of budget funds for improvement of quality of teaching. However, in spite of such financial environment, VFS puts maximal efforts to support teaching quality by construction of new and renewal of existing building and equipment capacities for teaching (details are given in the Introduction). Those activities have been mainly financed through the mentioned developmental projects and resulted in establishment of the modern Library and Informatics Centre of VFS and increase of its library fund (Chapter 8), as well as in modernisation of teaching classrooms and intramural clinical capacities, and purchase of diagnostic and other equipment (Chapter 6 and the Introduction). Apart from opportunities for development of teaching skills of young academic personnel, the mentioned Tempus projects enabled publishing of textbooks written by VFS teachers. Furthermore, the above described projects resulted in exchange of VFS students and teaching staff with partner faculties, which surely contributed to overall improvement of VFS teaching quality and international experience of our students and teachers. Extent of exchange of teachers and students within the CEEPUS Network is shown in Table 5.1.2.2.

\textsuperscript{12}http://unsa.ba/s/index.php?option=com_content&task=blogcategory&id=143&Itemid=255&lang=english
\textsuperscript{13}The Act on Higher Education in the Canton of Sarajevo ("Official Gazette of the Canton of Sarajevo", no. 42/13).
\textsuperscript{14}The Statute of the University of Sarajevo from June 28, 2013.
\textsuperscript{15}Decision on Criteria and Rewards of the Veterinary Faculty of University of Sarajevo no. 02-12-706-3/09 from November 30, 2009.
\textsuperscript{16}Regulation on Rewards of the University of Sarajevo no. 02-38-1473/10 from May 13, 2010.
Table 5.1.2.2: Exchange of teachers and students within the CEEPUS Network (2008-2013).

<table>
<thead>
<tr>
<th>Academic Year*</th>
<th>No. of students</th>
<th>No. of teaching staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incoming (foreign)</td>
<td>Outgoing (domestic)</td>
</tr>
<tr>
<td>2008/2009</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>2010/2011</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>2011/2012</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2012/2013</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2013/2014**</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

*Exchange in 2009/2010 was not realized due to lack of funds from Ministry of Education and Science of Federation of Bosnia and Herzegovina; **Exchange until Dec 31, 2013.

Also, as previously described in the Introduction, Chapter 4 and in the Section 5.1.1, VFS has contracted agreements with 15 outside institutions, companies and farms in order to improve quality of extramural education, and established E-learning system (Chapter 8).

Finally, in line with the legal\textsuperscript{17} regulation and the UNSA Statute\textsuperscript{18}, the Quality Assurance Committee of VFS (QAC VFS) was appointed\textsuperscript{19} with the main duty to work on fulfilling the objectives set by the VFS 2012-2022 Strategy\textsuperscript{20}. Detailed description of duties and main activity of QAC VFS are defined by the UNSA Statute and include:

- Organisation, coordination and realisation of the process of quality assurance and improvement at VFS level;
- Drafting project proposals in the scope of quality assurance;
- Evaluation of effectiveness of study programs and identification of causes of a low-quality and unsuccessful teaching process;
- Development of indicators to observe trends of VFS teaching quality;
- Making and presentation of annual reports in line with assigned jurisdictions;
- Other duties related to quality assurance assigned by VFS administrative bodies.

Since its appointment QAC VFS actively works with the main accent on student evaluation of quality of VFS undergraduate study programme by anonymous on-line questionnaire, as well as to define measures to improve the quality of teaching in accordance with available finances. The QAC VFS work is transparent and all documents, instructions and other publications are on-line available to VFS teaching staff\textsuperscript{21} and students are informed about QAC VFS activities via VFS web-site link\textsuperscript{22}. It is important to emphasize that QAC VFS plays a leading organisational and coordinating role in making of this SER, in realisation of the EAEVE consultative on-site visitation of VFS, as well as in all VFS activities related to the EAEVE and collaboration with the Quality Assurance Committee of UNSA.

\textsuperscript{17}The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).
\textsuperscript{18}The Statute of the University of Sarajevo from June 28, 2013.
\textsuperscript{19}The Decision of the Teaching and Scientific Council of VFS no. 02-05-773-3/11 from February 13, 2013.
\textsuperscript{21}http://vfs.unsa.ba/dms/course/view.php?id=6
\textsuperscript{22}http://vfs.unsa.ba/web/index.php/kvalitet/nastavni-proces
5.1.3 THE EXAMINATION SYSTEM

Describe the examination system of the Faculty, in particular:

❖ Is there a central examination policy for the Faculty as a whole? If 'yes', by whom is it decided?

The legal framework of higher education in the Canton of Sarajevo\textsuperscript{23} and the UNSA Statute\textsuperscript{24} enforce student examination policy scaled from 5 (F) to 10 (A) in line with the following scoring system:

- 10 (A) – an outstanding achievement, with no mistakes or with some insignificant errors (95-100 points);
- 9 (B) – an above average achievement, with some errors (85-94 points);
- 8 (C) – an average achievement, with reasonable errors (75-84 points);
- 7 (D) – a generally good achievement, but with significant deficiencies (65-74 points);
- 6 (E) – an achievement that fulfils minimal criteria (55-64 points);
- 5 (F, FX) – fails to fulfill minimal criteria (< 55 points).

If even one student does not earn the 95-point score (minimal for the maximal grade A), then the entire grading scale is adjusted to the best achieved examination result.

❖ Are there special periods (without teaching) during the year for examinations?

For students that study in line with the integrated curriculum (currently 1\textsuperscript{st}, 2\textsuperscript{nd}, and 3\textsuperscript{rd} study year), an examination week is provided after completion of teaching in the winter semester. Also, examinations may be organised in a 2-week break between the winter and the summer semester. After completion of teaching in the summer semester a 2-week period is provided for regular examinations, as well as the following next 2 weeks for retake examinations. In addition, examinations are organised during the summer break (8 weeks) for so-called Autumn Examination Term. Teaching and examination calendar for every academic year is defined by the TSC VFS no later than 60 days prior the commencement of teaching. Five examination cycles with 2 terms in each cycle are provided for students that study in accordance with the “old” (pre-Bologna) curriculum. Only one the examination cycles (the one in October) is organised during the teaching.

❖ What form(s) of examination are used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)?

Examination forms are legally defined\textsuperscript{25} and include written examination (test or assay), oral, and practical examination. Besides by the final examination after completion of teaching (maximal 50% of the final grade), a student’s work is continuously assessed during the semester (minimum 50 % of the final grade). If a student for her/his course work (class attendance, teaching commitment, quizzes, midterm examinations, etc.) collects a sufficient number of points to pass, she/he is not obliged to take the final examination. All of the examination forms are public. In accordance with the mentioned legal framework VFS has

\textsuperscript{23}The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).

\textsuperscript{24}The Statute of the University of Sarajevo from June 28, 2013.

\textsuperscript{25}The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).
issued the Decision on Examination Forms in the Veterinary Study Programme\textsuperscript{26}, which defines that the examination policy and forms shall be presented in syllabus for every subject. The overall final score must be 100 points, while the decision on examination forms and respective allocation of points and their distribution in the final grade shall be made at the level of teaching subjects and organisational units (departments) of VFS. Clinical examinations are done by assessment of practical skills of students in addressing concrete clinical cases, which is followed by assessment of their theoretical knowledge.

- **Is use made of external examiners?**
  No.

- **How many retakes of an examination are allowed?**

  In line with the legal provisions of higher education in the Canton of Sarajevo\textsuperscript{27} and the UNSA Statute\textsuperscript{28} a student that does not pass final examination in a subject is allowed to retake the examination only ones. If requested by the student, in the period between the regular final examination and the retake examination teaching staff shall provide consultancy and remedial teaching in total for a maximum of 4 weeks. The retake examination includes an integral assessment of entire teaching content the subject, including practical and theoretical examination. Those retake examination rules are mandatory for students enrolled in accordance with the integrated curriculum, while the students that study in line with the “old” (pre-Bologna) curriculum are allowed to retake the same final examination maximally three times, and the fourth retake examination must be done by an examination board.

  Students that do not pass the retake examination (the integrated curriculum) or the board examination (the “old” curriculum) shall repeat the academic year in question. Besides that, the students enrolled in line with the new integrated curriculum are obliged to attend the classes of the subject in which she/he did not pass the examination. A student that is unsatisfied with the final grade in a subject is allowed to submit an official request to retake the examination before the examination board. Such request must be submitted to the VFS no longer than 24 hours after notice on the final grade. To take the board examination implies a certain fee charged to the student.

- **Do students have to pass the examination within a certain time?**

  Students that study in line with the “old” curriculum are allowed to carry over final examinations in 2 subjects from the preceding to the next academic year at most, and if they carry over more than 2 of such residual final examinations, they shall repeat the preceding academic year. Students enrolled in line with the new integrated curriculum are allowed to carry over to the next academic year 6 ECTS points (or final examination in 1 subject that weights no more than 6 ECTS points) at most. The subjects that are allowed to carry over are defined for each study year (Chapter 9). A student has to pass the residual examination(s) by the end of winter semester of the next academic year. Otherwise the student is not allowed

\textsuperscript{26}The Decision on Examination Forms in the Veterinary Study Programme no. 04-01-661-3/11 from October 12, 2011.

\textsuperscript{27}The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).

\textsuperscript{28}The Statute of the University of Sarajevo from June 28, 2013.
to be enrolled in the next (summer) semester, which practically means that she/he must repeat the current academic year.

- Do students have to pass an examination before they can start other courses?
  No.

5.1.4 EVALUATION OF TEACHING AND LEARNING

- Describe the method(s) used to assess the quality of teaching and learning in the Faculty.

According to the cantonal legal provisions of higher education\(^{29}\) and the UNSA Statute\(^ {30}\), each academic year all undergraduate VFS students are allowed to participate in an on-line survey aimed to evaluate quality of teaching work of academic personnel involved in teaching of all core and elective subjects. Students anonymously answer a questionnaire that includes:

- An assessment of quality of entire teaching in the subject, as well as assessment of every teacher/assistant involved in the teaching by a scoring system from 1 (unsatisfactory) to 5 (excellent);
- Narrative comments of students on quality of teaching as a whole and on teaching work of every involved teacher/assistant with an objective to improve the teaching quality.

The students assign a score to assess the following aspects of quality of entire teaching in the subject:

- Objectives and purpose of the subject are clearly explained at the beginning of the semester;
- The course rules, student obligations and the examination policy are clearly defined, available and strictly followed;
- My previous knowledge was sufficient to effectively attend the classes;
- The examinations are balanced with information presented during theoretical and practical training;
- The assessment policy is clear, fair and transparent.
- Theoretical and practical training helped me to acquire the knowledge and skills from the subject.
- The overall quality of teaching.

Similarly, the students quantitatively evaluate the following quality aspects of individual teaching work of the academic staff involved in teaching the subject:

- Professional competence and readiness to answers the questions;
- Demonstration and explanation abilities and quality of practical examples provided in context of teaching matter;
- Teaching is interesting and includes the use of modern teaching aids and technology;
- Possess good communication skills and creates a pleasant teaching atmosphere.
- Behaves properly and respectfully.
- Available and opened for consultations.

\(^{29}\)The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).

\(^{30}\)The Statute of the University of Sarajevo from June 28, 2013.
Adheres strictly to teaching time-table.
Overall quality of teaching.

Apart from the assessment of teaching quality, in the same survey students also evaluate the quality of work of VFS support services (Student Affairs Office, Library and Informatics Centre, and cleaning service), as well as the effect of the previous survey on entire teaching quality. Design and realisation of the survey, as well as analysis and presentation of its results are responsibility of QAC VFS. The survey is realised on an anonymous and voluntarily basis. Full access to the survey results is allowed to the Dean and the QAC VFS Chair.

In line with the UNSA regulations, in addition to the students’ evaluation, VFS management shall implement an internal evaluation of work of academic personnel and of realisation of teaching process, which still needs to be done, and evaluation of quality of work of teaching staff is solely based on the students’ survey. As previously mentioned, academic performance of students of all study years is annually presented and analysed by the Vice-Dean for Education of VFS, who is a QAC VFS member as a representative of VFS management.

- **Indicate whether the evaluation is a Faculty procedure, or one set up by individual departments, by students or by individuals.**

As previously described, the students’ evaluation is commenced by VFS management and the QAC VFS in line with the mentioned regulations. In addition, it is allowed to VFS departments and teachers to do their own questionnaires.

- **Indicate the use of external evaluators.**

VFS is requested to annually fill a questionnaire prepared by the UNSA Quality Assurance Committee for the purpose of UNSA internal evaluation and the UNSA Self Evaluation Report. At the UNSA level, the University Quality Report is issued annually and discussed at the University Senate. UNSA is currently in the phase of preparation for external evaluation and accreditation by the HEA. UNSA also strongly encourage all the member faculties to apply for own professional international external evaluations, such as the EAEVE evaluation.

At the moment VFS has 10 testing laboratories that are accredited according to ISO 17025, which are annually evaluated by the Institute for Accreditation of Bosnia and Herzegovina, a bilateral signatory of the European Accreditation Multilateral Agreement, which practically implies an external evaluation and accreditation of VFS management, as well as of personnel, equipment and working conditions for research work.

- **Describe the role of students in the evaluation of teaching and teachers.**

As previously mentioned, VFS students have an essential role in the evaluation of teaching and teachers. They actively participate in work of QAC VFS by their representative, the President of the Association of Students of Veterinary Faculty Sarajevo (ASVF), as well as in creation and administration of the survey. Having in mind that participation of students in the survey is still on a voluntarily basis, and that the evaluation was done for two last

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31 The Statute of the University of Sarajevo from June 28, 2013.
32 The Regulation on Human Resource Management at the University of Sarajevo, no. 02-34-304/12 from May 14, 2012.
academic years (2011/2012 and 2012/2013) only, QAC VFS organizes meetings with student representatives to motivate them to participate in the survey as much as possible. In addition, all students are free to contact (anonymously or unanimously) QAC VFS to solve any of current possible problem with teaching process and/or staff, with guaranteed confidentiality. Similarly, students have possibility to directly contact the Vice-Dean for Education, who is also representative of the VFS management in QAC VFS.

- Describe the follow-up given to the evaluation.

As already mentioned above, QAC VFS is responsible for analyzing, presentation and distribution of the results of students’ evaluation. As the cut-off value for a minimal acceptable result in evaluation of teaching quality for each subject and teacher, an average score of 3.0 and absence of negative comments has been proposed by QAC VFS. As previously mentioned, the students’ evaluation was done for two last academic years, and VFS QAC is strongly determined to improve its design and efficacy.

After the analysis, VFS management organizes a thematic session of the TSC VFS, where QAC VFS presents the average results of student evaluation for each teacher, subject and department, compares them with previous results, and proposes the measures for improvement. The session is opened and all the students are invited to attend and participate. Within this session the results of annual analysis of academic achievement of VFS students are also presented. Complete and detailed questionnaires are confidentially distributed to the Heads of Departments of VFS (Appendix 2), who are responsible to:

- Distribute personal results to each evaluated member of the Departments’ teaching staff;
- Discuss personal results with each of the staff and define corrective activities in case of unsatisfactory results of students’ evaluation;
- Organise a staff session to analyze the results in depth and define possible corrective activities at departmental level;
- Submit an official report on above actions to the VFS Dean and QAC VFS.

The presentations of average results of students’ evaluation are available to all teaching staff by the QAC VFS web portal. The Dean is supposed to react when score for a particular teacher is inappropriate. However, current legal regulations do not clearly define measures to be taken if a member of academic staff is negatively evaluated by students.

5.1.5 STUDENT WELFARE

- Describe any measures taken to protect students from zoonoses (e.g. rabies) and physical hazards.

36 The Act on Higher Education in the Canton of Sarajevo ("Official Gazette of the Canton of Sarajevo", no. 42/13).
37 The Statute of the University of Sarajevo from June 28, 2013.
38 The Regulation on Quality Management at the University of Sarajevo no. 02-34-933/11 from July 20, 2011
39 The Regulation on Human Resource Management at the University of Sarajevo, no. 02-34-304/12 from May 14, 2012.
Insurance that covers risks of possible physical injuries of students and other risks during the teaching is paid by students themselves as a mandatory registration fee for each academic year. However, VFS does not provide vaccination against zoonoses for students or teaching and technical staff. The only preventive measure is wearing the protective clothes, shoes, masks and gloves, which again is not a clearly enforced measure.

- **Describe the facilities (not related to the teaching programme) which the establishment provides for students.**

All VFS students are organised within the Association of Students of Veterinary Faculty Sarajevo (ASVF), which is an IVSA member and organisationally and financially fully independent from VFS, and the ASVF President is a full member of QAC VFS. Currently VFS provides a room for ASVF, but every request for additional space needed for realisation of various ASVF activities is fulfilled. It is important to underline that there is ongoing reconstruction and renewal of the VFS Library and future VFS Student Club partially financed by local community. In addition, VFS provides a free Wi-Fi access ad E-mail addresses for all students, as well as IT facilities in the VFS lobby and the VFS Library (14 PCs in total) for a free student work during the working hours (on week days from 07 to 14 hours).

As the ASVF members, VFS students are also members of the Student Parliament of the University of Sarajevo (SPUS), an umbrella organisation that represents the interests of 55,000 of UNSA students. SPUS organises various social, cultural and sport activities, as well as different forms of international cooperation, and pro bono legal assistance to students. Also, in cooperation with the UNSA Rectorate, SPUS organises scholarship funds for the „SuadaDilberović Foundation“. Student public housing capacity in Sarajevo includes two dormitories. All subsidies for student housing are responsibility of cantonal ministries for education.

- **Describe the guidance offered by the Faculty (or its parent institution) for students with problems (social problems, study problems) as well as for future career development or job selection.**

VFS has published “Student Guide”, which is available to domestic and foreign students in hard-copy and electronic form, and provides all necessary information on the Faculty, the study programme and examination policy, knowledge and skills and the professional degree earned after graduation, as well as about student health care and housing, possibilities for international student exchanges and future career challenges and opportunities for a doctor of veterinary medicine. In addition, since 2012 VFS has been organising a VFS Open Doors Day event intended to provide all needed information to future students, which allows them to assess their personal capacities and decide on future enrolment.

A regular VFS practice is an annual appointment of advisors for each study year, which are responsible to provide help and support to students in solving their problems and in their adaptation to university environment. In addition, unlike many other UNSA faculties, VFS is known among UNSA students as a faculty with very friendly and opened student-teacher relations, where the teaching staff is ready and willing to help students in line with financial and other possibilities.

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41. [http://www.spus.ba](http://www.spus.ba)
VFS and UNSA do not have any official body strictly appointed for help to students in their career development or job selection, but our students are more than welcome to contact any of the teaching staff or VFS management structures or persons with regard to these issues.

As already mentioned, SPUS provides pro bono legal assistance to students, as well as help with employment in terms of guidance in writing resumes and filing job applications. As previously described (Section 5.1.2), international student exchange are well organised by the UNSA International Relations Office\textsuperscript{43} and the VFS Commission for International Cooperation\textsuperscript{44}, which provide students with all necessary information, instructions and help for application to the mentioned programmes of student mobility and international cooperation.

VFS also stimulates all self-financing students who complete an academic year with a GPA of 8.0 or higher by exempting them from the annual tuition fee (approximately. 1,500 EUR), i.e. VFS re-classifies them as budget-financed students in further study.

5.2 COMMENTS

\begin{itemize}
  \item Please give general comments about the quality of the teaching programme under the above headings.
\end{itemize}

5.2.1 The teaching programme

Administrative system of B&H is very complicated and proven as a dysfunctional and a slow administration in many spheres, particularly in the domain of legislation and management of higher education, whether it is organised in public or private establishments. As a member of the largest and the oldest university in B&H, VFS is the only veterinary higher education institution in the country. Regardless of a nominal legal\textsuperscript{45} proclaiming of veterinary medicine and education as activities of a high national interest, functional solutions of jurisdictions, financing and regulation of veterinary education is practically reduced to level of the Canton of Sarajevo. Thus, even though VFS enrols students from all over the country and educates veterinarians with regionally and internationally recognised qualifications, financing of our undergraduate teaching programme is reduced to just an administrative unit of B&H (the Canton of Sarajevo), which manages less than 10\% of the total budget incomes in B&H, has a 11.5\% of the total B&H population and makes less than 2.5\% of the total B&H surface. Regardless of the fact that significant steps forward have been lately made in the field of legislation of higher education, effect of the current legal solutions has been greatly damaged by a chaotic system of funding of UNSA and VFS. In fact, the funds allocated from the cantonal Government for payment of regular fixed costs are inadequate, irregular and decreasing (Chapter 3). Those allocations do not include funds for development of teaching staff, improvement of the teaching process, curriculum, and student standard or for research projects. In spite of the legally enforced\textsuperscript{46} obligation to financially support innovations of curricula, those financial allocations are not foreseen in the budget of the

\textsuperscript{43}\url{http://unsa.ba/s/index.php?option=com_content&task=blogcategory&id=121&Itemid=176&lang=english}

\textsuperscript{44}\url{http://vfs.unsa.ba/web/index.php/internationality}

\textsuperscript{45}The Act on Veterinary Medicine in Bosnia and Herzegovina („Official Gazette of B&H“, no. 34/02).

\textsuperscript{46}The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).
Canton of Sarajevo. By its own engagement through various international projects and by donation financing VFS has started the process of amendment and modernisation of undergraduate curriculum. However, such projects are limited in time, and the needs for a permanent improvement and sustainability of the teaching quality in veterinary medicine are constant and increasing.

During the recent years certain number of the teaching personnel and the VFS management have displayed an appreciation and commenced formal activities toward improvement of curriculum and introduction of a process which will allow a continued evaluation and a quality assurance of the VFS study programme.

Significant hesitations among VFS students and teachers, as well as difficulties in organisation of teaching and examinations results from the two parallel curricula, with a great likelihood for further complications after the next planned revision of the integrated curriculum.

On the other side, during the last revision of the curriculum a significant reluctance to changes has been observed among the teaching staff, and thus, numerous opportunities to improve and synchronise the curriculum (for instance, the Norwegian project mentioned in the Section 5.1.2) were missed due to the lack of willingness and quorum for radical changes. The observed resistance partially derives from the fear that changes in number of curriculum hours would lead to a decrease of work load of some teachers, which would negatively reflect their salaries. It is important to underline the inadequate current systematisation and norms of teaching personnel enforced by the Government of the Canton of Sarajevo, which defines calculation of personal workload of the teachers solely on the number of curriculum hours, and which is therefore in conflict with the Bologna Principles. The other reason is functioning of VFS in an unchanged, centralistic and stable system for more than 50 years, which created a change-reluctant standing that may be observed worldwide at many universities with a long-time tradition.

Organisation of pedagogic education for UNSA teaching staff is sporadic and slow. The teaching dynamics and animation of students primarily depend on personal pedagogic abilities of every teacher and experiences gained during her/his formal academic and continuing education. The need to standardize pedagogic approaches through an organised education in contemporary pedagogic approaches to teaching is evident, which shall be followed by a relaxation of interactive student-teacher communication parallel with maintenance of the necessary level of authority of the teacher in a way other than by a titular distance and autocracy.

The contracted cooperation with external establishments in order to provide polygons for practical teaching and extramural work is modest, but also difficult. In the centralistic political system in which VFS was founded, all agriculture production and processing companies were state-owned, which enabled many opportunities to support the veterinary education. Nowadays, most of those companies are private-owned and strictly business-oriented, and therefore, reluctant to allow access to students in their production facilities in order to prevent any disturbance of the production process and achieved quality standards. Achievement of the teaching objectives and documentation of the gained knowledge and skills of VFS students and graduates is only observed through examination activities. Experiences of the survey of fellow veterinarians indicate that similar assessments would be
a good resource of information on professional challenges of our graduates, and on
expectations of their first employers.

5.2.2 The teaching environment

Having in mind difficult financial situation of the whole society, it may be concluded that VFS provide a maximum to ensure as quality teaching environment as possible through international exchange of teaching personnel and improvement of teaching space and equipment. However, having in mind high financial demands of veterinary education and very fast technological advancements in veterinary science and profession, the current level of the teaching environment must be permanently improved and modernised to provide as better teaching quality as possible.

The existing legal framework of higher education in the Canton of Sarajevo\(^47\) foresees stimulation of teachers by means of accelerated promotions only with regard to their excellent research work, without taking into consideration results in quality assessment of their teaching performance either by students or the Faculty management, which significantly discourages young teaching personnel regarding their efforts to reach a teaching excellence.

5.2.3 The examination system

Introduction of a transparent and uniform examination system has been positively evaluated by VFS teachers and students.

Most of VFS students rarely take final examinations immediately after completion of the teaching and use their right to carry over final examinations in allowed subjects in the next academic year. Such phenomenon may be attributed to:

- An excessive work load of students in certain subjects,
- An excessive number of different examination forms compulsory to take during the course work to form the final grade,
- An absence of motivation of students for a continuous work and timely examinations due to the available tuition-fee education system, an excessive number of allowed repetitions of study years free of charge, a low demand for veterinarians on the domestic labour market, discouraging salaries for veterinarians (particularly for young apprentice veterinarians), and finally due to a general perception of local employers and veterinary graduates that the graduation implies just earning the degree, but not achievement of a set of competences and skills that require continuous improvements.

5.2.4 Evaluation of teaching and learning

During the last two years QAC VFS has made a great step forward toward a central positioning of students as VFS service users and their essential role in evaluation of teaching quality in all core and elective subjects, as well as of the entire VFS teaching and support staff. As a result of those activities a positive change in perception of the importance of quality assurance and of opinion of students has been observed among the teaching staff. On the other side, there is an evident, but to a smaller extent, change in thinking and perception of students of their importance in the overall quality assurance process, which

\(^{47}\)The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).
may be illustrated by a still insufficient response rate to the voluntarily evaluation of teaching and teaching staff.
A part of the VFS quality assurance system which certainly requires an additional improvement is the internal evaluation of teaching staff by the VFS management, as well as the corrective measures of the management toward the teaching staff which were negatively evaluated by the students. However, bearing in mind that the definition of effective corrective measures undoubtedly belongs to the domain of labour rights of all employees, the needed measures surely require a more precise legal framework.

5.2.5 Student welfare
The major VFS failure in the sphere of assurance of student welfare is lack of vaccination against zoonoses of students, as well as of teaching and technical personnel. Such a deficiency may be partially explained by the general financial shortage, which certainly shall be not the justification and the VFS management must provide an efficient preventive health care for the students and the staff at any cost.
Having in mind circumstances at the most of other UNSA faculties and the limited financial capacity of VFS, it may be concluded that the other aspects of student welfare are at an acceptable level, which undoubtedly does not prevent the Faculty to continuously work on improvement of student welfare.

5.3 SUGGESTIONS
5.3.1 The teaching programme
- To ensure an institutional technical and financial support to the teaching process and its quality assurance system, as well as to following revisions of the VFS curriculum.
- To use the planned next revision of the VFS curriculum for a better synchronisation and improvement of quality of the study programme in line with the Day-One Competences enforced by the EU legislation. 48
- To try to assure additional financial sources other than the cantonal budget to improve quality of the study programme.

5.3.2 The teaching environment
- To define an internal reward system for the teaching personnel who are continuously evaluated by students as excellent teachers, that is to those teachers who are willing to introduce new teaching methods and improve quality of the teaching process.

5.3.3 The examination system
- Further improvement and adjustment of examination methods to correct the observed negative tends.

5.3.4 Evaluation of teaching and learning
- To promote general importance of the VFS quality assurance system by assignment of higher management authorities. For example, to appoint the VFS Dean for Quality Assurance, who would be responsible for the entire VFS quality assurance system (the teaching process and the testing laboratories).

48Directive no. 2005/36/EC and no. 2013/55/EU
- To work on establishment of the system for internal evaluation of teaching personnel by the VFS management.
- To supply VFS internal regulation basis for improvement of the quality assurance system with regard to a more precise definition of corrective measures to be taken for teachers who have been continuously negatively evaluated by students.
- To officially ensure consideration of results of evaluation of quality of teaching work as a criterion for academic promotion of the teaching personnel.
- The current voluntarily quality evaluation of the VFS teaching process by students should become obligatory to increase its sample size and power.

5.3.5 Student welfare

- To unavoidably provide vaccination against zoonoses for all VFS students and relevant teaching and technical staff by requesting funds for the vaccination from relevant competent authorities (ministries for education and health), as well as from non-government and professional organisations. Leastways, officially request the vaccination from students as a personal act to be done prior to their enrolment in VFS.
Chapter 6: FACILITIES AND EQUIPMENT

6.1 FACTUAL INFORMATION

6.1.1 PREMISES IN GENERAL

Please give a general description of the site(s) and buildings occupied by the Faculty and include a map.

The Veterinary Faculty, University of Sarajevo (VFS) is located in the central part of Sarajevo (Dolac Malta), at number 90 Zmaja od Bosne Street. VFS is housed in a four-story building of the total surface of 12,310 m². The total surface of the site, including the courtyard and surrounding land, is 8,600 m² (Picture 6.1; Picture 6.2). All teaching, diagnostic, clinical and administrative resources of VFS are situated in the building. In addition, VFS owns a land parcel outside the city, on Stup site (Ismeta Alajbegovića Šerbe Street, western Sarajevo vicinity; Picture 6.3), with 9,257 m² of total surface with 3 buildings (Picture 6.4). Two of the buildings (1,458 m² of total surface) are in a final phase of reconstruction and equipment purchasing, while the third building is in an administrative phase of preparation for reconstruction.

Picture 6.1: Excerpt from land-registry plan of the VFS main building and pertaining land.
Picture 6.2: Location of the main VFS building.

Picture 6.3: Display of locations of the main VFS building in Dolac Malta locality and of the VFS buildings in Stup locality.
Picture 6.4: Map of the buildings in Stup locality (under reconstruction).

6.1.2 PREMISES USED FOR CLINICS AND HOSPITALISATION

- The information to be entered in Table 6.1 is the number of animals that can be accommodated, not the number of animals used. Certain premises may be used to accommodate different species of animal. If so, the same premises should be entered only once.

Table 6.1: Places available for hospitalisation and animals to be accommodated

<table>
<thead>
<tr>
<th></th>
<th>Species</th>
<th>No. places</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular hospitalisation</td>
<td>cattle</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>horses</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>small ruminants</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>pigs</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>dogs</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>cats</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>other&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0</td>
</tr>
<tr>
<td>Isolation facilities</td>
<td>farm animals and horses</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>small animals</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>other&lt;sup&gt;1&lt;/sup&gt;</td>
<td>0</td>
</tr>
</tbody>
</table>

<sup>1</sup> please specify
6.1.3 PREMISES FOR ANIMALS

- Give a description of the facilities for rearing and maintaining normal animals for teaching purposes.

If the Faculty has no farm of its own, please explain in the SER the practical arrangements made for teaching such subjects as animal husbandry, herd health, and the techniques of handling production animals.

VFS does not possess own farms or premises for keeping healthy animals, but uses the premises of farms and other institutions based on contracted cooperative agreements mentioned in the Introduction and in Chapter 4, Section 4.1.4. Also, practical training in animal husbandry and animal production is carried out by one-day visits to farms of establishments with whom VFS does not have contractual agreements, but based on personal engagement of teachers responsible for the teaching in question and their cooperation with owners of those farms. Similar visits are carried out to provide practical training in subjects Breeding, Production and Health Protection in Poultry Farming I, Breeding, Production and Health Protection in Poultry Farming II, Zoohygiene and Prophylaxis of Animal Diseases I, and Zoohygiene and Prophylaxis of Animal Diseases II.

Techniques of handling production animals are taught during practical field training in clinical subjects (Physiology and Pathology of Reproduction of Domestic Animals I, Physiology and Pathology of Reproduction of Domestic Animals II, Obstetrics and Udder Diseases I, Obstetrics and Udder Diseases I, and Ambulatory Clinics I), as well as during the extramural work. Respective numbers of animals and description of the activities are defined in Chapter 7, and Chapter 4, Sections 4.1.3 and 4.1.4.

6.1.4 PREMISES USED FOR THEORETICAL, PRACTICAL AND SUPERVISED TEACHING

- The same room should not be entered under two or more headings, even if it is used, for example, for both practical and supervised work.

Table 6.2: Premises for clinical work and student training

<table>
<thead>
<tr>
<th></th>
<th>no. consulting rooms</th>
<th>no. surgical suits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small animals</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Equine and food animals</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Other†</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

* All premises for surgical and other interventions, including necropsy premise are located at the Department for Pathology; †= please specify;
### Table 6.2.1: Capacity, utilisation, and quality of premises for clinical work and student training

<table>
<thead>
<tr>
<th>Clinical department/Premise</th>
<th>Room no.</th>
<th>Purpose</th>
<th>Surface (m²)</th>
<th>No. of working places</th>
<th>Curriculum hours per week</th>
<th>Teaching quality score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Internal Diseases/Consultation Room no.1</td>
<td>-</td>
<td>S</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2. Internal Diseases/Consultation Room no.2</td>
<td>-</td>
<td>S</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3. Internal Diseases/Consultation Room no.3</td>
<td>-</td>
<td>S</td>
<td>13</td>
<td>10</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4. Internal Diseases/Consultation Room no.4</td>
<td>-</td>
<td>S</td>
<td>13</td>
<td>10</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>5. Internal Diseases/Consultation Room no.5</td>
<td>-</td>
<td>S</td>
<td>19.4</td>
<td>10</td>
<td>OIN</td>
<td>5</td>
</tr>
<tr>
<td>6. Internal Diseases/Consultation Room no.6</td>
<td>-</td>
<td>S</td>
<td>18.5</td>
<td>10</td>
<td>OIN</td>
<td>5</td>
</tr>
<tr>
<td>7. Surgery/Consultation Room</td>
<td>-</td>
<td>S</td>
<td>18</td>
<td>3</td>
<td>OIN</td>
<td>3</td>
</tr>
<tr>
<td>8. Surgery/Surgery Room 1</td>
<td>-</td>
<td>S</td>
<td>2.3</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>9. Surgery/Surgery Room 2</td>
<td>-</td>
<td>S</td>
<td>12.6</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>10. Surgery, Surgery Room 3</td>
<td>-</td>
<td>S</td>
<td>23.6</td>
<td>3</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>11. Roentgen/X-ray Diagnostics Room</td>
<td>015</td>
<td>S</td>
<td>23.6</td>
<td>6</td>
<td>OIN</td>
<td>2</td>
</tr>
<tr>
<td>12. Obstetrics/Surgery Room</td>
<td>030</td>
<td>S</td>
<td>18.7</td>
<td>6</td>
<td>OIN</td>
<td>2</td>
</tr>
<tr>
<td>13. Obstetrics/Postoperative Care Room</td>
<td>031</td>
<td>S</td>
<td>18.7</td>
<td>6</td>
<td>OIN</td>
<td>2</td>
</tr>
<tr>
<td>14. Pathology/Necropsy Hall</td>
<td>-</td>
<td>S/L</td>
<td>140</td>
<td>16</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

*S = small animals; S/L = small and large animals; * an approximate score for teaching quality of the premise interior design, furniture, teaching aids and equipment (1-unsatisfactory; 5 – excellent); OIN = occasionally if needed – occasionally used for teaching if needed.

### Table 6.3: Premises for lecturing

<table>
<thead>
<tr>
<th>Number of places per lecture hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hall no.1</td>
</tr>
<tr>
<td>Places</td>
</tr>
</tbody>
</table>

Total number of places in lecture halls: 683

### Table 6.3.1: Capacity, utilisation, and quality of premises for lecturing

<table>
<thead>
<tr>
<th>Title</th>
<th>Room no.</th>
<th>Surface (m²)</th>
<th>No. of places</th>
<th>Curriculum hours per week</th>
<th>Teaching quality score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Amphitheatre</td>
<td>-</td>
<td>390</td>
<td>400</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td>2. Classroom (for 2nd year students)</td>
<td>161</td>
<td>90</td>
<td>76</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>3. Classroom (for 3rd year students)</td>
<td>321</td>
<td>88.2</td>
<td>72</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>4. Classroom (for 4th year students)</td>
<td>124</td>
<td>73.8</td>
<td>69</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>5. Classroom (for 5th year students)</td>
<td>210</td>
<td>96.6</td>
<td>66</td>
<td>31</td>
<td>3</td>
</tr>
</tbody>
</table>

* An approximate score for teaching quality of the premise interior design, furniture, teaching aids and equipment (1-unsatisfactory; 5 – excellent)
Table 6.4: Premises for group work (Number of rooms that can be used for supervised group work).

<table>
<thead>
<tr>
<th>Room no.</th>
<th>no.1</th>
<th>no.2</th>
<th>no.3</th>
<th>no.4</th>
<th>no.5</th>
<th>no.6</th>
<th>no.7</th>
<th>no.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Places</td>
<td>30</td>
<td>15</td>
<td>30</td>
<td>25</td>
<td>12</td>
<td>16</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Room no.</td>
<td>no.9</td>
<td>no.10</td>
<td>no.11</td>
<td>no.12</td>
<td>no.13</td>
<td>no.14</td>
<td>no.15</td>
<td>no.16</td>
</tr>
<tr>
<td>Places</td>
<td>16</td>
<td>40</td>
<td>16</td>
<td>25</td>
<td>20</td>
<td>10</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Room no.</td>
<td>no.17</td>
<td>no.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Places</td>
<td>32</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of places in rooms for group work: 366

Table 6.4.1: Capacity, utilisation, and quality of premises for group work

<table>
<thead>
<tr>
<th>Department/Subject/Premise</th>
<th>Room no.</th>
<th>Surface (m²)</th>
<th>No. of places</th>
<th>Curriculum hours per week</th>
<th>Teaching quality score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anatomy/Practical Training Room 1</td>
<td>063</td>
<td>111.3</td>
<td>30</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>2. Anatomy/Practical Training Room 2</td>
<td>061</td>
<td>34.9</td>
<td>15</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>3. Anatomy/Anatomical Museum 1</td>
<td>181</td>
<td>112.5</td>
<td>30</td>
<td>OIN</td>
<td>4</td>
</tr>
<tr>
<td>4. Anatomy/Anatomical Museum 2</td>
<td>184</td>
<td>78.7</td>
<td>25</td>
<td>OIN</td>
<td>4</td>
</tr>
<tr>
<td>5. Biology/Practical Training Room</td>
<td>338</td>
<td>63.7</td>
<td>12 (10 microscopes)</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>6. Biophysics/Practical Training Room</td>
<td>016a</td>
<td>36.5</td>
<td>16</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>7. Histology/ HistLab</td>
<td>157</td>
<td>32.1</td>
<td>14 (7 PCs with microscopes)</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>8. Animal Husbandry/ StocLab</td>
<td>113</td>
<td>31.7</td>
<td>10 (10 PCs)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>9. Physiology/ FizLab</td>
<td>412</td>
<td>43.7</td>
<td>16 (8 PCs)</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>10. Pathology/Practical Training Room</td>
<td>068</td>
<td>53.1</td>
<td>40</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>11. Pathology/Pathological Museum</td>
<td>192b</td>
<td>53.4</td>
<td>16</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>12. Pharmacology/Practical Training Room</td>
<td>424</td>
<td>55.6</td>
<td>25</td>
<td>8.5</td>
<td>5</td>
</tr>
<tr>
<td>13. Obstetrics/Small Training Room</td>
<td>032</td>
<td>45.8</td>
<td>20</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>14. Roentgenology/Practical Training Room</td>
<td>015a</td>
<td>36.5</td>
<td>10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>15. Radiobiology/Practical Training Room</td>
<td>015b</td>
<td>16</td>
<td>15</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Economics/Training Room</td>
<td>-</td>
<td>73.7</td>
<td>30</td>
<td>5.5</td>
<td>4</td>
</tr>
<tr>
<td>17. VFS Library and Informatics Centre/Multimedia Room</td>
<td>-</td>
<td>60</td>
<td>32 (22 PCs)</td>
<td>OIN</td>
<td>5</td>
</tr>
<tr>
<td>18. State and Forensic Medicine/ Small Training Room</td>
<td>400</td>
<td>25.5</td>
<td>10</td>
<td>OIN</td>
<td>2</td>
</tr>
</tbody>
</table>

* An approximate score for teaching quality of the premise interior design, furniture, teaching aids and equipment (1-unsatisfactory; 5 – excellent); OIN = occasionally if needed – occasionally used for teaching if needed.

Table 6.5: Premises for practical work (Number of laboratories for practical work by students)

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>no.1</th>
<th>no.2</th>
<th>no.3</th>
<th>no.4</th>
<th>no.5</th>
<th>no.6</th>
<th>no.7</th>
<th>no.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Places</td>
<td>12</td>
<td>16</td>
<td>4</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Laboratory</td>
<td>no.9</td>
<td>no.10</td>
<td>no.11</td>
<td>no.12</td>
<td>no.13</td>
<td>no.14</td>
<td>no.15</td>
<td>no.16</td>
</tr>
<tr>
<td>Places</td>
<td>4</td>
<td>4</td>
<td>24</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Laboratory</td>
<td>no.17</td>
<td>no.18</td>
<td>no.19</td>
<td>no.20</td>
<td>no.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Places</td>
<td>6</td>
<td>20</td>
<td>10</td>
<td>24</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of places in laboratories: 204
Table 6.5.1: Capacity, utilisation, and quality of premises for practical work

<table>
<thead>
<tr>
<th>Department/Subject/Laboratory</th>
<th>Room no.</th>
<th>Surface (m²)</th>
<th>No. of places</th>
<th>Curriculum hours per week</th>
<th>Teaching quality score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anatomy/ Dental Morphology Lab</td>
<td>060</td>
<td>50</td>
<td>12</td>
<td>OIN</td>
<td>4</td>
</tr>
<tr>
<td>2. Biochemistry/Practical Training Room</td>
<td>306</td>
<td>64.4</td>
<td>16</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>3. Histology/ Lab</td>
<td>158</td>
<td>20.9</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4. Physiology/Lab</td>
<td>435</td>
<td>42.9</td>
<td>20</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>5. Physiology/Lab</td>
<td>438</td>
<td>15.4</td>
<td>5</td>
<td>OIN</td>
<td>3</td>
</tr>
<tr>
<td>6. Physiology/Lab</td>
<td>439</td>
<td>15</td>
<td>5</td>
<td>OIN</td>
<td>3</td>
</tr>
<tr>
<td>7. Pathologic Physiology/ Practical Training Room</td>
<td>431</td>
<td>29.6</td>
<td>6</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>8. Parasitology/ Practical Training Room</td>
<td>319</td>
<td>29.8</td>
<td>7</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>9. Parasitology/Lab</td>
<td>340</td>
<td>22.8</td>
<td>4</td>
<td>OIN</td>
<td>5</td>
</tr>
<tr>
<td>10. Parasitology/Lab</td>
<td>341</td>
<td>15.1</td>
<td>4</td>
<td>OIN</td>
<td>5</td>
</tr>
<tr>
<td>11. Microbiology/ Practical Training Room</td>
<td>211</td>
<td>67.8</td>
<td>24</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>12. Animal Nutrition/ Lab for AAS</td>
<td>253</td>
<td>19.8</td>
<td>4</td>
<td>OIN</td>
<td>4</td>
</tr>
<tr>
<td>13. Animal Nutrition/ Practical Training Room</td>
<td>254</td>
<td>18.6</td>
<td>4</td>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>14. Animal Nutrition / Feed Analyses Lab</td>
<td>257</td>
<td>38.4</td>
<td>6</td>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td>15. Animal Nutrition / Feed Analyses Lab</td>
<td>258</td>
<td>37.8</td>
<td>6</td>
<td>OIN</td>
<td>2</td>
</tr>
<tr>
<td>16. Pathology/ Histopathology Lab</td>
<td>192a</td>
<td>53.4</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>17. Bee Diseases/ Lab</td>
<td>235 (L6)</td>
<td>14.8</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. Infectious Diseases/Serology Lab</td>
<td>236-238</td>
<td>48.9</td>
<td>20</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>19. Infectious Diseases/ Rabies Diagnostic Lab</td>
<td>250</td>
<td>36</td>
<td>10</td>
<td>OIN</td>
<td>3</td>
</tr>
<tr>
<td>20. Food Hygiene/Food Microbiology Lab</td>
<td>239-241</td>
<td>97.7</td>
<td>24</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>21. Food Hygiene/Food Chemistry Lab</td>
<td>238</td>
<td>36</td>
<td>12</td>
<td>0.5</td>
<td>4</td>
</tr>
</tbody>
</table>

* An approximate score for teaching quality of the premise interior design, furniture, teaching aids and equipment (1 - unsatisfactory; 5 – excellent); OIN = occasionally if needed – occasionally used for teaching if needed.

Please give a brief description of health and safety measures in place in the premises for practical work and in the laboratories to which undergraduate students have access.

During the practical training students are obligated to wear protecting clothes (lab coats), as well as protective gloves and masks if needed. During the necropsies students wear protective boots, aprons and gloves.

6.1.5 DIAGNOSTIC LABORATORIES AND CLINICAL SUPPORT SERVICES

- Diagnostic laboratories.

Briefly describe the facilities available for clinical diagnostic work.

Clinical diagnostic facilities include 3 laboratories:
- A central clinical laboratory,
- A dermatological laboratory
- The Laboratory for Andrology and Gynaecology.

The central clinical laboratory is located at the VFS Clinics, Department for Internal Diseases of Domestic Animals in a separate room (20 m²). It is equipped for carrying out all necessary routine blood analyses (blood counts, haematological and biochemical parameters, hormones), as well as urine analyses. Important laboratory equipment includes:
- Haematological analyser QBC Vet Auto Reader® (IDEXX Laboratories, Inc., USA),
- Haematological analyser Vet Lab Station® (IDEXX Laboratories, Inc., USA),
- Biochemical blood analyser Vet Test 8008® (IDEXX Laboratories, Inc., USA),
- Blood electrolyte analyser VET LYTE Electrolyte® (IDEXX Laboratories, Inc., USA),
- Urine analyser VET LYTE Urine® (IDEXX Laboratories, Inc., USA),
- Blood SNAP test reader Series II® (IDEXX Laboratories, Inc., USA).

The dermatological laboratory is situated at the VFS Clinics, Department for Internal Diseases of Domestic Animals in the Consultation Room no. 5 (Table 6.2.1). Its equipment includes a binocular light microscope (MICROS®, Austria) and a WOOD lamp for cytological testing of specimens (Waldmann® Lighting Co., Ltd., USA).

The Laboratory for Andrology and Gynaecology is located at the VFS Clinics, Department for Physiology and Pathology of Reproduction of Domestic Animals in a 20 m² room. It is equipped for analyses of sperm, preputial drainage specimens, and vaginal swabs by a binocular microscope with heaters and monitor (EUROMEX® Microscopes BV, the Netherlands) and a binocular magnifier (OLYMPUS® Optical Co., Ltd., Japan). The laboratory also has an analytical scale, a centrifuge, a water bath, an incubator, and a dry oven.

Clinical support in terms of analyses of certain types of clinical specimens is also provided by other laboratories of other VFS departments; clinical microbiological analyses are done by laboratories of the Department of Microbiology, Immunology and Infectious Diseases with Epizootiology, and parasitological analyses by laboratories of the Department of Animal Parasitology and Parasitic Diseases. Some of those laboratories are accredited according to the ISO 17025 (Appendix 2 and Appendix 3). Necropsies and tissue analyses are done at the premises of the Department of Pathology.

Besides for clinical diagnostics, the mentioned laboratories are also used for research work of undergraduate and postgraduate students of VFS.

- **Central clinical support services**

*Indicate the nature of these services and how they are organised (e.g. diagnostic imaging, anaesthesia, etc.).*

**Diagnostic imaging**

X-ray diagnostics is carried out at the VFS Clinics, Department for Roentgenology and Physical Therapy, which is equipped with:

- A stationary X-ray unit SUPERIX 1000® (SIEMENS, Germany) – for small animals,
- A portable X-ray unit (BOWIE Mfg. Inc., Japan) – for large animals,
- A dentistry X-ray unit for small animals.

Ultrasound diagnostics is done at the VFS Clinics, Department for Internal Diseases of Domestic Animals and the Department of Obstetrics and Udder Diseases. There are two available ultrasound units:

- My Lab 30 VetGold® (ESAOTE S.p.A., Italy) with all pertaining probes:
  - cardiac PA122E,
  - cardiac PA230E,
  - abdominal CA123 (microconvex),
  - abdominal CA431 (convex),
  - abdominal LA523E (linear),
  - transrectal LV513 (linear).
- SDL 32® (SHIMADZU Inc., Japan) with a transrectal probe.
Also, for cardiovascular diagnostics an ECG unit (Ar 1200 view®, CARDIETTE Medical Devices, S.p.A., Italy) is in use at the VFS Clinics, Department for Internal Diseases of Domestic Animals.

**Anaesthesia**

Equipment for anaesthesia is located in Surgery Room 2, at the VFS Clinics, Department for Surgery with Onychology and Ophthalmology. Prior to surgery, patients are introduced into general anaesthesia by intravenous administration of anaesthetics (xylasine/ketamine, diazepam/ketamine, medetomidine/ketamine or medetomidine only). In contraindicated cases (for example in patients with cerebral disorders) inhalation anaesthesia by isoflurane in oxygen is applied by an improvised semi-opened inhalation unit. The Department also has an anaesthesia unit with isoflurane evaporator (McKinley Type 2®, McKinley, Inc., USA).

Local anaesthesia is done by intracutaneous, subcutaneous, infiltrative, epidural or regional administration of anaesthetics (lidocaine, xylocaine, opioids).

At the Department for Obstetrics and Udder Diseases only intravenous anaesthesia is applied.

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6.1.6 SLAUGHTERHOUSE FACILITIES

- **Describe briefly the slaughterhouse facility to which the Faculty has access, including distances from the Faculty and level of activity.**

All information on practical teaching in the area of hygiene and technology of foodstuffs, including the herewith requested description, are presented in Chapter 4, Section 4.1.5.

6.1.7 FOODSTUFF PROCESSING UNIT

- **Describe briefly any access that the Faculty has to foodstuff processing units.**

All information on practical teaching in the area of hygiene and technology of foodstuffs, including the herewith requested description, are presented in Chapter 4, Section 4.1.5.

6.1.8 WASTE MANAGEMENT

- **Briefly describe the systems and equipment used for disposing of waste material; cadavers, carcasses, biological waste of different types, excreta, etc.**

Organic and biological waste from teaching and diagnostic material is packed in plastic bags and collected in stainless steel containers kept in a cold chamber for cadaver disposal (at 4-8°C) in the lobby of the Necropsy Hall at the Department for Pathology of VFS. The containers are then regularly taken by rendering service of the city communal company, which is a contracted service.

All potentially infectious waste from VFS diagnostic laboratories is autoclaved, then packed in plastic bags and disposed in containers as communal waste. The treatment and disposal of chemical waste is done in line with relevant standard operative procedures of VFS laboratories accredited according to the ISO 17025 standard (Appendix 3).
6.1.9 FUTURE CHANGES

- Outline any proposed changes in the premises that will have a substantial effect on the Faculty, and indicate the stage which these have reached.

It has been planned to relocate the complete VFS autopsy facility, as well as a part of its diagnostic capacities (clinical diagnostics of poultry and bee diseases, TSEs and rabies and other viral, bacterial, fungal, and parasitic diseases, PCR, serology and histopathology diagnostics) to the reconstructed buildings and premises in Stop locality. The up to date investment totals at cca 1.900.000 EUR mostly funded by a World Bank project, with an additional finance contribution of the Government of the Canton of Sarajevo of cca 250.000 EUR. The Ministry of Agriculture, Water Management and Forestry of the FB&H has also secured an additional amount of cca. 137.000 EUR for costs of issuing the necessary construction permits and other project documentation. The premises are ready for interior arrangement and additional funds have been sought to provide supply of missing laboratory equipment and furniture, which defines the time to completion of the project and commencement of diagnostic work in new facilities.

An adaptation of our clinical premises has been taken at the Department for Internal Diseases of Domestic Animals. The adaptation includes establishment of a feline hospitalisation unit with (5.4 m²) with 8 boxes. It has been also planned to provide an intensive care unit (36.9 m²), a clinical radiology centre (54.1 m²), and an isolation unit for small animals (16.8 m²) until the end of 2014.

Furthermore, there is ongoing reconstruction and adaptation and furnishing of the VFS Library (Chapter 8) and VFS Student Club, which has been partially funded by the local community. Finally, adaptation and furnishing of a multimedia facility for promotion of horse breeding and sport has also been planned to be realised until the end of 2014. Necessary funds are already secured by the local community.

6.2 COMMENTS

- Comment on the adequacy of the buildings in general for undergraduate teaching.

The first deficiency of VFS teaching facilities is primarily the one for regular hospitalisation and isolation of large animals. Having in mind current VFS own land and building capacities, as well as previously described unenviable financial and political circumstances of the whole B&H society, this shortage will be very hard to address and respective advices from the EAEVE experts would be highly appreciated.

As stated in Chapter 4, Section 4.1.5, there is an evident lack of permanent facilities adequate for post-mortem meat examination hands-on training of VFS students. Having in mind the essential importance of this segment of training for the Day-One Competences of veterinary graduates, the current practical training mode of VFS undergraduate students shall be considered as inadequate one, regardless of the fact that it is a maximum that VFS is able to provide due to present undesirable financial circumstances.

The number of places for students in three lecturing premises (Table 6.3.1) is not adequate. When compared to the total number of students enrolled in 3rd and 4th study year in academic 2012/2013 year (Chapter 9, Table 9.3B), it may be seen that there is a lack of 47 places in total (11 and 33 places, respectively). The other teaching conditions and equipment
of lecturing premises are satisfactory, albeit in some of them the system of lighting/shading needs to be improved and the furniture should be replaced with the new and more functional one to provide better use of the space.

The number of places in premises for group and practical work of students is sufficient for teaching, but it shall be emphasized that the lecture facilities are also used for supervised group work for a certain number of curriculum hours. The exceptions are premises at the Department for Surgery with Onychology and Ophthalmology (Table 6.2.1; Surgery Rooms no. 1, 2 and 3), where, besides the surgical team, there is a sufficient space just for 2 students in each of the rooms. In addition, there is not an adequate premise where students will be trained in basic surgical skills, such as suturing or anaesthesia administration techniques, which has been currently performed the preoperative or postoperative premises.

The adequacy of facilities for practical clinical training of students at the Department for Internal Diseases of Domestic Animals has been significantly improved since the mentioned recent investments and reconstruction.

The Necropsy Hall at the Department for Pathology is of appropriate capacity and equipment, but the work is complicated due to crossing of dissected and non-dissected cadavers. The problem can be solved by providing another cold chamber for disposal of dissected cadavers.

Bearing in mind that significant investment in improvement and maintenance of teaching conditions of certain premises for group or practical training of students has not been done for years, inadequate conditions for undergraduate teaching may be identified in some of the premises, such as those for practical work at the Department for Chemistry, Biochemistry and Physiology and at the Department for pathologic physiology of Domestic Animals (Table 6.5.1, rooms no. 306 and 431, respectively), as well as the premises for clinical and group work in obstetrics (Table 6.2.1, room no. 031 and Table 6.4.1, room no. 032).

Comment on the adequacy of the equipment in general for undergraduate teaching.

During the last ten years VFS has provided significant investments not only in modern diagnostic equipment primarily used in the accredited diagnostic laboratories (Appendix 3) for both, routine diagnostics and teaching, but also notable amounts of other teaching equipment, aids and furniture (the Introduction).

Clinical diagnostic facilities have been significantly improved by purchasing the equipment at the Department for Internal Diseases of Domestic Animals (Section 6.1.5). However, due to lack of funding and a generally inadequate allocation of funds in teaching aids, an important part of teaching equipment and aids is outdated and replaced too slowly. A proper example is the stationary X-ray unit that is more than 30 years old and almost impossible to be serviced and maintained. This device should be urgently replaced with a modern digital X-ray device, which has to be a priority in future improvement of VFS clinical service and teaching. Also, it is important to emphasise that computer tomography diagnostic technique (CT scan) has become a usual clinical service and teaching matter in all of advanced veterinary faculties.

As explained in Section 6.1.5., application of inhalatory anaesthesia is very limited due to a lack of necessary equipment for administration of anaesthetics and monitoring of vital
parameters of the patient, which is the reason why the intravenous anaesthesia is still used as a cheaper and a safer option.

- **Comment on the maintenance of buildings and equipment.**

During the three last years five laboratories have been reconstructed and renewed (the laboratories for virology and serology, TSE, food microbiology, food residues and quality, and feed analyses – Appendix 3). Most of other diagnostic laboratories have been previously renewed, so that generally VFS diagnostic laboratories have good working conditions. Within the same period facilities for clinical teaching and work at the Department for Internal Diseases of Domestic Animals and the Department for Surgery with Onychology and Ophthalmology have been renewed too. Also, the LIC VFS was modernised, and a further improvement of the VFS Library and student welfare facilities is ongoing (Section 6.1.9), which significantly improves quality of work and life of VFS students.

Nevertheless, recent investments in premises for lecturing, except of those for regular update and maintenance of IT equipment, have not been done. Similar circumstances may be noticed for some of premises for group and practical teaching. Thus, regular maintenance of teaching premises and the whole VFS building, as well as regular service and maintenance of capital equipment is a permanent challenge for our Faculty due to a constant recent financial shortage

### 6.3 SUGGESTIONS

- **If you are unhappy with any situation, please list any improvements you would make in order of preference.**

According to the 2012-2022 Strategy of Development¹, VFS is devoted to a permanent work toward improvement of its teaching capacities, which includes facilities and equipment. The planned improvement of teaching capacities will be carried out in the existing VFS buildings (the main building and facilities in Stup), as well as by a network of cooperation with external establishments. Having in mind the comments in Section 6.2, the improvements should include:

  a) Urgent replacement of the existing outdated X-ray machine with a modern stationary digital X-ray diagnostic unit for small animal practice: If possible, acquisition of a CT-scan diagnostic unit would greatly contribute to quality and versatility of VFS clinical teaching and service in imaging diagnostics;

  b) To secure and equip a premise for an adequate and permanent (preferably intramural) hands-on training of students in post-mortem meat examination essential for competences of VFS graduates in the area of food safety and public health;

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c) To secure and equip a premise sufficient for intramural practical training of students in basic surgical skills, as well as to provide completion of equipment necessary for a normal and safe application of inhalatory anaesthesia;

d) Adequate adaptation of the premise for postoperative care (Table 6.2.1; room no. 031) and of the room no. 032 for group work in obstetrics (Table 6.4.1), as well as of the premises for laboratory practical training (Table 6.5.1) in clinical and food microbiology and food sensory testing (room no. 211), feed analyses (room no. 254), chemistry and biochemistry (room no. 306), and pathophysiology (room no. 431). Existing premises, laboratory equipment and furniture in those rooms need to be renewed and adequately supplemented by teaching aids;

e) Improvement of working conditions and equipment for lectures, particularly in lecturing facilities for students of 3rd and 4th study year, which can be accomplished by replacement of the existing with new, more functional furniture to provide better use of the space and sufficient number of places, while the system of lighting/shading can be improved with a minimal investment;

f) Installation of another cold chamber (up to -20°C) for disposal of dissected cadavers at the Necropsy Hall to solve the mentioned safety problem of cross contamination. In addition, a waste water collection and treatment system should be installed at the Necropsy Hall to properly address the biosafety issues;

g) In connection with the previous item, the problem of disposal of chemical waste should be addressed by signing a contract with a relevant the ISO 14000 certified company;

h) A permanent renewal and maintenance of teaching equipment and aids may be possible to secure by a purposeful and a priority-based planned allocation of funds from all VFS own income and budget funds.
Chapter 7: ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 FACTUAL INFORMATION
7.1.1 ANATOMY
   ❖ Indicate the materials that are used in practical anatomical training, and how these are obtained and stored.

The following materials are used in practical anatomical training at the Department for Anatomy, Histology with Embryology of VFS:
   • Bones and complete skeletons (from the Ostelogic collection of the Department),
   • Formalin preparations of animal organs; after dissection of cadavers, specimens are fixed in formaldehyde solution (formalin) and then kept in basins for further use.

Cadavers of horses and pets are obtained from the VFS Clinics (animals euthanized in accordance with Article 14, the Act on Protection and Welfare of Animals\(^1\)), while cadavers of other animals (large and small ruminants, pigs, poultry, weasels, etc.) are obtained from various external farming.

Table 7.1: Material used in practical anatomical training.

<table>
<thead>
<tr>
<th></th>
<th>Dog</th>
<th>Ruminant</th>
<th>Equine</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year N(^*)</td>
<td>Year N-1(2012/13)</td>
<td>Year N(^*)</td>
<td>Year N-1(2012/13)</td>
</tr>
<tr>
<td>Live animals</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cadavers</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Specimen(^3)</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Other(^4)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Egg ultrasound</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Computer assisted teaching</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* year prior to visitation; 1 = 4 cats, 10 hens, 50 weasels and 1 turkey; 2 = 3 cats, 10 hens, 50 weasels; 3 = fresh or formalin specimens of internal organs, complete skeletons or single bones, dry preparations, corrosive and plastinated preparations; 4 = Complete or partial models of animal bodies or their organs made of artificial materials.

\(^3\) The Act on Protection and Welfare of Animals ("Official Gazette of B&H " no. 25/09)
### 7.1.2. PATHOLOGY

#### Table 7.2: Number of necropsies over the past 3 years

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of necropsies</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food-producing animals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Small ruminants</td>
<td>20</td>
<td>17</td>
</tr>
<tr>
<td>Pigs</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other farm animals**</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td><strong>Equine</strong></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Poultry</strong></td>
<td>58</td>
<td>83</td>
</tr>
<tr>
<td>Rabbits</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td><strong>Companion animals/exotic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dogs</td>
<td>71</td>
<td>30</td>
</tr>
<tr>
<td>Cats</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Other***</td>
<td>87</td>
<td>33</td>
</tr>
</tbody>
</table>

* Year prior to visitation; ** other farm animals are fish from fish farms and wild river fish; *** shown in Table 7.2.1.

#### Table 7.2.1: Number of necropsies of other animal species (companion and exotic animals) over the past 3 years

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of necropsies</th>
<th>Year N* (2012/13)</th>
<th>Year N-1 (2011/12)</th>
<th>Year N-2 (2010/11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumours (histopathology only)</td>
<td>25</td>
<td>9</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Organs (histopathology only)</td>
<td>17</td>
<td>13</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Roe deer</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Quail</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Deer</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pigeon</td>
<td>18</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Crow</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Patagonian mara</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Lama</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Zebra</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Lion</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Pheasant</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Swan</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Brown bear</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Kangaroo</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Ostrich</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Tiger</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Antelope</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Marten</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

* Year prior to visitation;
Indicate the nature and extent of any additional sources of material for the teaching of necropsies and pathological anatomy, including slaughterhouse material.

The source of the animal cadavers shown in Table 7.2.1 is the following:

- Tumours and histopathologically processed organs were of various domestic animal species, predominantly of dogs and cats.
- Cadavers of the Roe deer, the deer, the brown bear and the five weasels were obtained through cooperation with various associations of hunters.
- Cadavers of the crows were delivered for necropsy by the Federal Veterinary Inspection under suspicion of West Nile virus infection.
- Cadavers of the quails, the ostrich, the pigeons, the pheasants, and the tiger were delivered for routine necropsies by the breeders.
- Cadavers of the Patagonian mara, the lama, the lion, the zebra, the kangaroo, the swans, the martens, and the antelope are delivered by the local zoo garden for routine diagnostics.

### 7.1.3 ANIMAL PRODUCTION

Indicate the availability of food-producing animals for the practical teaching of students

**a) On the site of the institution**

Food-producing animals used for the practical training comprise 1 cow, and 3 sheep. In addition, VFS owns 2 horses. The animals are kept and available to our students during the entire academic year in stables at the VFS outlet teaching facility for large animal clinical training (clinical training room and stable) built within the Cattle Farm “Bojnik”, which is constructed under contracted agreement with the Cantonal Public Agriculture Company “Butmir” – Cattle Farm “Bojnik” (the Introduction chapter).

**b) On other sites to which the institution has access.**

VFS has contracted cooperation agreements with many institutions to provide supervised practical training and extramural work in small groups (5-6 students). The list of institutions that VFS has contracted agreements with is presented in the Introduction chapter.

The most important source of food-producing animals for VFS clinical training is the contracted cooperation with the Cantonal Public Agriculture Company “Butmir” – Cattle Farm “Bojnik”, which is 10 km away from VFS and owns 650 dairy cows, 400 heifers, and 100 calves in average.

The Cattle Farm “Spreča” is located nearby the city of Tuzla (northeast B&H) some 120 km away from VFS. It is a modern dairy farm of high-quality Holstein cows, with a capacity of 2,500 heads (1,500 dairy cows and 1,000 other cattle categories). The farm includes several production sectors (milk production, cattle breeding, green-house production, biogas facility, crop production and mechanisation, etc.).

The Horse Stable "Borike" is located near Rogatica, a town in eastern B&H some 60 km away from VFS. The stable owns about 50 heads of the Bosnian Pony (the Bosnian Mountain Horse), the only B&H autochthonous horse breed that belongs to the group of Balkan breeds, as well as about 50 Arabian horses. Additional source of horses for clinical training of
our students is provided by the contract with Horse Riding Club "Djeca vjetra" Sarajevo, located in margins of Sarajevo, some 5 km from VFS,

The Goat Farm “Eko-koza” is located nearby Mostar (administrative centre of Herzegovina, southern part of B&H) some 120 km away from VFS. It owns about 1,000 goats for production of meat, milk and cheese.

Meat Processing Company "PANIFLEKS" Ltd is located in Pale, a town some 40 km away from VFS. The company owns pig farms with approx. 500 pigs in total for all reproduction and meat production categories, which are the main source for practical clinical teaching of our students. In addition, other sources for the teaching are farms of Meat Processing Company "MP FARM" Ltd., in Pale (approx. 300 fattening pigs) and of the Meat Industry "Rakitno" in Rakitno (some 160 km south of Sarajevo) with similar production capacity.

The Poultry Industry “Brovis Ltd” located in Visoko, some 37 km from VFS to the west. It is one of the largest establishments for poultry reproduction, farming and poultry meat production that employ more than 200 individual farmers for broiler production, as well as whole poultry reproduction cycle facilities. VFS has not a formally contracted cooperation with this company aimed to student training, but has a long-time cooperation with “Brovis Ltd” and its other branch companies in the area of food safety diagnostics and other veterinary services.

7.1.4. FOOD HYGIENE/PUBLIC HEALTH

- Indicate the availability of farm animals and products of animal origin for the practical teaching of students in veterinary public health, food hygiene, inspection and technology.

All information on practical teaching in the area of hygiene and technology of foodstuffs, including the herewith requested description, are presented in Chapter 4, Section 4.1.5. However, it is important to emphasize here again the constant problem of shortage of teaching material for hands-on practice of our students in post-mortem meat examination, including carcasses and organs for all food-producing animal species.

7.1.5. CONSULTATIONS AND PATIENT FLOW SERVICES

7.1.5.1. CONSULTATION

- State the number of weeks, in the course of the year, during which the clinics are open.

- State the number of consultation days each week.

- State the consultation hours.

VFS Clinics are opened for consultations along the year on each week day (from 08:00 to 19:00 hours) and Saturdays (from 09:00 to 14:00 hours) (closed on Sundays). Consultation hours are often longer than specified.
7.1.5.2. PATIENT FLOW

The number of animals to be stated are for all disciplines combined (medicine, surgery, reproduction, etc.). In Table 7.3 only animals coming into the Faculty should be included. Animals studied in practical teaching outside the Faculty should be entered in the section entitled "Ambulatory Clinic" (Table 7.4).

The term “consultation” refers to those patients which come in and go out during daily consultation hours. “Hospitalisation” refers to those patients which are retained in the clinic as “in patients” following presentation.

Table 7.3: Number of cases: a) received for consultation, and b) hospitalised in the Faculty clinics, in the past three years.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of cases</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year N*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2012/13)</td>
<td>a</td>
</tr>
<tr>
<td>Food-producing animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bovine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ovine, caprine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Porcine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other farm animals**</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Equine</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Poultry</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rabbits</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Companion animals/exotics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canine</td>
<td>3036</td>
<td>849</td>
</tr>
<tr>
<td>Feline</td>
<td>346</td>
<td>0</td>
</tr>
<tr>
<td>Other***</td>
<td>38</td>
<td>0</td>
</tr>
</tbody>
</table>

* Year prior to evaluation; ** indicate species; *** shown in Table 7.3.1

Table 7.3.1: Number of cases of other companion and/or exotic animals: a) received for consultation, and b) hospitalised in the Faculty clinics, in the past three years.

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of cases</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year N*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2012/13)</td>
<td>a</td>
</tr>
<tr>
<td>Hamster</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Guinea pig</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Parrot</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Lizard</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

* Year prior to evaluation;

As seen from Table 7.3, VFS does provide in-house consultation and hospitalisation service only for dogs, while consultation service without hospitalisation is provided for cats and companion/exotic animals. Such shortage is caused by the facts that VFS is located in the downtown area of Sarajevo, and there are not adequate premises for access, examination and accommodation/hospitalisation of other animal species (Chapter 6).
7.1.6. VEHICLES FOR ANIMAL TRANSPORT

- State the number and nature of the Faculty vehicles that can be used to bring sick animals to the clinics.

VFS does not have vehicles for animal transportation.

7.1.7. ON-CALL EMERGENCY SERVICE

- Outline what emergency service is available (full-time, 24 h service, ON-CALL or 8-22 h duty) and discriminate for species.

Emergency service is not organised at VFS Clinics, except as the on-call service by dialling private telephone numbers of qualified veterinarians of the Clinics.

7.1.8. ON FARM TEACHING AND OUTSIDE PATIENT CARE

7.1.8.1. AMBULATORY (MOBILE) CLINIC

The Ambulatory (Mobile) Clinic is defined as a unit which provides on-call outside services to farms and other institutions and is generally operated on a commercial basis.

- State the number of hours of operation per week. Is emergency service provided 24 h/day, 365 days per year? What is the degree of student participation (include duties)?

- State the number, the type and the seating capacity of the vehicles used to transport students working in the ambulatory (mobile) clinic.

- State the approximate number of sick animals (specify cattle, swine, equine, poultry or small ruminants, others) seen by the ambulatory clinic per year during the past three years (Table 7.4).

- State the average number of visits in a year made by the ambulatory clinic to farms and other institutions.

VFS does not have the Ambulatory (Mobile) Clinic as a specifically designated unit that provides on-call outside service on a commercial basis.

However, practical training of our students in on-farm teaching and outside patient care is provided in core subjects Ambulatory Clinics II and Ambulatory Clinics III and obligatory extramural practice (description is provided in Chapter 4, Sections 4.1.1.1 and 4.1.4) organised in various establishments and institutions (the list of contracted institutions is provided in the Introduction chapter). Therefore, on-farm teaching and outside patient care training for VFS students is considered in the next section 7.1.8.2 and Table 7.4B, while showing an empty Table 7.4A would be pointless, which was the reason to omit presenting the Table 7.4a.

7.1.8.2 OTHER ON FARM SERVICES AND OUTSIDE TEACHING

If there is no on duty Ambulatory (Mobile) clinic, a Faculty may have defined contracts with farms or other institutions to allow for outside teaching and patient care. Similarly, a Faculty may provide herd-health services.

Please indicate if and to what extent this applies to your Faculty. If applicable please provide no. of patients seen on outside teaching.
As stated in the previous Section 7.1.8.1, practical training of our students in on-farm teaching, herd-health visits and outside patient care is provided in core subjects Ambulatory Clinics II and Ambulatory Clinics III and obligatory extramural practice (detailed descriptions of outside practical clinical training of VFS students are given in Chapter 4, Sections 4.1.1.1 and 4.1.4). Based on contractual agreements with external establishments (the list of contracted institutions is provided in the Introduction chapter), students perform clinical examinations and treatment of animals seen in those establishments, as well as herd-health visits. Most of those contracts are formally signed in 2013, but fruitful unofficial cooperation with those establishments exists for many years prior to the contracts. In addition, some outside practical clinical teaching is done in external establishment without formal contractual agreement on student teaching, but based on unofficial long-time diagnostic and technical cooperation, such as that with the Poultry Industry “Brovis Ltd” mentioned in Section 7.1.3 and in Chapter 4, Section 4.1.5.

Sufficient number of places for transportation of students is provided by two VFS vans (total capacity of 18 places) and by personal vehicles of VFS clinical teaching staff, as well as by vehicles of field veterinary stations used within the obligatory extramural work.

**Table 7.4b: Number of patients seen on outside teaching in the past three years (in parentheses are given numbers of herd-health visits provided to respective animal breeding and production units seen).**

<table>
<thead>
<tr>
<th>Species</th>
<th>Number of patients</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year N*</td>
<td>Year N-1</td>
</tr>
<tr>
<td>Food-producing animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td>450 (20)</td>
<td>370 (20)</td>
</tr>
<tr>
<td>Small ruminants</td>
<td>530 (15)</td>
<td>210 (10)</td>
</tr>
<tr>
<td>Pigs</td>
<td>450 (20)</td>
<td>230 (10)</td>
</tr>
<tr>
<td>Fallow deer farmed for meat production</td>
<td>30 (1)</td>
<td>30 (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of poultry flocks</td>
<td>15 (10)</td>
<td>15 (8)</td>
</tr>
<tr>
<td>No. of rabbit farm</td>
<td>2 (2)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Equine</td>
<td>80 (5)</td>
<td>73 (5)</td>
</tr>
<tr>
<td>No. of salmonid fish (mostly trout) farms</td>
<td>2 (2)</td>
<td>2 (2)</td>
</tr>
</tbody>
</table>

* Year prior to visitation; ** Indicate species

Based on the above tabular data, average annual number of herd-health visits of VFS students is 5.7 ((10.8+5+5+2)/4 =22.8/4 = 5.7).

**7.1.9 OTHER INFORMATION**

- **Indicate any notable additional outside sources of material for clinical training purposes, such as animal charities, animals awaiting slaughter, etc.**

Notable source of material for clinical training are dogs from various associations for animal welfare, which are clinically treated at the VFS Clinics and then sheltered and/or adopted. The most significant source of such dogs is the cooperation between VFS and the „Dog’s Trust Bosnia and Herzegovina“. Details on cooperation with the Foundation are given in Chapter 5, Section 5.1.2.

- **Indicate how the level of clinical service that is offered by the Faculty (in small companion animals, equines and production animals) compares with outside**
practices in terms of facilities, hours of service, equipment, expertise, responsiveness, etc.

The VFS Clinics owns modern diagnostic equipment and sufficient space to provide clinical service and expertise for small animals. The most important clinical advantage of VFS is in a higher number of educated clinical staff able to provide quality clinical services, even though that number is significantly smaller when compared to other veterinary faculties in developed European countries.

- Provide an indication in percentage terms of the proportion of cases that are primary (i.e. first opinion), and referrals (provide a breakdown by species, if helpful). If the Faculty has a particular aim or policy as regard this mix, describe it.

The most of cases (95%) is primarily examined and treated at VFS Clinics, while the rest is forwarded from other veterinary institutions.

- Indicate what areas of clinical specialisation are covered and the extent of the coverage (for example, a veterinarian with a particular specialisation may see patients in the clinic for one day a week, 3 afternoons, etc.).

There is not distinctive postgraduate clinical specialisation study programme at VFS, except the postgraduate research in other scientific areas related to veterinary clinical work as described in Chapter 12, Section 12.1.1., Also, VFS does not employ or otherwise contract services of a veterinarian with a particular clinical specialisation.

- Indicate the relationship the Faculty has with outside practitioners (in small companion animals, equines and production animals) in terms of matters such as referral work, providing diagnostic or advisory services for private practitioners, practitioners participating in teaching, holiday or 'seeing practice' work for students, feedback on the level of clinical training.

As previously stated, a very small number of patients are received as referrals and almost always in cases when the small animal owners insist on a second clinical opinion. Generally, relationship of external private practitioners with VFS is not satisfactory, except some rare responsible colleagues who are dedicated to keep a respectable and a professional relationship with the owners.

- Describe (if applicable) any other relationships with outside organisations that are routinely used to provide students with training (in particular practical training) in other clinical subjects (e.g. pathology work, interaction with state veterinary work).

Apart from the previously mentioned external establishments and trainings, there is not relationship with other external organisations aimed to provide practical clinical training of VFS students.

- Provide an outline of the administrative system(s) used for the patients, e.g. in terms of how case records are kept, how data are retrieved, whether systems are centralised, etc.

The VFS administrative system used for patients is completely centralised and archived in both, paper-based format (health records for each patients kept at the Reception Unit) and in an electronic database communication established among all clinical departments and the
Reception Unit. All relevant clinical data are regularly entered in paper and electronic records for each clinical case and visit.

### 7.1.10 RATIOS

See the section 'Main Indicators' in Annex 1a for the figures needed for calculating ratios. Give the figures for numerators and denominators. The ratios should then be expressed by taking the numerator as $1^2$

**Table 7.5: Animals available for clinical training (in the clinics of the Faculty or seen through the Ambulatory clinic) as ratio to the number of students in last full year of clinical training**

<table>
<thead>
<tr>
<th>Ratio (R)</th>
<th>Description</th>
<th>VFS</th>
<th>EAEVE ref.value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 11:</td>
<td>No. of food-producing animals seen at the Faculty $^2$</td>
<td>$\frac{0}{59.4}$</td>
<td>NC*</td>
<td>Min: 0.758</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 12:</td>
<td>No. of individual food-animals consultations outside the Faculty $^3,4$</td>
<td>$\frac{243.8}{59.4}$</td>
<td>4.105</td>
<td>Min: 8.325</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 13:</td>
<td>No. of herd-health visits $^5,5$</td>
<td>$\frac{5.7}{59.4}$</td>
<td>0.096</td>
<td>Min: 0.326</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 14:</td>
<td>No. of equine cases $^7$</td>
<td>$\frac{0}{59.4}$</td>
<td>NC*</td>
<td>Min: 2.700</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 15:</td>
<td>No. of poultry/rabbit cases $^2$</td>
<td>$\frac{6}{59.4}$</td>
<td>0.101</td>
<td>Min: 0.407</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 16:</td>
<td>No. of companion animals seen at the Faculty $^2$</td>
<td>$\frac{2421}{59.4}$</td>
<td>40.758</td>
<td>Min: 48.061</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R 17:</td>
<td>No. poultry (flocks)/rabbits (production units) seen $^3,4$</td>
<td>$\frac{8.5}{59.4}$</td>
<td>0.143</td>
<td>Min: 0.035</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually $^1$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NC = not calculable—impossible to divide with zero;
1 = Table 9.4;
2 = Table 7.3, average;
3 = Table 7.4, average;
4 = where applicable use or add information provided in Chapter 7.1.8.2;
5 = see 7.1.8.1.

$^2$ The shown equations for calculation of the ratios and their respective reference values recommended by the EAEVE are applied in accordance with the latest edition of the Supplement A, the Annex 1a (dated on February 21, 2014) of the EAEVE document "Evaluation of Veterinary Training in Europe" provided by personal E-mail communication with Professor Dr. Pierre Lekeux, Director of the EAEVE Evaluation/Accreditation Programme.
### Table 7.6: Animals available for necropsy.

<table>
<thead>
<tr>
<th></th>
<th>VFS</th>
<th>EAEVE ref.value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 18: No. of necropsies of food-producing animals + equines(^1)</td>
<td>69.7</td>
<td>1.173</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually(^1)</td>
<td>59.4</td>
</tr>
<tr>
<td>R 19: No. of poultry/rabbits necropsies(^2)</td>
<td>93.3</td>
<td>1.571</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually(^1)</td>
<td>59.4</td>
</tr>
<tr>
<td>R 20: No. necropsies of companion animals(^2)</td>
<td>111.3</td>
<td>1.874</td>
</tr>
<tr>
<td></td>
<td>No. of students graduating annually(^1)</td>
<td>59.4</td>
</tr>
</tbody>
</table>

\(^1\) = Table 9.4;  
\(^2\) = Table 7.2, average;

#### 7.1.11 OTHER SPECIES

- *Indicate how the Faculty deals with fish and other food producing species*

  Practical outdoor training in core subject Diseases of Fish, Crustaceans and Molluscs takes place on two salmonid fish farms on basis of contracted agreements mentioned in the Introduction chapter:

  - "RIBA NERETVA” Company, Mostar – Fish Farm “LJUTA” “ in Konjic (located south from Sarajevo, some 55 km away from VFS) with an annual production capacity of 200 tons of fish;
  - "Fish Farm LAKS" Ltd in Salakovac, nearby Mostar, the administrative centre of Herzegovina, the southern part of B&H some 120 km away from VFS, with an annual production capacity of 400 tons of fish

  Total practical teaching load on the farms for students is 15 curriculum hours, with objective to become familiarised with:

  - Technologies of salmonid fish farming and occurrence of respective diseases;
  - Health (clinical) examination of all age categories of farmed fish (inspection, section and microscopic examination of specimens of skin, fins, gulls and intestines);
  - Importance of timely identification and diagnostics of the diseases;
  - Correct sampling and distribution of specimens for laboratory diagnostics;
  - Major principles of prevention and treatment of most prevalent diseases of farmed fish.

  In addition, elective subject Aquaculture provides clinical extramural training in marine farming in Neum, the only B&H city on the Adriatic coast some 200 km from VFS. The training takes place through 10 curriculum hours of clinical practicals in the Fish Farm “Ancora Commerce Ltd.” in Neum, with a total production capacity of 200 tons of marine finfish and shellfish. Objective of the training is to provide students with information on farming technologies and aquaculture in B&H in general.
7.2 COMMENTS

Feel free to comment on all data provided in this Chapter.

As already stated in Section 7.1.4, in spite of providing all relevant information in the area of food hygiene/public health theoretical during theoretical and practical teaching (described in details in Chapter 4, Section 4.1.5), hands-on practice of our students in post-mortem meat examination is inadequate. There are two major reasons. The first one is the lack of an adequate premise for intramural training of students prior to visits of commercial slaughterhouses, as commented in Chapter 6, Sections 6.2 and 6.3. The second part of this problem is a constant shortage in teaching material for hands-on practice, including carcasses and organs for all food-producing animal species. The socialistic pre-war political system in which VFS was founded, all livestock production and processing companies were state-owned, which enabled various and permanent opportunities to provide a quality practical training, particularly in the field of veterinary control of production of foodstuffs of animal origin. Nowadays, all of slaughterhouse and meat processing companies are privatised and strictly profit-oriented, and thus unenthusiastic to allow access to students in their production facilities in order to prevent any risk of disorder of the production process and cross-contamination, i.e. any risk of production/profit loss. Therefore, having in mind a large enrolment of VFS students (Chapter 9) on one side, and the unenviable financial circumstances that VFS has been facing during the last years (Chapter 3) on the other side, it is practically impossible to provide adequate hands-on training of our students in post-mortem examination of meat of all relevant food-producing animal species. To adequately address this problem shall be one of major priorities of VFS management in order to provide our graduates with the Day-One Competences defined in the EU legislation on veterinary profession\(^3\).

Based on the data for the year prior to the EAEVE consultative on-site visit presented in tables in this chapter and by comparing them with the data presented for previous years, a certain step forward in organisation of practical teaching may be observed. This is particularly proper to say when it comes to animals available for necropsy, where all requested values of the indicators are acceptable from the point of the respective EAEVE suggested values (Table 7.6).

However, the most important problem is to provide a sufficient patient flow with regard to its quantity and representation of all necessary animal species for practical clinical training. The most acceptable situation is with companion animals (dogs and cats), where the numbers are not so bad (VFS R16 = 40.758), but still not meeting the EAEVE minimal criterion (48.061). Far bigger problems are food-producing animals and horses, especially those seen at VFS (Table 7.3), as well as those seen outside (Table 7.4b). Albeit VFS is trying to compensate the intramural lack of patients and facilities through the outside teaching activities presented in Section 7.1.8.2 and Table 7.4b, still values for R 12 and R13 are below the EAEVE recommendations. Also, VFS value for R15 is lower than the EAEVE recommended, but it may be considered as compensated by VFS value for R17 (0.143), which is meaningfully above the respective EAEVE requirement (0.035). Similarly, if for calculation of R14, instead of average annual number of equine cases seen at VFS, we use the respective value for horses seen outside VFS (74.3; Table 7.4b), then the VFS value for R14 would be 1.251.

\(^3\) Directive no. 2005/36/EC and 2013/55/EU
Reasons behind the observed shortage in animals and patient flow available for teaching may be delineated in following:

- Lack of Ambulatory (mobile) clinic, as well as of other diagnostic equipment necessary for large animal practice. Albeit diagnostic premises and equipment for small animal practice have been recently improved, the VFS capacities for large animal and equine practice are still inadequate and far from minimal standards (Chapter 6);

- Lack of permanently organised 24-hour emergency service at VFS clinics due to a current shortage in young clinical teaching staff, as mentioned in Chapter 10, Section 10.2, as well as a shortage in adequate facilities for 24-hour accommodation of students that will be scheduled for the emergency service teaching;

- A decrease in number of state-owned farms and individual households, which are willing to establish a cooperation to provide a reliable and timely-scheduled practical training field for our students;

- Comment on major developments in the clinical services, now and in the near future.

During the last two years, clinical service for dogs and cats has been significantly improved by partial reconstruction of VFS clinical space, acquisition of necessary relevant equipment, establishment of unique clinical database, as well as by extension of clinical working hours. In addition, establishment of the outlet teaching facility for large animal clinical training within the Cattle Farm “Bojnik” has provided a certain step forward.

Things that should be done in near future surely include:

- To provide an Ambulatory (mobile) clinic and to persistently try to increase patient flow in food-producing animals and horses;

- To secure funds for extra-payment of existing clinical teaching staff for emergency 24-hour service and/or employ new staff to address this issue;

- To provide funds to continue a positive trend of modernisation of clinical facilities, such as to establish small animal intensive care unit, to improve imaging diagnostic capacities by purchasing at least a modern digital X-ray unit (and a CT-scan machine if possible), as well as improvement of surgical and anaesthesia facilities as mentioned in Chapter 6, Section 6.2 and 6.3).

- Comment on local conditions or circumstances that might influence the ratios in tables 7.5 and 7.6.

The indicator values in Tables 7.5 and 7.6 show an obvious lack of animals necessary to provide a high-quality training of our students, which is primarily caused by inadequate efforts and engagement of previous VFS management structures to provide satisfactory conditions for improvement of VFS clinical work, and thus to appropriately address the problem of clinical teaching at VFS.
7.3 **SUGGESTIONS**

- **If the denominators in tables 7.5 and 7.6 for your Faculty are not meeting the range as indicated in Annex I, Supplement A, what can be done to improve these ratios?**

Most of the above mentioned shortages would be eliminated by foundation of a large animal clinic with supporting farms, as well as by a continuous supply and renewal of relevant diagnostic and teaching facilities and equipment (including the Ambulatory Clinic), which should be a primary interest and focus of VFS management in near future.

Considering lack of funding for establishment of large animal clinic, constant efforts to provide more reliable contracted arrangements with external farms and other establishments to provide a sufficient patient flow and clinical teaching shall also be prioritised. Also, we have to consider the fact that large animal clinic for food producing animals will be hardly sustainable in the near future. Thus, we believe that a better strategy to secure sufficient teaching scope of herd health visits might be by specific contracts on herd health service with farmers, organisation of summer schools for food producing animals and cooperation with private clinics dealing mainly with large animals. Also, previously mentioned activities to establish an intensive care unit and hospitalisation facilities for small animals will certainly increase the patient flow and by that improve the quality of practical clinical training and clinical competences of our students.
Chapter 8: LIBRARY AND LEARNING RESOURCES

8.1 FACTUAL INFORMATION

8.1.1 LIBRARY AND OTHER INFORMATION TECHNOLOGY SERVICES

- Give a general description of the library/libraries of the Faculty/university that are available to students.

THE LIBRARY AND INFORMATICS CENTRE OF VFS (LIC VFS)

LIC VFS consists if the VFS Library and the VFS IT Centre. Establishment of LIC VFS was achieved as one of the major goals of the Tempus Project no. 15039-2000 (Chapter 5, Section 5.1.2), which provided VFS with an IT professional, PCs, servers, and all the other equipment necessary to set up an IT centre.

The VFS Library is a specialised, academic library and a research organisational unit of VFS. Its objective is to fulfil requirements of all its users, primarily of VFS students and teaching staff. The Library consists of the following functional units: central library, student library, reading room, library depository and subsidiary libraries at VFS departments. The following activities take place at the LIC VFS:

- Maintenance and development of library stack (purchase, care, maintenance, restoration and writing-off of the books);
- Cataloguing and other library professional services in line with library methodology;
- Development of library IT systems and databases;
- Archiving of doctoral and master theses;
- A selective dissemination of information; interlibrary loans;
- Book handling and usage (for reference in reading room and for book landing);
- Active participation in education of users (online information seeking, help with search of online databases, etc.);
- Support to publishing activities of VFS;
- IT networking;
- Professional consultations on usage of data sources;
- Maintenance and development of entire VFS IT system, including E-learning and E-mail system, the Internet network and access;
- Service and maintenance of all VFS PCs, servers, wall-projectors, printers, copy-machines and other IT equipment;
- IT support of various teaching, scientific, cultural and other events organised by VFS;

Currently, the LIC VFS is housed in following premises:

- Central library with the reading room (91 m²),
- Student library (47 m²),
- Library depository (38.5 m²),
- IT Centre – server room (17 m²),
- IT Centre – IT administrator room (13 m²),
- IT Centre – IT service room (32.5 m²),
- IT Centre – office premises (28 m²),
- IT Centre – Multimedia Classroom (59 m²).
There is ongoing reconstruction of the central and student library, which will be soon moved to new premises of 75 m² of space in total.

The most important stack is sited in central library, in which is also intended for entire professional library activity. Textbook stack is located in the student library, as well as the student reading room.

Regular users of the VFS Library are undergraduate and postgraduate students, teaching and other staff of VFS, as well as teachers and students from other UNSA faculties, veterinarians and veterinary highschool students. Veterinary textbooks and other literature from the student and central library are available to all enrolled VFS students. As far as other UNSA libraries concerned, VFS students have the option to use the resources of the National University Library in Sarajevo, while access to libraries of other UNSA faculties is regulated by each of the faculties.

Inventory of the VFS Library is currently in a hard-copy format. By introduction of COBISS (Co-operative Online Bibliographic System & Services) a uniform library information system of VFS Library will be established and will allow its regional networking\(^1\). Having in mind that a revision of the library stack has not been done since 1989, the precise number of inventory units of the Library is unknown, which is going to be solved by establishing an OPAC (online public access catalogue) COBISS, as the main duty of VFS librarians in the forthcoming period. According to the inventory that had been continuously made from establishment of the Library in 1950 to 2002, the number of the inventory units is 42,889. Currently there are 9,486 monographic publications in the stack of the Library.

Since its foundation, the Library classified its material in line with the Cyril C. Barnard Method of Classification for Medical Libraries, while from 1980s to date the Universal Decimal Classification (UDC)\(^2\) has been used.

\(^\text{1}\) http://www.cobiss.net/
\(^\text{2}\) http://www.udcc.org/index.php/site/page?view=factsheet

There is not a library committee or similar body, and the VFS Library is managed by a library manager. All decisions are made with a previous approval VFS management.

For each major library of the Faculty, please provide the following information, either in narrative or tabular form.

**Main library:**

\(^\text{\checkmark}\) Is this specific to the veterinary training establishment?

VFS Library is specific to a veterinary higher education establishment. The library stack consists of:

- A collection of international scientific journals that covers fields of pre-clinical and clinical sciences;
- A collection of domestic veterinary journals;
- A referent collection (most important secondary and tertiary publications);
- A collection of monographies;
- A collection of PhD and Master of Science theses defended at the Faculty.
Is this common to two or more establishments?

No. Since its establishment, the VFS Library has been focused on VFS as a whole.

Number of full-time employees.

LIC VFS has five full-time employees:

- Two certified and COBISS-licensed librarians,
- One IT system & web administrator,
- Two IT support employees.

Full time equivalents of part time employees

LIC VFS does not have part time employees, albeit, concerning an increasing library work load, there is a need for them.

Number of journals received each year as hard copies,

According to the 2013 data, VFS Library receives 20 journals in hard copy. During the post-war period subscription fees for scientific journals has greatly increased and the number of hard copy journals has been reduced to most necessary ones.

Numbers of full access electronic journals.

Here is the list of online databases to which VFS students, teaching and research staff have access:

- BioOne®,
- IOPScience®, and
- SpringerLink®.

Access to 236 electronic journals is available through those databases, but the number is subject to change.

Availabilities for online literature search

All VFS Library users have access to all databases by VFS computer network. Currently, the VFS Library Catalogue is available in hard copy format only, but by change to the COBISS system, it will be available for online search.

Availability of textbooks

Student library currently has about 11,000 copies of textbooks and scripts. Most of the stack is related to compulsory veterinary teaching material, as well as to other veterinary and human medicine issues. Also, most of the stack is allowed for borrowing. It is important to emphasize that lately VFS has adopted a practice to purchase 30 or more copies of each compulsory student textbook, which is an unusual practice at other UNSA faculties. By introduction of the COBISS system the entire VFS Library stack will be available online.

Number of student reading places

The reading room has 25 reading places for students.

Library opening hours

Working hours of the LIC VFS are from 08:00 to 15:00 hours during weekdays, while opening hours for users of the Library are from 09:00 to 14:00 hours. The Library is closed during
weekends. The student reading room is opened from 08:00 to 19:00 hours. During vacations the Library is closed, while the reading room is available to students.

- **Indicate how the facilities are used by students**

  VFS Library users are allowed to borrow library material and to use it for reference. A free access to books will be allowed soon. During the writing of this Chapter 701 student was registered for the library access and total of 2,899 of publications were borrowed, which equals to 4 publications per student.

**Subsidiary libraries of the Faculty:**

- **Please describe the subsidiary (e.g. Departmental) libraries of the Faculty, and arrangements for student access.**

Since the establishment of VFS, its organisational units (Appendix 2) have been collecting didactic, scientific and professional literature that is kept in their own subsidiary departmental libraries. There are 22 such libraries as distinctive facilities without a professional librarian. Those libraries are available to users (students and academic staff) mainly during regular working hours, with literature indirectly available to students, i.e. only with permission of the departmental teaching staff and/or VFS librarians.

- **Indicate whether the main library holds a list of individual books of the subsidiary libraries.**

  Yes.

- **Describe any other information services and how are they are supported and how student access is regulated.**

Since its establishment in 2004, VFS E-learning system has been created to improve general IT capacities of VFS and assure technical preconditions for self-directed learning of our students, as well as to improve the quality of teaching and communication between VFS teaching staff and students. VFS E-learning system is based on the open source MOODLE® (Modular Object-Oriented Dynamic Learning Environment) platform (current version: Moodle® release: 2.6+). MOODLE platform has numerous advantages in technical support to teaching:

  - High accessibility – serves thousands of users daily;
  - Scalability – tolerates increased number of users without performance failure;
  - Easy to use for students and teachers;
  - High flexibility and customisation – can be customised in any way and tailored to individual teaching needs;
  - Interoperability – easily integrated to any existing software;
  - Stability – ensures a stable continuous service to students and teachers;
  - Safety – no safety risk higher than that of other IT system components.

Some of main characteristics of VFS E-learning are:

- 66 courses (subjects) have been created with 730 registered users registered so far,
- More than 11,000 downloaded teaching materials and resources,
- Dozens of created online tests with more than 16,000 test questions
- 165 users/students daily in average.
Access to VFS E-learning system is granted to students with their admission, when each student is assigned with own E-mail address from the VFS domain, which greatly eases the student-teacher communication.

8.2 COMMENTS

❖ Please comment on the adequacy of the books and accessible journals, of the opening hours and of the provision of reading spaces and support personnel.

Library investments crucially depend on purposely allocated funds to VFS, which crucially defines adequacy and accessibility of its learning and scientific resources. Without an adequate budget librarians are not able to purchase actual textbooks or subscribe to scientific journals. Working and opening hours of VFS Library does not differ from libraries of other UNSA faculties.

There is a need to centralise VFS library material and to increase its accessibility. Having in mind a large amount of information sources, number of VFS students and other library service users, and the necessity for a detailed reorganisation of stack, work, management, financing, and opening hours of VFS Library, the need to employ an additional qualified librarian is obvious.

❖ Please comment on the Faculty’s provision of IT-facilities and the approach to self-learning, and on the further developments in this area.

Current use of IT capacities (particularly of library resources) of VFS is minimal. By final introduction of the COBISS system online library catalogue will be created, which will allow unlimited online search criteria and an increased functionality and efficiency of the VFS Library.

It is crucial to secure access (especially) to bibliographic databases, especially to those which allow full access to scientific journals, such as those of worldwide known publishers as Thompson, Elsevier, or Wolters Kluwer.

8.3 SUGGESTIONS

Having in mind provisions of present regulation on librarianship in B&H3, as well as organisational and working mode of libraries of advanced European universities, to provide a stable and modern library service for VFS students and academic personnel, the following activities shall be undertaken:

− To provide an internal regulation on work of VFS Library. As a start material may be used the draft of the Regulation on VFS Library, which is made and submitted to VFS management by LIC VFS employees;
− To appoint a library committee of VFS to assure an efficient coordination and management of library and publishing activities of VFS;
− To put additional efforts to secure annual library budget with precisely defined incomes and expenditures

3 The Act on Library Activity („Official Gazette of Republic of Bosnia and Herzegovina“, no. 37/95, )
– To centralise all VFS library material to provide an economic and efficient use;

– To reconsider status of VFS Library and librarians in entire organisational scheme of VFS, as well as to ensure additional library employees or at least to secure funds to provide for part-time student employment.
Chapter 9: STUDENT ADMISSION AND ENROLMENT

9.1 UNDERGRADUATE COURSES

9.1.1 UNDERGRADUATE STUDENT NUMBERS

Table 9.1 asks for numbers of undergraduate students in the veterinary training institution. This means students enrolled for undergraduate training and paying the corresponding tuition fees (if applicable), except for those students who do not participate in the teaching offered. Some veterinary curricula require students to successfully complete all courses presented in an academic year before they can start the subjects in the following year. In other establishments students have to complete all the subjects in the curriculum before graduating, but can do so in a more flexible way. In the latter instance, it may be difficult – perhaps impossible – to place some of the students in a specific year of the programme.

If this is so, Table 9.1 may be omitted, or be an approximate figure, or be calculated by reference to the course of year that corresponds to the largest number of subjects taken.

In any case, please indicate the minimum no of years (MNY) allowed to successfully complete the curriculum.

MNY: 5 years

Table 9.1: Undergraduate student composition in year prior to visitation (academic year 2012/13).

<table>
<thead>
<tr>
<th>Total number of undergraduate students</th>
<th>477</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of male students</td>
<td>253 (53.04 %)</td>
</tr>
<tr>
<td>Total number of female students</td>
<td>224 (46.96 %)</td>
</tr>
<tr>
<td>Foreign students</td>
<td>33 (6.92 %)</td>
</tr>
<tr>
<td>- from EU countries</td>
<td>15 (3.15 %)</td>
</tr>
<tr>
<td>- from non-EU countries</td>
<td>18 (3.77 %)</td>
</tr>
</tbody>
</table>

9.1.2 STUDENT ADMISSION

State the minimum admission requirements

The minimum admission requirements are defined by the respective cantonal legislation\(^1\), and by the UNSA Decision\(^2\) issued regularly for each academic year. The student admission at VFS has been done in line with a public notice annually published in newspapers and on the VFS web-site. Any candidate who completed a four-year highschool education is eligible to apply for the admission.

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\(^1\) The Act on Higher Education in the Canton of Sarajevo („Official Gazettete of the Canton of Sarajevo“, no. 42/13).

\(^2\) The Decision on Criteria for Definition of the Ranking System for Admission of Candidates for Enrolment in the First Year of Study at the University of Sarajevo.
**Indicate whether there is a limit to the number of students admitted each year.**

The standard annual VFS admission capacity is officially proposed to the UNSA Senate by the TSC VFS in line with official pedagogic standards in higher education\(^3\). According to the standards, VFS, as a member of the UNSA Group of Medical Sciences, annually admit 100 students in the first study year. A higher intake is allowed, but if it exceeds 50% of an optimum intake, the teaching process must be organised in two teaching lines (groups). After being discussed and approved by the UNSA Senate, the proposed annual intake must be finally approved by the UNSA Founder\(^4\).

**Describe how the number of government-funded student places is determined.**

Number of the government-financed students to be admitted to the first study year is determined by the mentioned cantonal standards for higher education and the proposal of the TSC VFS, which has to be approved by the UNSA Senate and the Government. Until the academic 2011/2012 year, VFS used to admit all qualified candidates as budget-financed students, as approved by the Government. Since commencement of the 2012/2013 academic year, the current VFS management has decided to breakdown the standard intake of 100 students into a group of 65 budget-funded students and a group of 35 self-financing students in line with preceding approvals from the UNSA Senate and the Government\(^5\). The UNSA annual tuition fee is determined by the Decision of the Government of the Canton of Sarajevo\(^6\) and in our case amounts in cca. 1.500 EUR.

**Outline any selection process (or criteria) used in addition to the minimum admission requirements.**

The VFS Commission for Student Admission, which is annually appointed by the TSC VFS, scores the applicants in line with the following UNSA criteria\(^7\):

- The total GPA in entire four-year highschool education,
- The GPA in highschool subjects of importance for veterinary education (Biology, Chemistry, Physics, and Mother Language),
- Accomplishments in contests in highschool subjects of importance for veterinary education (Mathematics, Informatics, Physics and foreign languages). The candidates receive extra points for every first, second and/or third place awarded in any officially organised contests on municipal, city, cantonal, entity and/or national level.

After the scoring, the Commission ranks the candidates and lists the candidates for the status of budget-funded student and those allowed to be enrolled as self-financing students. After adoption by the TSC VFS, the ranking list is officially announced on the VFS bulletin board and VFS web-site. Within a 3-day deadline from the announcement, candidates are allowed to submit an official appeal to the TSC VFS, which makes final decisions on all

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\(^3\) The Standards and Norms for Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 04/06).

\(^4\) The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth.

\(^5\) Number of budget-financed and self-financed students is determined by the Government of the Canton of Sarajevo in line with provisions of Articles no. 134 and 135 of the Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).

\(^6\) The Decision on Approval of Tuition Fee and Other Expenses of Study at the University of Sarajevo, the Government of the Canton of Sarajevo, document no. 02-05-1928-9/09 from June 11, 2009.

\(^7\) The Decision on Criteria for Definition of the Ranking System for Admission of Candidates for Enrolment in the First Year of Study at the University of Sarajevo.
appeals and adopts the final official ranking list. Students that fulfil official admission criteria, but are not ranked as budget-funded students are permitted to be enrolled in the first study year as self-financing students.

- Describe whether students applying for and/or starting veterinary training have an equal or very variable knowledge base in scientific disciplines from their previous studies.

Generally, students who have finished a veterinary highschool program display better knowledge in veterinary preclinical and clinical subjects.

- Describe any circumstances under which extra students may be admitted to the undergraduate veterinary course.

Students from the same and/or related study programme in B&H or abroad are allowed to be enrolled in VFS undergraduate study programme as extra students. That enrolment is approved by the VFS Dean and the TSC VFS under circumstances defined in the UNSA Statute\(^8\).

In line with the final official ranking list of candidates for enrolment in the first study year and a previous approval of the cantonal Ministry of Education, Science and Youth, all candidates that have met the formal admission criteria are allowed to be admitted as self-financing students extra to the officially allowed standard intake of students. In that case the TSC VFS must submit an official document to the Ministry to demonstrate that VFS possesses sufficient teaching capacity to ensure a regular teaching process for the increased number of students as defined in relevant legislation\(^9\) and standards\(^10\).

- Outline any changes foreseen in the number of students admitted annually. If applicable, describe how the Faculty plans to adjust to these changes.

Any significant change in the VFS annual enrolment is not expected. The number of candidates interested to study at VFS is in average for 20% to 30% higher than the standard VFS annual intake. However, it is a general VFS standpoint that the standard intake should be adjusted to needs of veterinary labour market, but provided that the budget allocation to VFS is based on fulfilment of the standard intake, which is anyway insufficient even with the current intake (Chapter 3). Assurance of the right of qualified candidates to be admitted to a public study programme has been addressed by the possibility of self-financing, and changes in admission criteria and the mentioned pedagogic and other standards in higher education are not under jurisdiction of VFS.

- Table 9.2 asks for the numbers of undergraduate students admitted to the Faculty over the last five years. Apart from the ‘standard’ intake, the Faculty may also be taking in students as transfers from other courses, privately funded students, etc. Please indicate any supplementary intake of this kind in the last column of the table.

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\(^8\) The Statute of the University of Sarajevo from June 28, 2013.

\(^9\) The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).

\(^10\) The Standards and Norms for Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 04/06).
Table 9.2: Intake of veterinary students in the past five years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number applying for admission</th>
<th>Number admitted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'Standard' intake</td>
<td>Other entry mode</td>
</tr>
<tr>
<td>N*(2012/2013)</td>
<td>118</td>
<td>96</td>
</tr>
<tr>
<td>N-1 (2011/2012)</td>
<td>121</td>
<td>121</td>
</tr>
<tr>
<td>N-2 (2010/2011)</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>N-3 (2009/2010)</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>122.2</strong></td>
<td><strong>117.8</strong></td>
</tr>
</tbody>
</table>

* Year prior to evaluation; 1 = an admitted student from the Faculty of Veterinary Medicine, University of Belgrade (Serbia).

9.1.3 STUDENT FLOW

Table 9.3 establishes to what extent students make progress in their studies. To this end, we look at the students who were admitted initially and which year they have reached after the MNY (see page 63) has elapsed.

Table 9.3A: Student flow and total number of undergraduate veterinary students (for the 2008/2009 class of VFS student).

<table>
<thead>
<tr>
<th>Number of students present after admitted year 1</th>
<th>Flow (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year (2008/2009)</td>
<td>108</td>
</tr>
<tr>
<td>2nd year (2009/2010)</td>
<td>28</td>
</tr>
<tr>
<td>3rd year (2010/2011)</td>
<td>26</td>
</tr>
<tr>
<td>4th year (2011/2012)</td>
<td>25</td>
</tr>
<tr>
<td>MNY 5th year (2012/2013)</td>
<td>25</td>
</tr>
<tr>
<td>6th year (2013/2014)</td>
<td>17²</td>
</tr>
</tbody>
</table>

1 = mark year matching MNY; 2 = graduate students in the officially allowed status of “prolonged graduate student”, which is granted for 1 year after MNY to all students who completed the last year teaching, but have not completed examinations.

Table 9.3B: Distribution and total number of undergraduate veterinary students in the 2012/2013 academic year.

<table>
<thead>
<tr>
<th>Number of students present after admitted year 1</th>
<th>Number of additionally admitted students</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st year¹</td>
<td>96² + 100³</td>
<td>196</td>
</tr>
<tr>
<td>2nd year</td>
<td>60¹ + 3³</td>
<td>63</td>
</tr>
<tr>
<td>3rd year</td>
<td>68² + 14³</td>
<td>1⁵</td>
</tr>
<tr>
<td>4th year</td>
<td>73² + 32³</td>
<td>105</td>
</tr>
<tr>
<td>MNY 5th year</td>
<td>65²</td>
<td>65</td>
</tr>
<tr>
<td>6th year</td>
<td>52²</td>
<td>52</td>
</tr>
<tr>
<td>Number of undergraduate veterinary students</td>
<td></td>
<td>564</td>
</tr>
</tbody>
</table>

¹ = mark year matching MNY; 2 = regular students; 3 = students retaking the study year; 4 = the prolonged graduate students; 5 = a student admitted from the Faculty of Veterinary Medicine, University of Zagreb (Croatia).
Table 9.4: Number of students graduating annually over the past five years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number graduating</th>
</tr>
</thead>
<tbody>
<tr>
<td>N* (2012/2013)</td>
<td>67</td>
</tr>
<tr>
<td>N-1 (2011/2012)</td>
<td>37</td>
</tr>
<tr>
<td>N-2 (2010/2011)</td>
<td>49</td>
</tr>
<tr>
<td>N-3 (2009/2010)</td>
<td>84</td>
</tr>
<tr>
<td>N-4 (2008/2009)</td>
<td>60</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>59.4</strong></td>
</tr>
</tbody>
</table>

* Year prior to evaluation

Table 9.5: Average duration of studies (distribution of students in years)*in 2012/2013

<table>
<thead>
<tr>
<th>Duration of attendance (in years)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years 0¹ (5 years)</td>
<td>10</td>
</tr>
<tr>
<td>Years 1 (6 years)</td>
<td>12</td>
</tr>
<tr>
<td>Years 2 (7 years)</td>
<td>21</td>
</tr>
<tr>
<td>Years 3 (8 years)</td>
<td>9</td>
</tr>
<tr>
<td>Years 4 (9 years)</td>
<td>6</td>
</tr>
<tr>
<td>Years 5 (10 years)</td>
<td>3</td>
</tr>
<tr>
<td>Years &gt; 5 (&gt; 10 years)</td>
<td>6</td>
</tr>
</tbody>
</table>

¹ = Year matching the MNY allotted to the veterinary curriculum; * Year prior to evaluation

According to the data presented in Table 9.5, average duration of study at VFS is **7.33 years**.

- **Describe the requirements (in terms of completing subjects and examinations) for progression to a subsequent year of the course.**

A VFS student is allowed to be enrolled in a subsequent study year given that she/he has scored a minimum of 54 ECTS points.

- To progress to the second study year, a first-year student has to pass final examinations in all of the first-year core subjects (Chapter 4, Table 4.1.1), except the examinations in Molecular Biology and Biotechnology and English Language in Veterinary Medicine, which are allowed to carry over to the second year and have to be passed before taking examinations in the second-year subjects.

- To progress to the third study year, a second-year student has to pass final examinations in all of the second-year core subjects (Chapter 4, Table 4.1.1), except the examinations in Veterinary Parasitology, which is allowed to carry over to the third year and has to be passed before taking examinations in the third-year subjects. In addition, the student has to take and pass 4 of the elective subjects offered in the second study year (Chapter 4, Table 4.1.2).

- To progress to the fourth study year, a third-year student has to pass final examinations in all of the third-year core subjects (Chapter 4, Table 4.1.1), except the examinations in Physiology and Pathology of Reproduction of Domestic Animals I and Ethology and Animal Welfare, which are allowed to carry over to the fourth year and have to be passed before taking examinations in the fourth-year subjects. In addition,
the student has to take and pass 1 of the elective subjects offered in the third year (Chapter 4, Table 4.1.2).

✓ To progress to the fifth study year, a fourth-year student has to pass final examinations in all of the fourth-year core subjects (Chapter 4, Table 4.1.1), except the examinations in Hygiene and Technology of Milk and Milk Products and Veterinary Radiobiology with Radiation Hygiene, which is allowed to carry over to the fifth year and have to be passed before taking examinations in the fifth-year subjects. In addition, a fourth-year year student has to take and pass 2 of the elective subjects offered in the fourth year (Chapter 4, Table 4.1.2).

✓ To complete the VFS undergraduate study programme and earn the degree of Doctor of Veterinary Medicine, a fifth-year student must to pass final examinations in all of the fifth-year core subjects (Chapter 4, Table 4.1.1), as well as the examinations in 2 elective subjects taken from the list of electives offered in the fifth year (Chapter 4, Table 4.1.2).

Passing the mentioned examinations that are allowed to carry over to a subsequent study year is not a prerequisite to be enrolled in teaching in subjects in the subsequent study years.

❖ Describe the academic circumstances under which the Faculty would oblige students to leave the course.

According to the provisions of Article 126 of the UNSA Statute, a student loses the status of budget-funded student if she/he repeats an academic year twice during the study programme. Also, it is imposed that the status is lost if a student consecutively repeats the same study year twice and does not meet criteria to enrol in the subsequent study year, but the student is allowed to enrol in the subsequent year as a self-financing student.

Article 142 of the UNSA Statute determines the following circumstances of terminating the status of student of the UNSA:

a) A successful completion of a study programme,
b) A personal dropout of the UNSA/faculty,
c) A failure to enrol the subsequent or to repeat the present academic year,
d) A pronouncement of disciplinary measure of permanent expulsion from the UNSA/faculty,
e) A failure to successfully complete a study programme within the legally imposed deadlines, which are derived from provisions of the mentioned Article 126 of the UNSA Statute; it is assumed that resumption of the university education depends on personal financial ability of students to continue the education as self-financing students.

Provisions of Article 84 of the Act and Articles 139 and 140 of the UNSA Statute define disciplinary procedure, student responsibilities, and disciplinary measures. Disciplinary measures for student misdemeanours are imposed by a disciplinary commission appointed by the dean of the faculty. The commission is constituted of a chair and two members: a

11 The Statute of the University of Sarajevo from June 28, 2013.
12 The Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13).
13 The Statute of the University of Sarajevo from June 28, 2013.
member of teaching staff and a student representative proposed by student association of the faculty. Within 15 days from pronouncement of a disciplinary measure by the commission, the student is allowed to appeal to the faculty council. The pronounced disciplinary measures are archived in the student dossier. Serious student offences include: forgery of student documents, plagiarism, fraudulent presentation, illegal access to information system of UNSA/faculty, deliberate damage of material assets, misbehave in university facilities (provoking chaos or fights), serious damage the UNSA/faculty reputation). The disciplinary measures include:

1. Admonition,
2. Pre-expulsion admonition,
3. Temporary expulsion up to one year from the UNSA/faculty,
4. Permanent expulsion up to one year from the UNSA/faculty.

9.2 COMMENTS

❖ **Comment on standard of the students starting the course.**

VFS students come from all parts of B&H, as well as from the surrounding and some EU-countries (Croatia, Serbia, Montenegro, Slovenia, and Hungary). Approximately two-thirds of VFS students come from middle class, while the rest comes from upper-class intellectual families. Speaking of student standard, the most of students are housed in one of the two student dormitories available in Sarajevo, lease a private accommodation or live with parents (those from the Canton of Sarajevo), while a smaller proportion of has their own flats.

❖ **Comment on the ability of the Faculty to satisfactorily decide the number of students it can accept.**

According to the present organisational and management concept in higher education, VFS is compelled to balance among rights of all qualified applicants to be enrolled in public study programme, its public financing delineated by number of students enrolled in line with imposed pedagogic standards\(^{14}\) and an inert standpoint of the UNSA Founder\(^{15}\) toward quality assurance of teaching for student intake imposed by the standards. All previous measures to improve quality of teaching have been almost exclusively done by VFS own engagement of own income, donation funds or project grants. A misbalance between VFS student enrolment and current demands of veterinary labour market has been also observed and, therefore, there is an increasing trend among veterinary graduates that search for abroad employment or decide to enrol in postgraduate study. A primary objective of VFS as a public higher education establishment is to provide as quality veterinary education as possible to all students given that the competent authorities are expected to align the imposed pedagogical standards and admission criteria with real employment opportunities and financial and other capacities to provide minimal study conditions for the imposed number of students.

❖ **Comment on the factors that determine the number of students admitted.**

\(^{14}\) The Standards and Norms for Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 04/06)

\(^{15}\) The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth.
Number of admitted students for faculties of the UNSA Group of Medical Sciences (in which belongs VFS) is regulated by the Government of the Canton of Sarajevo, and equals to 100 students for first and second study year, and 50 students in third, fourth and fifth study year. Besides that, it should be emphasized that VFS is the only veterinary faculty in B&H with a 65-year tradition.

Current VFS intake of 100 students is the largest number of students that could be provided with minimal conditions for theoretical and practical teaching. There is an increasing trend of number of candidates for enrolment in veterinary and other UNSA study programmes, as well as a nationwide phenomenon of establishing private universities, which is mostly a consequence of a bad economic situation and high unemployment in B&H, as well as a very low labour demand (particularly in public sector) for employees with just a highschool degree. Thus, many young people strive to secure better employment opportunities by enrolment in VFS study programme, as well as to use an opportunity to shift to other, more attractive UNSA biomedical science faculties, but also to use time of university education to find a financially acceptable mode of employment. Currently, approximately a half of B&H veterinarians work in clinical practice, while the trend of employment in veterinary inspection, governmental institutions, diagnostic laboratories, pharmaceutical companies and other (often non-veterinary) companies in country and abroad is increasing. Therefore, the Government should take into consideration all of the mentioned factors and indicators when discussing and defining the pedagogic standards, student admission and enrolment criteria.

- **Comment on the adequacy of the facilities and teaching programme to train the existing number of students.**

The VFS teaching capacities may be described considered as minimum satisfactory for the number of enrolled students, but in the light of the current cantonal criteria. The Curriculum of the Integrated First and Second Cycle Study of Veterinary Medicine is adjusted to the Bologna Principles, and theoretical and practical teaching is organised and realised in line with planned curriculum hours and workload of teaching and technical staff. Teaching staff for all veterinary core and elective subjects is appointed, while the teaching in general subjects (Sociology, Gymnastics-Sport English Language in Veterinary Medicine) is done by the teachers for other UNSA faculties.

However, albeit there is a separate lecture room for students of each study year and teaching facilities for laboratory and group training, as well as for clinical training in small animal (the VFS Clinics) and large animal (the farm “Bojnik”) practice,), it is necessary to, in a smaller or bigger extent, improve and modernise those teaching capacities with respect to adequacy and safety for teaching and teaching quality assurance. Also, it is essential to increase capacities of intramural and extramural practical student work, either by establishment of our own teaching farm and other facilities, or by an increase of reliable contracted cooperation with public and private farms and companies. VFS staff employed for teaching is minimal as determined by budget allocations for salaries, but often inadequate to

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16 Number of budget-financed and self-financed students is determined by the Government of the Canton of Sarajevo in line with provisions of Articles no. 134 and 135 of the Act on Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 42/13)

17 The Standards and Norms for Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo “, no. 04/06).

18 The Decision of the Senate of University of Sarajevo no.01-38-2927/13 from September 25, 2013
number of students and to legally imposed criteria for student group size in practical training. The integrated VFS curriculum needs to be revised as soon as possible with regard to its adjustment to assure fulfilment of the Day One Competences of veterinary graduates imposed by the EU legislation\(^\text{19}\).

There has been a strive to decrease group size for practical training in last years, which was impossible to achieve in some instances because of large number of enrolled students and limited human and spatial teaching capacities. Having in mind number of students, VFS efforts to provide sufficient teaching capacities, particularly for pre-clinical, clinical, and food hygiene subjects, must overcome current discrepancies in national higher education standards. Considering the strategically\(^\text{20}\) defined efforts of VFS to harmonise with the EAEVE standards and the commenced evaluation, improvement of quality of all teaching capacities should follow the mentioned EU legislation on requirements of veterinary education and profession.

- **Comment on the progress made by students in their studies, and the Faculty's ability to ensure that satisfactory progress is maintained.**

A very small fraction of VFS students does not use the right to carry over final examinations in some subjects to the subsequent year, a large number of students maximally use the right to repeat up to 2 study years in the status of budget-financed student, while a significant number of our students repeat even more than 2 study years as self-financing students. In addition, there is an increasing number of students that take final examination in examination terms just before enrolment in the subsequent study year. Detailed comments of those phenomena are given in Chapter 5, Section 5.2.3.

VFS capacities to improve student flow are limited, either from the point of possible changes in examination policy, or due to financial circumstances. VFS puts all possible efforts to maximally improve its teaching capacities through participation in international developmental and research programmes (Chapter 5, Section 5.1.2), and by that to ensure a satisfactory student flow without compromising examination criteria.

- **Comment on the percentage of students that will eventually graduate.**

According to the data presented in Table 9.4, over the last five years 59.4\% of VFS students graduate within the minimum of 5 years, which makes approximately 50\% of the 117.8 students enrolled in the first study year (Table 9.2). The rest of students decide to use the status of prolonged graduate student, which practically allows them to retain all student rights and benefits for a year more.

If the student intake would be reduced or admission criteria tighten, or if the status of budget-financed student would be constrained by a regular study course (without repeating any study year) or a certain GPA, the proportion of students that graduate from VFS within the minimum of 5 years would be probably bigger.

\(^{19}\) Directive no. 2005/36/EC and no. 2013/55/EU

9.3 SUGGESTIONS

If you are not satisfied with the situation, please state in order of importance any suggestions that you may have concerning this Chapter if you feel unhappy about:

❖ The number of students admitted;

The VFS student intake (100) is marginally too big from the point of our teaching capacities. VFS should put more efforts to lobby for corrections of the mentioned cantonal regulations on pedagogic standards on student admission criteria and intake aimed toward improvement of the teaching quality with regard to real capacities. Using available political influence, respective decision makers should be faced with and made more responsible for current veterinary labour market demands and financial requirements for a modern and quality veterinary education, as well as for timely and proactive changes in the student admission policy with regard of its highly fluctuating determinants.

❖ The drop-out percentage and reasons, if known;

From 2008 to 2012 a total of 589 students commenced the first study year, while 330 (56%) of them dropped out. Most of the dropouts were students of first, second and third year, and the main stated reasons were: too demanding study programme, employment, admission to other faculty, financial or other personal problems.

To address this issue, since 2012 VFS has been organising a VFS Open Doors Day event intended to provide all needed information to future students, which allows them to assess their personal capacities and decide on future enrolment. In addition, VFS has also published “Student Guide”\(^{21}\) (more information in Chapter 5, Section 5.1.5).

❖ The average duration of studies;

VFS students complete our study programme for 7.33 years in average, and we believe that is too long. All available measures that VFS can take to shorten that period include revision of the curriculum, extension of the MNY to 6 years, and improvement of the teaching quality and examination policy in line with respective regulations and student demands.

❖ Other aspects.

In order to improve the quality of our student intake in terms of ability and endeavour of future VFS students to learn, we think that following measures may be done:

✓ As in many European and other countries, to introduce a general university entrance examination for all candidates applying to veterinary and other medical faculties. In that way, final admission ranking of a candidate would result from scoring highschool grades, the entrance examination score and personal admission priorities officially defined by each candidate prior the entrance examination;

✓ Alternatively, to revise VFS admission criteria in terms to assign a certain number of extra points to candidates who finished a veterinary or any other medicine-oriented highschool or to those who were taught more in depth in highschool subjects of importance for veterinary education.

Chapter 10: ACADEMIC AND SUPPORT STAFF

10.1. FACTUAL INFORMATION

 Definitions:
For definitions, also see the section “Main indicators” in Annex I.

Budgeted and non-budgeted posts: A distinction is drawn between:
- posts that are allocated to the Faculty and financed by the university or ministry responsible for the Faculty. These posts can be regarded as more or less permanent. They are termed “budgeted posts”.
- posts that depend upon finance in addition to the allocation of budgeted posts from public money. These posts can fluctuate in number. They are termed “non-budgeted posts”.

Full-time equivalents (FTE): Posts can be occupied full-time or part-time. The number given should correspond to a total of full-time equivalents (FTE). For instance 10 full-time posts plus two part-time posts at 50% plus 1 part-time posts at 80% should be given as a total of 11.8 FTE.

VS versus NVS academic personnel: A distinction has to be made between teaching staff holding the degree of veterinary surgeon (VS) and non veterinary surgeon (NVS) teaching staff.

Teaching staff: It is understood fact that “teaching” staff will also do research.

Research staff: This category includes academic personnel whose main task is to do research work, even though they may from time to time participate in undergraduate teaching.

Support staff: This includes all posts, regardless of the work undertaken; secretaries, administrators, technicians, animal caretakers, cleaners, etc.

Interns, residents, doctoral (Ph.D.) students are not included in the staff numbers unless they perform regular, paid, teaching activities for at least 20% of their workload.

If you find that the distinctions made between different groups of staff do not fit your situation, make the best distribution you can of your personnel between the headings we use. Add an explanatory note if you wish.
Table 10.1: Personnel in the establishment provided for veterinary training (in the commencement of the 2013/14 academic year).

<table>
<thead>
<tr>
<th></th>
<th>Budgeted posts (FTE)</th>
<th>Non-budgeted posts (FTE)</th>
<th>Total (FTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VS¹</td>
<td>NVS²</td>
<td>VS</td>
</tr>
<tr>
<td>1. Academic staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching staff (total FTE)</td>
<td>67</td>
<td>6</td>
<td>0.5</td>
</tr>
<tr>
<td>Research staff (total FTE)</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Others (please specify) (FTE)³</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total FTE</td>
<td>70</td>
<td>9</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total FTE (VS + NVS)</strong></td>
<td><strong>79</strong></td>
<td></td>
<td><strong>0.5</strong></td>
</tr>
<tr>
<td>FTE providing last year teaching</td>
<td>76.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Support staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) responsible for the care and treatment of animals</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>b) responsible for the preparation of practical and clinical teaching</td>
<td>26</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>c) responsible for administration, general services, maintenance, etc.</td>
<td>37</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>d) engaged in research work</td>
<td>1</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>e) others (please specify)</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Total support staff</strong></td>
<td><strong>64</strong></td>
<td></td>
<td><strong>27</strong></td>
</tr>
<tr>
<td>3. TOTAL VFS STAFF</td>
<td>143</td>
<td>27.5</td>
<td>170.5</td>
</tr>
</tbody>
</table>

1 = veterinary surgeon; 2 = non-veterinary surgeon; 3 = VFS has engaged four external teaching associates.

In Table 10.2 supply information on the allocation of personnel to the various departments. The technical term ‘Departments’ refers to the component academic units of the veterinary Faculty and may have another name (e.g. ‘Institute’). The titles of the academic staff grades in the table may differ from country to country, and should be modified to suit your particular situation.
Table 10.2: Allocation of academic (veterinary surgeon and non-veterinary surgeon) teaching staff – expressed as FTE – and support staff to the various departments (in the commencement of the 2013/14 academic year)

<table>
<thead>
<tr>
<th>Department name*</th>
<th>Academic teaching staff</th>
<th>Support staff (see Table 10.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full professor</td>
<td>Associate professor</td>
</tr>
<tr>
<td></td>
<td>VS² NVS³ VS NVS</td>
<td>VS NVS VS NVS</td>
</tr>
<tr>
<td>Epizootiology Division</td>
<td>5 0 5 0 2 0 6 0 1 0 0 0</td>
<td>10 0 0</td>
</tr>
<tr>
<td>Morphology Division</td>
<td>2 1 2 0 1 2 3 0 1 1 2 3</td>
<td>5 0 0</td>
</tr>
<tr>
<td>Zootecchnics and Poultry Division</td>
<td>4 0 2 0 4 0 1 0 0 0 1 0</td>
<td>6 0 0</td>
</tr>
<tr>
<td>Food Hygienic Control and Environmental Division</td>
<td>1 2 1 0 2 0 2 0 0 0 0 0</td>
<td>12 0 0</td>
</tr>
<tr>
<td>VFS Clinics</td>
<td>3 0 3 0 3.5 0 12 0 1 0 0 0</td>
<td>10 1 0</td>
</tr>
<tr>
<td>Office of Secretary + LIC VFS</td>
<td>0 0 0 0 0 0 0 0 0 0 0 0</td>
<td>0 0 47</td>
</tr>
<tr>
<td><strong>TOTAL FTE</strong></td>
<td>15 3 13 0 12.5 2 24 0 3 1 3 3</td>
<td>43 1 47</td>
</tr>
<tr>
<td><strong>TOTAL FTE</strong></td>
<td><strong>170.5</strong></td>
<td></td>
</tr>
</tbody>
</table>

*main VFS organisational units (Appendix 2); 1= external teaching associates (4) + research personnel involved in teaching (2); 3 = veterinary surgeon; 3 = non-veterinary surgeon; LIC VFS = Library and Informatics Centre of VFS
Ratios: From the above data please delineate the following ratios

Table 10.3: Ratios students/staff \(^1\).

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Formula</th>
<th>Value</th>
<th>Reference Value</th>
</tr>
</thead>
</table>
| R 1:  | \[
\frac{\text{No. of undergraduate veterinary students}^4}{\text{No. of total academic FTE in veterinary training}^3}
\] | \[
\frac{564}{76.1} = 7.411
\] | Max: 8.381 |
| R 2\(^1\): | \[
\frac{\text{No. of undergraduate students at Faculty}}{\text{No. FTE total at Faculty}}
\] | - | Max: 9.377 |
| R 3:  | \[
\frac{\text{No. of undergraduate veterinary students}^2}{\text{No. of VS FTE in veterinary training}^3}
\] | \[
\frac{564}{70.5} = 8.000
\] | Max: 11.057 |
| R 4:  | \[
\frac{\text{No. of students graduating annually}^4}{\text{No. of VS FTE in veterinary training}^3}
\] | \[
\frac{59.4}{70.5} = 0.843
\] | Max: 2.070 |
| R 5:  | \[
\frac{\text{No. of total FTE support staff in veterinary training}^5}{\text{No. of total academic FTE in veterinary training}^3}
\] | \[
\frac{91}{76.1} = 1.196
\] | Range: 0.505 – 1.907 |

\(^1\)does not apply to VFS – applies only to those faculties which offer other study programmes besides veterinary study; 2 = Table 9.3; 3 = Table 10.1; 4 = Table 9.4.

Outline how the allocation of staff to the Faculty is determined.

Allocation of staff to VFS is regulated by a systematisation of working posts, which is a part of the Regulation on Work of VFS\(^2\). Having in mind the ongoing process of the UNSA integration and provisions of the UNSA Statute\(^3\), the mentioned systematisation and the Regulation are of a temporary nature until endorsement of new regulations of all UNSA member faculties as UNSA organisational units. The numbers of VFS employees (Tables 10.1 and 10.2) are in line with relevant standards of the Canton of Sarajevo\(^4\).

\(^1\)The shown equations for calculation of the ratios and their respective reference values recommended by the EAEVE are applied in accordance with the latest edition of the Supplement A, the Annex la (dated on February 21, 2014) of the EAEVE document “Evaluation of Veterinary Training in Europe” provided by personal E-mail communication with Professor Dr. Pierre Lekeux, Director of the EAEVE Evaluation/Accreditation Programme.

\(^2\)The Regulation on Work of the Veterinary Faculty Sarajevo, no. 01-02-598-2/06 from December 11, 2006, amended by no. 01-02-598-3/06 from January 25, 2007 and no. 01-02-598-4/06 from September 17, 2007.

\(^3\)The Statute of the University of Sarajevo from June 28, 2013.

\(^4\)The Standards and Norms for Higher Education in the Canton of Sarajevo („Official Gazette of the Canton of Sarajevo“, no. 04/06).
Outline how the allocation of staff to the departments (or other units) within the Faculty is determined.

Internal allocation of staff to the VFS organisational units is done in line with expressed staff requests and workloads (teaching, research, and diagnostic work) related to certain working post and organisational unit of VFS.

Final decision on employment of requested teaching staff is made by the TSC VFS, while decision on employment of support staff is made by the VFS Dean.

Indicate whether there are difficulties in recruiting or retaining staff.

Employment of new, as well as retaining of existing VFS staff is difficult due to financial limitations by the UNSA Founder (Chapter 3).

Describe (if appropriate) any relevant trends or changes in staff levels or the ability to fill vacancies over the past decade.

Having in mind the mentioned limitations to fill budget working posts financed by the UNSA Founder, difficulties in hiring new, especially teaching personnel have been evident. That problem has been particularly emphasized when it comes to young teaching staff, which may be seen in Table 10.2, i.e. by the fact that VFS currently employs only 4 teaching assistants. In addition, it is an “ordinary” circumstance that all salary raises related to promotions to higher academic positions are not financed from regular budget funds, but from VFS own incomes. For more, VFS employs a relatively high number of non-budget personnel (Table 10.1), which is paid from own incomes from VFS diagnostic and clinical services and projects. VFS has been successful to overcome such financial difficulties so far. Nonetheless, bearing in mind the present poor political and financial situation in B&H, which have been directly reflected in financial instability of VFS, the mentioned human resource obstacles become more evident and actually present an essential problem for efficient planning, management and development of VFS human resources and VFS as a whole.

Indicate whether it is easy to employ additional staff from service income (e.g. from revenues of clinical or diagnostic work).

As previously emphasized, non-budget work posts are exclusively financed from own VFS income from clinical and diagnostic services and developmental and research projects. Those post are temporary, depending on duration of projects or contracts in question. However, having in mind the relatively high number of non-budget posts (Table 10.1) and the extremely limited financing by the UNSA Founder (Chapter 3), employment of any additional personnel is difficult.

Describe the regulations governing outside work, including consultation and private practice, by staff working at the establishment.

Private work outside VFS is allowed with respect of provisions of the Act on Labour of FB&H, and regulated by employment contracts, which ban any competition between the employer and the employee in terms of prohibiting to employees any private work defined in VFS business portfolio without prior consent of the Dean.

5 The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth.

6 The Act on Labour in the Federation of Bosnia and Herzegovina (“Official Gazette of FB&H”, no. 43/99, 32/00 and 29/03).
Describe the possibilities and financial provisions for the academic staff to:

a) attend scientific meetings;

Participation in scientific events is annually planned in the VFS Business Plan. Academic personnel plan those activities in line with personal needs for scientific and professional development and financial capacity of VFS.

b) go on a sabbatical leave.

According to provisions of Article 179 of the UNSA Statute, academic personnel is allowed to go on a sabbatical leave for a maximum of two semesters with reserved all personal rights and benefits. The reasons to approve a sabbatical leave include research to pursue a PhD or Master of Science degree, personal scientific and/or professional development at or academic exchange with other higher education establishments, or carrying out activities of a special interest of UNSA or its member faculties. Final approval of a sabbatical leave is made by the UNSA Rector and the dean of respective faculty given that funds to cover the related expenses and a teacher substituting the person requesting the leave are secured.

10.2. COMMENTS

Comment on the numbers of personnel in the various categories.

The numbers of personnel in defined categories has been limited by the mentioned systematisation within the Regulation of Work of VFS. Having in mind that VFS is in a phase of a legal transition due to the ongoing process of integration of UNSA, current relations teaching vs. support staff and budget vs. non-budget personnel (Tables 10.1 and 10.3) are absolutely impossible to change until adoption of new regulations of all UNSA member faculties as UNSA organisational units. Unfortunately, such bureaucratic circumstances do not allow any effective changes of the existing obsolete and dysfunctional systematisation of working posts that limits the structure of VFS employees in terms of increasing the number of budget-funded academic personnel.

Number of employees per working post depends on complexity of the work and teaching norm of the post in question. However, considering the general complexity and specifics of a veterinary compared to other study programmes, a high enrolment of VFS undergraduate students, and a permanent must of teaching personnel to be involved, besides teaching work, in research, publishing, and operative diagnostic activities of VFS as well, it is more than obvious that the current number of teaching staff, especially of young personnel involved in practical training, is insufficient.

Comment on the salary levels, especially those of academic staff in relation to the level of income in the private sector.

Salary coefficients of VFS employees are regulated by the UNSA Founder (Chapter 3) and we believe that the salaries, particularly salaries of our academic personnel, are insufficient, i.e. smaller when compared to those of private practitioners and other colleagues employed in private sector or in various governmental institutions.

7 The Statute of the University of Sarajevo from June 28, 2013.
8 The Regulation on Work of the Veterinary Faculty Sarajevo, no. 01-02-598-2/06 from December 11, 2006, amended by no. 01-02-598-3/06 from January 25, 2007 and no. 01-02-598-4/06 from September 17, 2007.
9 The Decision of the Government of the Canton of Sarajevo no. 02-05-22186-6/07 from August 23, 2007
Comment on the ease or difficulty of recruiting and retaining personnel.

Recruitment of personnel depends on amount of budget allocations from the Ministry of Education, Science and Youth of the Canton of Sarajevo, which are evidently insufficient for basic running of VFS (Chapter 3). Employment of new personnel is possible only in an existing post when it becomes vacant, i.e. to open a new budget post based on the existing curriculum is practically impossible. Possibilities to open new vacancies would be opened only by amendments (extensions) of the existing study programme or by opening new ones, which again must be approved by the Ministry. Nevertheless, bearing in mind the existing general financial crisis in B&H, real chances to get such approval that would imply additional financial burden to the cantonal budget are minor.

Comment on the percentage of veterinarians in the academic staff.

VFS academic staff is mainly consisted of veterinary surgeons. As seen in Table 10.1, only six of our teachers, engaged from other higher education establishments, belong to the non-veterinary surgeon group. Thus, from the professional standpoint, we believe that proportion of veterinarians in total VFS academic personnel is adequate.

10.3. SUGGESTIONS

For a better running of entire VFS teaching and research process and respective support services, it is essential to adjust existing systematisation of VFS work posts to real circumstances. Considering the ongoing UNSA integration, that adjustment may last due to harmonisation of regulations at the UNSA level (see the first comment in Section 10.2).

Present circumstances of teaching and research work of VFS imply financial limitations as described in Chapter 3 and Section 10.2 of this Chapter. For that reason, it is crucial that the UNSA Founder\(^{10}\) and other relevant competent authorities and governmental institutions recognise all specifics of our study programme and importance of VFS as the only veterinary faculty in B&H, as well as all of our diagnostic, clinical and research competences and services, and accordingly allocate more budget funds, particularly having in mind a legal recognition\(^{11}\) of veterinary medicine and education as activities of a high national significance.

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\(^{10}\) The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth.

\(^{11}\) The Act on Veterinary Medicine in Bosnia and Herzegovina („Official Gazette of B&H“, no. 34/02).
Chapter 11: CONTINUING EDUCATION

11.1 FACTUAL INFORMATION

Please describe the role of the Faculty in providing continuing education.

Continuing education of veterinarians through the VFS Programme for Lifelong Learning implies all theoretical and practical teaching and research activities of VFS aimed to improve knowledge, skills and competences of veterinary professionals. Such form of education is a reflection of dynamics, creativity, flexibility, and competitiveness of every higher education establishment. It is well known that contemporary developments in veterinary medicine require establishment of a new educational system which should not be ended with completion of formal veterinary education, but needs to be continued along the career.

On December 27, 2012 the TSC VFS adopted the VFS Plan for Continuing Education in 2013 (Table 11.1), which was an initial formal planning of LLL as an education service of VFS. By that VFS has partially assumed liability for LLL of fellow B&H veterinarians. However, the adopted programme have not considered planning of permanent education and development of own teaching personnel with respect to quality assurance of the programme, which means that VFS teaching staff independently decides on its own education and professional development, as well as on LLL courses and workshops offered through the VFS LLL programme. The exception is VFS clinical teaching personnel who have a long-time unofficial cooperation with the North American Veterinary Conference (NAVC) and the Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Florida (CVM UF), USA, which provided one-month or shorter advanced educations of VFS clinical teaching staff. The cooperation with UF has been recently formalised by the Cooperative Agreement ¹ and now implies exchange of academic personnel. In addition, the Agreement also obligates VFS to annually engage the UF colleagues and organises their lectures for VFS teaching staff and field veterinarians within the “Symposium of Large and Small Animal Practice Veterinarians of Bosnia and Herzegovina with International Participation”.

Formal adoption of the VFS LLL Plan was probably caused by the present unenviable financial circumstances (Chapter 3), where a priority was given to improvement of financial performance of VFS and real LLL needs were ignored. This may be illustrated by the fact that only 30% of the income from LLL is allocated to VFS, while the rest is paid to VFS personnel engaged in courses and workshops. In addition, it is important to emphasize that in spite of importance of the VFS Plan for Continuing Education in 2013 as an initial formal planning of LLL activities of VFS, it has been never tried to fully execute all of the planned courses and workshops. Realisation of the planned LLL activities has been based on personal enthusiasm of some VFS academic personnel, which is supported by the fact that from all the courses/workshops from Table 11.1 only those under number 3, 7, and 16 have been successfully realised.

¹http://vfs.unsa.ba/web/images/dokumenti/international/agreement/UNSA_VF_CA_2012_Fully_Executed.pdf
Table 11.1: VFS Plan for Continuing Education in 2013.

<table>
<thead>
<tr>
<th>Title of course/workshop/symposium</th>
<th>Offered by (VFS organisational units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Morphologic research of single-or tissue-grouped cells</td>
<td>Dept. for Pathology</td>
</tr>
<tr>
<td>2. Macroscopic pathomorphological changes and quality assessment of meat of slaughtered food-producing animals</td>
<td>Dept. for Pathology</td>
</tr>
<tr>
<td>3. HACCP system – design and implementation</td>
<td>Dept. for Food Hygiene and Technology</td>
</tr>
<tr>
<td>4. Laboratory methods and techniques in food hygiene</td>
<td>Dept. for Food Hygiene and Technology</td>
</tr>
<tr>
<td>5. Veterinary and sanitary meat control</td>
<td>Dept. for Food Hygiene and Technology</td>
</tr>
<tr>
<td>6. Practical importance of morphophysiology of the oral cavity in dogs</td>
<td>Dept. for Anatomy and Histology with Embryology</td>
</tr>
<tr>
<td>7. Education of veterinarians in diagnostics of <em>Trichinella spiralis</em> larvae by digestion method</td>
<td>Laboratory for Parasitology</td>
</tr>
<tr>
<td>8. Education of veterinarians in coprological diagnostics of endoparasites in dogs and cats</td>
<td>Laboratory for Parasitology</td>
</tr>
<tr>
<td>9. Education of veterinarians in dermatological diagnostics of endoparasites in dogs and cats</td>
<td>Laboratory for Parasitology</td>
</tr>
<tr>
<td>10. Education of veterinarians in diagnostics of diseases in salmonid fish</td>
<td>Section for Aquaculture</td>
</tr>
<tr>
<td>11. Education of veterinarians in diagnostics of diseases of cyprinid fish</td>
<td>Section for Aquaculture</td>
</tr>
<tr>
<td>12. Diseases of the alimentary tract in cattle and horses</td>
<td>Dept. for Internal Diseases of Domestic Animals</td>
</tr>
<tr>
<td>13. Actual bacterial diseases in birds</td>
<td>Centre for Poultry and Rabbit Farming</td>
</tr>
<tr>
<td>14. Actual viral diseases in birds</td>
<td>Centre for Poultry and Rabbit Farming</td>
</tr>
<tr>
<td>15. Disinfection, Desinsection and Deratisation</td>
<td>Centre for Poultry and Rabbit Farming</td>
</tr>
<tr>
<td>16. Symposium of Large and Small Animal Practice Veterinarians of B&amp;H with International Participation</td>
<td>VFS and CVM UF*</td>
</tr>
<tr>
<td>17. Molecular microbiology: PCR identification of bacteria</td>
<td>Dept. for Microbiology**</td>
</tr>
<tr>
<td>18. Molecular microbiology: immunoblotting technique</td>
<td>Dept. for Microbiology**</td>
</tr>
<tr>
<td>20. Isolation &amp; identification: dermatophytes</td>
<td>Dept. for Microbiology**</td>
</tr>
<tr>
<td>21. Serological diagnostics of leptospirosis: MAT</td>
<td>Dept. for Microbiology**</td>
</tr>
<tr>
<td>22. Isolation &amp; identification: <em>Mycoplasma</em> spp.</td>
<td>Dept. for Microbiology**</td>
</tr>
</tbody>
</table>

*The Department of Small Animal Clinical Sciences, College of Veterinary Medicine, University of Florida, USA:  
**VFS Department for Microbiology, Immunology and Infectious Diseases with Epizootiology
11.2 COMMENTS

Comment on the quality of the continuing education programmes in which the Faculty is involved.

It is clear from titles of the offered VFS LLL courses and workshops (Table 11.1) that some of them were proposed without taking into consideration real educational need of fellow field veterinarians, which partially reflects unplanned education of VFS teaching staff itself. However, by comparing the number of the offered courses with the number of those that were realised, it may be concluded that volume of the realised education is unsatisfactory, since VFS is an establishment liable not only for LLL education of veterinarians, but also for continuing education of professionals in other related fields, such as medical doctors working in inspection of food of animal origin. Considering such minor volume of realised LLL education, it is difficult to comment its quality, particularly having in mind lacking reports on its realisation (which are not imposed by VFS) on one side, and absence of official comments on the quality from the LLL participants.

Comment on the degree of participation of veterinarians in the continuing education programmes in which the Faculty is involved.

It was planned to design the VFS Plan for Continuing Education for 2013 in cooperation with the Veterinary Chamber of the Federation of Bosnia and Herzegovina, which was responsible to define a list of educational themes in line with professional interest of its members. Nevertheless, the Chamber has never delivered the list, which was a partial reason behind such minor participation of our colleagues in the education. Evident demotivation of veterinarians for LLL is difficult to figure out and should be explored for the sake of effectiveness of future VFS LLL programme and cooperation with the Chamber. A partial explanation may be seen in the fact that even competent authorities, such as the Veterinary Sector of the Federal Ministry of Agriculture, Water Management and Forestry, the State Veterinary Administration of Bosnia and Herzegovina or the Food Safety Agency of Bosnia and Herzegovina do not show adequate interests for cooperation with VFS in the field of animal health control and protection, diagnostics of infectious diseases of animals, and improvement of food safety system in B&H. In addition, the Federal Ministry makes its annual plans for continuing education of veterinarians, in which some of VFS employees are individually engaged, but without official consultations with VFS or with the Chamber. Thus, there is a clear necessity for improvement of cooperation among VFS, the Chamber and veterinary competent authorities.

11.3 SUGGESTIONS

To improve the quality of its LLL activities, VFS should undertake all activities necessary to establish as better cooperation with all veterinary competent authorities as possible, which will reflect in design and realisation of VFS LLL programme adequate to professional needs of veterinary professionals and contemporary developments in veterinary medicine. Also, it is worthwhile to undertake questionnaire surveys on LLL needs of all potential consumers of VFS LLL services and accordingly negotiate the design and extent of future VFS plans of continuing education. Finally, it is a priority to define a plan for continuing education of VFS teaching personnel as a measure to improve the quality of the VFS LLL services.
Chapter 12: POSTGRADUATE EDUCATION

This heading covers all further training leading to a diploma - special postgraduate studies, Ph.D. courses, research training programmes, and national or European College specialised qualifications. Please provide details of all postgraduate training opportunities in tabular form under “Factual Information”.

12.1 FACTUAL INFORMATION

Postgraduate education at VFS was established in 1967 and had been organised on the pre-Bologna principles until 2013, when integration of UNSA has been commenced in line with the EHEA and Bologna Principles. Such “old” VFS postgraduate education was organised as:

- A 3-semester postgraduate study programme pursuing the professional degree of Specialist of Veterinary Medicine in various areas of veterinary profession and science (Table 12.1A);
- A 4-semester postgraduate study programme pursuing the academic degree of Master of Veterinary Sciences in certain veterinary scientific disciplines (Table 12.1A);
- An individual postgraduate education pursuing the academic degree of Doctor of Veterinary Sciences (PhD). This education did not include a teaching programme since it was compulsory that prior to commencement of the PhD programme a PhD candidate earned the Master of Veterinary Sciences degree. The PhD education implied submission of the PhD thesis title, research, completion and defence of the thesis under supervision and guidance of a mentor. Most of the candidates were young VFS employees (senior teaching assistants), which were exempted from tuition fees and financed only the research costs either by private or funds granted through research projects.

Table 12.1: Veterinary scientific areas and pertaining scientific disciplines/tracks covered by the pre-Bologna postgraduate education of VFS (respective number of earned degrees of the Master of Veterinary Sciences in period from 1995 to 2014 is given in parentheses)

<table>
<thead>
<tr>
<th>Veterinary scientific area</th>
<th>Scientific disciplines/tracks (number of earned degrees of the Master of Veterinary Sciences)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal health care</td>
<td>Biomedicine (6)</td>
</tr>
<tr>
<td></td>
<td>Parasitology and parasitic diseases with epizootiology (4)</td>
</tr>
<tr>
<td></td>
<td>Pathology of domestic animals (0)</td>
</tr>
<tr>
<td></td>
<td>Microbiology (9)</td>
</tr>
<tr>
<td></td>
<td>Animal infectious diseases with epizootiology (14)</td>
</tr>
<tr>
<td></td>
<td>Veterinary epidemiology and economics (2)</td>
</tr>
<tr>
<td>Breeding, reproduction, nutrition and economics of animal production</td>
<td>Production and health care in poultry farming (9)</td>
</tr>
<tr>
<td></td>
<td>Physiology and pathology of reproduction of domestic animals (21)</td>
</tr>
<tr>
<td></td>
<td>Ecological animal husbandry (2)</td>
</tr>
<tr>
<td></td>
<td>Clinical pathology, diagnostics and therapy of carnivores and pets (0)</td>
</tr>
<tr>
<td>Veterinary and health control and technology of production, processing and trade of foodstuffs</td>
<td>Radiation protection of animal production (4)</td>
</tr>
<tr>
<td></td>
<td>Hygiene and technology of foodstuffs of animal origin (24)</td>
</tr>
</tbody>
</table>
Admission to the described “old” VFS postgraduate education programmes was terminated in 2013, when the integration of UNSA has commenced in line with the EHEA and Bologna Principles. All of candidates that commenced their postgraduate education in line with that programme are limited to complete it until September 30, 2015, or until September 30, 2016 (pertinent to candidates that commenced the study in 2012/13 academic year).

As previously stated, the third cycle study (PhD) programme “Veterinary Medicine and Public Health” has been initiated and takes six semesters (three years) of teaching in line with the Bologna and EHEA Principles. The programme finishes with defence of a PhD thesis. By completion of the programme, a postgraduate student earns 180 ECTS points and the academic degree Doctor of Veterinary Sciences. The programme is an equal opportunity for all B&H and abroad candidates which have a minimum of 300 ECTS points earned through previous university education at veterinary and other related faculties of medical, biotechnical and natural sciences.

Also, the TSC VFS adopted in academic 2012/2013 year, a proposal of curriculum for master (second cycle) study, which would provide teaching for 13 professional orientations within six different scientific areas. Currently, this curriculum has a decision pending status by the UNSA Senate. However, due to a legal deficiency concerning study programmes within the UNSA Council of Medical Science Group involving the integrated first and second cycle study and the third cycle study, it is necessary to amend relevant legislation and to introduce the professional degree “Master of Veterinary Medicine” that will be pursued by this study programme.

12.1.1 CLINICAL SPECIALTY TRAINING (INTERNS AND RESIDENTS)

Form of postgraduate training that includes clinical interns and residents does not exist at VFS. Clinical postgraduate education takes place within certain scientific disciplines/tracks covered by the “old” pre-Bologna VFS postgraduate education, such as Physiology and pathology of reproduction of domestic animals or Clinical pathology, diagnostics and therapy of carnivores and pets, where the postgraduate students conduct their postgraduate research at the VFS Clinics. Currently, there are 5 such postgraduate students pursuing the academic degree of Master of Veterinary Sciences pertaining to the respective scientific discipline/track (Table 12.1.1).

Table 12.1.1: Current clinical specialty training at VFS

<table>
<thead>
<tr>
<th>Clinical discipline</th>
<th>No. of interns</th>
<th>No. of residents</th>
<th>No. of Master of Science candidates</th>
<th>Diploma or title anticipated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical pathology, diagnostics and therapy of carnivores and pets</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>The degree of Master of Veterinary Sciences</td>
</tr>
<tr>
<td>Physiology and pathology of reproduction of domestic animals</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Postgraduate students individually finance their study and choose the scientific disciplines/tracks they would like to study. Therefore, their postgraduate orientation mainly does not reflect educational needs of their employees. If the students are VFS employees, they are exempted from all fees related to the study, unlike external postgraduate students who are obliged to cover all of the study expenses.

VFS does not offer any postgraduate programme certified by the European Board of Veterinary Specialisations.

12.1.2 RESEARCH EDUCATION PROGRAMMES

In addition to the factual information provided in previous sections of this Chapter, it is important to say that VFS commenced the mentioned third cycle study (PhD) programme “Veterinary Medicine and Public Health” in 2014 and admitted 4 PhD students. Former pursuance of PhD degrees for VFS employees has been almost always linked to research carried out at VFS Departments where they are employed, while external PhD candidates mostly conducted their research within establishments (farms, food processing companies, etc.) they work for under guidance and supervision of VFS mentors.

Table 12.1.2: Number of research students enrolled in different programmes

<table>
<thead>
<tr>
<th>Type of degree</th>
<th>Fulltime</th>
<th>Part time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD1</td>
<td>0</td>
<td>4</td>
<td>3 years (6 semesters)</td>
</tr>
<tr>
<td>PhD2</td>
<td>12</td>
<td>1</td>
<td>5 years/not defined*</td>
</tr>
<tr>
<td>Master of Veterinary Sciences</td>
<td>2</td>
<td>30</td>
<td>2 years (4 semesters)</td>
</tr>
<tr>
<td>Specialist of Veterinary Medicine</td>
<td>0</td>
<td>1</td>
<td>1.5 year (3 semesters)</td>
</tr>
</tbody>
</table>

1 = doctoral third cycle study programme “Veterinary Medicine and Public Health” organised in line with the Bologna and EHEA Principles;
2 = “old” pre-Bologna individual PhD programme for candidates holding the degree of Master of Veterinary Sciences;
3 = “old” pre-Bologna postgraduate study programme pursuing the academic degree of Master of Veterinary Sciences;
4 = “old” pre-Bologna postgraduate study programme pursuing the professional degree of Specialist of Veterinary Medicine;

* PhD candidates employed by VFS on full-time basis have to complete the programme within 5 years; however, the deadline is not defined for external PhD candidates and in most instances the deadline is given by their employers.

Research students employed by VFS or other employer receive their regular salary. As previously stated, VFS employees are exempted from all fees related to the study. Some of external research students succeeded to pursue partial or total coverage of expenses of the study by their employees, but such examples have been extremely rare lately. As previously mentioned, the present financial crisis in B&H resulted in a total absence of any reliable public research grants, studentships or other forms of sponsorships available for postgraduate students.
12.2 COMMENTS

- **Comment on the number of postgraduate diplomas/titles awarded annually**

As presented in Table 12.1, during the post-war period (1995-2014) a total of 95 postgraduate candidates completed the study and pursued the academic degree of Master of Veterinary Sciences, while 52 PhD theses were successfully defended. A total of 44 candidates were enrolled in the last class of the “old” VFS postgraduate study in 2012. During the last four years 30 Master of Science candidates earned their degrees, which equals in an annual average of 7.5 successful completion of the programme. Within the same period 7 PhD candidates pursued their degrees. The numbers are not impressive since 44 postgraduate students here enrolled in the last class of the master programme and there are candidates from previous classes of the programme that have not graduated yet. Number of annually earned degrees will probably increase due to present reforms of the higher education system in B&H and the imposed deadlines for postgraduate students to complete their education in line with pre-Bologna programmes.

- **Comment on the percentage of veterinarians participating in postgraduate research training programmes.**

It is notable that number of veterinarians enrolled in postgraduate education at VFS is noteworthy. But, on the other side, number of those who pursued their degrees is very small. It is sure that the interest for veterinary postgraduate education will exist; however, VFS shall secure solutions that will meet expectations of those dedicated to pursue advanced veterinary academic and professional degrees. Also, it may be found that the “old” master of science programme was too long (4 semesters) for veterinarians who were obliged to attend the classes and regularly work in their regular posts, and, on the other side, to earn their postgraduate degrees as a prerequisite to keep the post and/or to be promoted. Speaking of PhD candidates, majority of them are VFS employees (senior teaching assistants) and in the last year only one defended the thesis. As stated in Chapter 10, one of the major human resource problems of VFS is the present lack of young assistants due to financial obstacles caused by the UNSA Founder\(^2\), which will directly reflect proportion of VFS employees as future candidates for the third cycle study (PhD) programme. For more, it is important to underline that VFS does not provide any financial resources to support PhD research of their employees and there are not any officially defined VFS needs for further research development of young teaching and research staff.

12.3 SUGGESTIONS

To meet professional needs of veterinarians, VFS shall open certain professional postgraduate 1-year programmes (such as the mentioned pending master (second cycle) study programme) as soon as possible. Of course, this greatly depends on the Founder, which has been working in a technical mandate lately. Also, VFS shall pay a special attention to clinical postgraduate education/specialisation for own and external veterinarians. Finally, VFS should clearly define certain research priorities in line with real labour and research market needs prior to commencement of future admission to the third cycle study (PhD) programme.

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\(^2\)The Government of the Canton of Sarajevo, Ministry of Education, Science and Youth
Chapter 13: RESEARCH

The details requested under this heading relate only to research experience offered to students during their undergraduate training, for example through project work.

13.1 FACTUAL INFORMATION

- Indicate the involvement of undergraduate students in research, including the time spent, percentage of students involved and outcome required.

VFS carries out undergraduate teaching in accordance with the integrated first and second cycle study curriculum, which does not impose any diploma or graduation thesis work. On the other side, national calls for research project proposals do not consider involvement of undergraduate students, while involvement of young researchers (up to 32 years of age), mostly of postgraduate students and VFS teaching assistants, the most compulsory clause of the calls. In addition, it is essential to emphasize extremely limited overall public funds for research work. For instance, only 0.08% of national GDP (gross domestic product) was allocated for science in 2009\(^1\). Thus, it is clear that general availability of resources to involve undergraduate students in research is very limited and mainly depends on students and faculties only.

However, in spite of all above stated circumstances, there are evident efforts of VFS students, teachers and management to involve our undergraduate students in research in line with available funds, provisions of the Act on Higher Education\(^2\) and the UNSA Statute\(^3\). Until 2008 existed student journal “Veterinar”\(^4\), founded by the Association of Students of VFS (ASVF) and financed and published by VFS. The journal was publishing student research and professional papers and other contents. To illustrate, the issue no. 19-20 in 2008 published 7 student papers. Unfortunately, the journal is terminated due to unenviable financial situation of VFS and lack of any external support.

Scientific activities of VFS undergraduate students have been mostly realised and favoured through their active participation in veterinary student scientific even “International Veterinary Medicine Students Scientific Research Congress”\(^5\), which is annually organised by the IVSA and the Faculty of Veterinary Medicine, University of Istanbul (Turkey). Selection of the participating students is done by a VFS commission that assesses of student research papers. Students-authors of the papers independently choose their mentors among VFS staff to coach them in realisation of their papers. In addition to material support to the student research, VFS also financially supports student participation in the event.

The Research Club of the ASVF was established in 2013 within the ASVF, with an overall goal to gather our students and organise their involvement in VFS research work. Organisation

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\(^2\) The Act on Higher Education in the Canton of Sarajevo (“Official Gazette of the Canton of Sarajevo”, no. 42/13)
\(^3\) The Statute of the University of Sarajevo from June 28, 2013
\(^5\) [http://ivsa.org/2014/02/ivsa-istanbul-event-week/](http://ivsa.org/2014/02/ivsa-istanbul-event-week/)
and work of the Club are defined by pertinent regulation\(^6\). In line with the regulation, 22 mentors from 18 VFS departments proposed 38 research titles for student participation in present academic year (2013/14)\(^7\), and 41 students expressed personal interest to participate, which equals to approximately 8% of total VFS student enrollment. If distributed to study years, numbers of VFS students interested in research work are as follows:

- 2\(^{nd}\) year – 3 students,
- 3\(^{rd}\) year – 7 students,
- 4\(^{th}\) year – 12 students, and
- 5\(^{th}\) year – 19 students.

Besides the above mentioned, students were co-authors of papers published in scientific and student journals, but to a smaller extent. In addition, it has been observed that some students have been unsystematically and on their own initiative involved in research of some master and PhD candidates employed by VFS.

Table 13.1 shows number of published student research and professional papers presented in the student scientific event or published in journals, as well as the number of students involved in its realization.

**Table 13.1**: Number of published papers and number of students (in parenthesis) involved in research work at VFS during the last three years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Scientific event</th>
<th>Journal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>International Veterinary Medicine Students Scientific Research Congress (Book of Abstracts)</td>
<td>Veterinaria</td>
<td>Hiron</td>
</tr>
<tr>
<td>2013</td>
<td>10 (13)</td>
<td>1 (1)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>2012</td>
<td>13 (17)</td>
<td>1 (1)</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>14 (17)</td>
<td>2 (3)</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>37 (47)</td>
<td>4 (5)</td>
<td>1 (4)</td>
</tr>
</tbody>
</table>

Based on those numbers and if an average of VFS enrollment is approximated to 500 students, then we come up with an approximate 4% annual involvement of VFS students in research work.

**13.2 COMMENTS**

- **Comment on the opportunities for students to participate in active research work.**

By recognition of its importance for students and the Faculty, involvement of VFS undergraduate students in research has been commenced by the end of 2013 in a systematic way. Proportion of VFS undergraduate students that have accordingly expressed their own research interest is approximates at 8%, which is double if compared to cca 4% of respective annual involvement of VFS students during the 3 previous years (Table 13.1). However, it should be noted that the pertinent regulation on student research involvement through the ASVF provides the right to be involved in VFS research work only to students

\(^{6}\) Regulation on Work of Student research Club of the Association of Students of Veterinary Faculty Sarajevo, October 2013, available at [http://vfs.unsa.ba/web/images/dokumenti/asvf/Pravilnik_nacuno_istrazivacki_klub_ASVF.pdf](http://vfs.unsa.ba/web/images/dokumenti/asvf/Pravilnik_nacuno_istrazivacki_klub_ASVF.pdf)

from 2\textsuperscript{nd} to 5\textsuperscript{th} study year given a minimum final grade of 8.0 in teaching subject that covers the proposed research.

We assume a much greater extent of student involvement in research if undergraduate curriculum would impose a graduation thesis work, which has been planned for the next revision of the current curriculum.

Relevant UNSA regulations envisage and encourage student involvement in research work, but do not define pertinent assessment and appreciation tools. Obligation to, but also possible benefits from the involvement for both students and teachers (with regard to academic promotion) would greatly increase student interest in research.

Of course, a systematic and reliable financial support to research and scientific development of research in B&H, as well as favouring research projects that involve undergraduate students is essential to the above mentioned suggestions.

\textbf{13.3 SUGGESTIONS}

\begin{itemize}
  \item Will students be given more opportunity to participate in research activities? If so, how will this be done?
\end{itemize}

Despite the many objective limitations, VFS has to put further efforts to define various models to improve research interest and involvement of undergraduate students. It is a strategic commitment of VFS\textsuperscript{8}, but shall also represent an interest of the society, because it will increase interest of graduates to pursue advanced degrees, such as PhD, and will finally result in strengthening overall developmental capacities of B&H. Consequently, the UNSA and the Government of the Canton of Sarajevo should insist on strict implementation of current regulations of this issue, particularly with respect to enforcement of involvement of undergraduate students in national research projects, as well as by better financial allocations for research.

Forthcoming revision of the VFS undergraduate curriculum shall include compulsory diploma work as a student graduation project, which should additionally contribute to assurance of the Day-One skills of VFS graduates.

Revival of student journal “Veterinar” by the ASVF and with support of VFS, as well as promotion and support to the newly established Research Club of the ASVF would certainly allow a continuous, lasting and bigger research interest of VFS students. Foreseen organisation of a VFS mini-congress would additionally guarantee improved competitiveness and quality of student research activities.

\textsuperscript{8} The 2012-2022 Strategy of Development of Veterinary Faculty of the University of Sarajevo, adopted by the Decision of the VFS Management Board no. 04-01-185-1/13 from February 13, 2013; available at http://vfs.unsa.ba/web/images/dokumenti/Strategija_2022_VFS.pdf
APPENDIX 1 – Diagram of administrative structures in relation to VFS
APPENDIX 3 - Diagram of organisational structure of Veterinary Institute of Veterinary Faculty Sarajevo (VFS)

VFS VETERINARY INSTITUTE
Head of the Institute

Section for Inter- and Intra-laboratory Control and Standardisation of Diagnostic Procedures and Equipment

Quality Manager

Section for Continuing Education

Centre for Animal Health Control

Centre for Food and Feed Control and Environmental Protection

Centre for Drug Control and Toxicological Analyses

Centre for Reproduction and Genetics

Centre for Poultry and Rabbit Farming

Section for Bee Farming

Section for Pathology

Section for Aquaculture

Laboratory for Parasitology

Laboratory for Bacteriology

Laboratory for Mycology

Laboratory for Virology and Serology

Laboratory for Pathology

Laboratory for Food and Feed Microbiology

Laboratory for Chemical and Biological Residues and Food Quality Testing

Laboratory for Feed Analyses

Laboratory for Radioactivity Control

Laboratory for Biodosimetry

Section for Disinfection, Desinsection and Deratisation

Section for Preclinical Drug Testing

Section for Clinical Drug Testing

Laboratory for Toxicological Analyses

Laboratory for Andrology and Gynaecology

Laboratory for Mastitis

Laboratory for Genetics

Laboratory for Molecular Biotechnology

Laboratory for Diagnostics of Poultry and Rabbit Viral Diseases

Laboratory for Diagnostics of Poultry and Rabbit Bacterial Diseases

• Grey colour designates laboratories accredited according to the BAS EN ISO/IEC 17025:2006