

INTRODUCTION:

Study Program	Basic and Clinical Research in Dentistry
Independent higher education institution in which the study program is implemented	University of Belgrade
Higher education institution in which the study program is implemented	School of Dental Medicine
Educational-scientific/educational-art field	Medical Sciences
Scientific, professional or art field	Dental Medicine
Type of studies	Doctoral Academic Studies Level of studies: third
Workload expressed in ECTS credits	180 ECTS
Degree title	PhD in Medical Sciences - Dentistry
Length of studies	3 school years, 6 semesters
Year of implementation of the study program	2008, reaccredited in 2013
Year of implementation of the study program (if the program is new)	/
Accredited number in this study program	30
Planned number of students who will enroll in the first year of studies (total number - the first year x 3) of this study program	90
Planned number of students to be admitted to the study program	30 students (20 in the Serbian language, 10 in the English language)
Date of approval granted by the relevant governing body (provide the governing body)	Decision of the Teaching and Scientific Council of 4 th February, 2020 Decision of the Senate of the University of Belgrade of 11 th March, 2020
Language of the study program	Serbian for 20 students English for 10 students
Year of study program accreditation	2008, reaccredited in 2013
Website containing the information about the study program	www.stomf.bg.ac.rs

Special standard: Competence of the higher education institution for conducting doctoral studies

The higher education institution proves its readiness for conducting doctoral studies on the basis of indicators related to scientific research work.

The scientific research activity of the School is integrated into the basic activity and is carried out in accordance with the provisions of the Law on Scientific Research Activity.

The School has adopted acts - the Program for the development of scientific research at the School and the Program for scientific research.

Teaching is carried out by qualified and competent teaching staff (in terms of the number of published papers and participation in research projects).

Control of scientific research work at the School of Dental Medicine is entrusted to the Commission in charge of monitoring and improving the quality of teaching at the School. The Scientific and Research Commission of Teachers and Associates, in compliance with general regulations governing this matter, conducted the re-accreditation procedure of the School of scientific research at the Ministry of Education, Science and Technological Development of the Republic of Serbia in the year of 2019.

Standard 1: Structure of the study program

Doctoral studies have at least 180 ECTS credits, with a previously completed study scope of at least 300 ECTS credits in basic and master academic studies, or in completed integrated academic studies. The doctoral dissertation is the final part of the doctoral studies study program.

Experience gained from twelve years of organizing of PhD studies based on Bologna principles at School of Dental Medicine as well as critical analysis of achievements in the period of time, with active participation of students, indicated the need for change of existing study programme accredited in the year of 2013. The structure and content of PhD study program entitled "Basic and Clinical Research in Dentistry" derived from improvements of the previous study program. The studies are designed to represent the optimal connection between the acquisition of theoretical knowledge and independent study research work. The studies are designed to enable the development of future scientists in several directions and fields of fundamental and applied research in dentistry. During the first year, PhD students are introduced to the methodology and ethics of scientific research work, statistical methods, writing and publishing skills, and above all to experimental work within several research laboratories, through the so-called "laboratory rotation". During the first year, students are offered knowledge in information technology, principles of epidemiological science, principles in the field of cell biology and biology, principles of biomechanics, photography and more. During the first semester of the second year, PhD students deepen their knowledge in the applied fields of dental sciences, and in addition to gaining knowledge and skills, PhD students develop awareness of the need for multidisciplinary approaches to medical problems and the importance of research to improve the diagnosis and treatment of diseases of the orofacial region. Starting from 3rd semester, PhD students have their potential mentors and start their work on doctoral thesis.

The curriculum of the study is implemented through active teaching, with an emphasis on interactivity of teaching and problem-oriented learning as well as through student research work, to end with the preparation and defense of a doctoral thesis.

The curriculum of the study programme of PhD studies "Basic and Clinical Research in Dentistry" for three years (180 ECTS) respects the standards and procedures proposed by National Entity for Accreditation and Quality Assurance in Higher Education of Serbia - NEAQA regarding the number of credits per semester or year, the number of active teaching hours, the percentage of lectures, percentage of elective courses, etc.

Standard 2: The purpose of the study program

The study program of doctoral studies has a clearly defined and published purpose and role in the education system.

The purpose of study program of PhD studies at the School of Dental Medicine in Belgrade is to create a successful and responsible scientist, able to independently carry out original research in accordance with the highest international professional and ethical standards, who has mastered specific practical skills necessary for the adequate application of scientific research methodology.

This essential purpose will be achieved through:

- Determining the research priorities of the institution in accordance with its realistic capabilities and country needs;
- Introduction of a flexible system of studies and research activities;
- Establishing standards of original research, recognizable by the wider scientific community, not only through defended thesis, but through published results that represent the international scientific validation of research;
- Engaging highly qualified teaching staff and insisting on active mentoring, with mentors who are recognized scientists;
- Interdisciplinary approach in work;
- Involving students in research projects;
- Harmonization with the international aspirations of modern science, to a possible extent
- International cooperation exchange of PhD students;
- Promotion and improvement of innovations;
- Internal and external quality control system.

Standard 3: The goals of the study program

The study program of doctoral studies has defined goals.

The aim of the study programme of PhD studies at the School of Dental Medicine in Belgrade is to educate a competent researcher, able to follow modern scientific achievements, to identify scientific problems, to apply adequate scientific research methods in solving the identified problems, to critically review and analyze the obtained results, and to publish and present research findings. The aim of this study program is also to build a responsible scientist with an adopted value system that guarantees successful and highly professional scientific work in accordance with the highest scientific standards. This involves acquiring knowledge and skills as well as mastering and applying modern methodologies from various biomedical sciences (statistical methods, laboratory procedures, functional testing, information technology, cell and molecular biology, pathogenetic mechanisms, biomechanics and biomaterials, bioengineering, etc.), linking basic and clinical research, mastering the writing and publishing skills of the obtained results, without neglecting for a moment the ethical principles in scientific research.

In addition, the Basic and Clinical Research in Dentistry program is also expected:

- to encourage more effective study process,
- to develop the inventiveness and creativity of students as well as their ability to participate in scientific discussions and debates,
- to enable student mobility,
- to enable innovation and transfer of knowledge and skills that will be applicable in everyday dental practice.

Also, by constantly improving the quality of study program and working with PhD students, with permanent adaptation of the study system to international requirements, the contribution will be made to the development of highly educated scientists in the field of dental sciences. The scientific-research opus of the School of Dental Medicine will be enriched, which will be a contribution to the higher education system of Serbia as a country.

Standard 4: Competencies of graduated students

By mastering the study program of doctoral studies the students build general and specific research skills that are focused on quality performance of professional and scientific activity.

Mastering the PhD program will allow students to plan and perform original research in accordance with the highest international professional and ethical standards and to independently solve research tasks and problems in the relevant areas of dental science. By gaining this ability, candidates will be able to successfully track contemporary scientific developments in their respective areas of interest. Following the principles of the code of ethics and good scientific practice, future doctors of dental science, in addition to being able to critically solve the problems raised, will also be able to successfully communicate the results of their research at scientific meetings.

Successful and responsible scientists in basic and clinical dental sciences are expected to have the following specific competencies:

- Possessing the highest theoretical and practical knowledge required for critical analysis and original research in the fundamental and applied fields of dental science for the purpose of expanding and redefining existing knowledge, science or field of work
- Applying advanced and specialized skills and techniques needed to solve key research problems and to expand and redefine existing knowledge or field of work;
- Ability to independently evaluate contemporary results and achievements in order to advance existing and create new models, concepts, ideas and theories;
- Innovation, scientific and professional integrity and commitment to developing new ideas - processes that are at the center of a work or science context, through the principle of self-evaluation of one's work and achievements;
- Designing, analyzing and implementing research projects that make a significant and original contribution to general knowledge and professional practice;
- Managing interdisciplinary and multidisciplinary projects;
- Ability to initiate national and international R&D cooperation on its own.

Standard 5: Curriculum

The curriculum includes the list and the structure of compulsory and elective subjects and modules with descriptions and doctoral dissertation as the final part of the study program of doctoral studies.

The study programme of PhD studies at the School of Dental Medicine in Belgrade, entitled Basic and Clinical Research in Dentistry, lasts for three school years (six semesters). Classes in one semester last 15 weeks, with 60 ECTS for each school year.

The program includes active teaching and preparation of a doctoral dissertation. Active teaching is performed in the form of lectures and study research work.

The elective factor according to the positions where the student selects subjects is 50,56%, which is completely in accordance with the established standards.

The study program corresponds to an integrated model of multidisciplinary character, which contains different activities: (1) courses, which include organized theoretical teaching of interactive type (obligatory subjects for all students, electives and directed teaching within elective subjects), practical work in the laboratory and familiarization with specific research methods; practical work with patients aimed at solving specific oral health problems; (2) scientific research work with mentor, which involves the analysis of relevant scientific literature, seminars and active involvement in scientific work (publication, participation in projects), with the preparation of a doctoral dissertation.

The syllabus includes:

- (1) unique theoretical teaching on general principles for dealing with research work;
- (2) unique theoretical and practical teaching in the fields of specific research methodologies undertaken in the dental sciences;
- (3) directed interactive teaching as well as working with a mentor;
- (4) scientific research work with the preparation of scientific papers and doctoral dissertation.

In the first year, the student follows 4 compulsory courses and 2 electives (out of the 12 offered). In the second year, the student has 2 elective courses (out of the 19 offered) which he / she defines according to the field from which he / she will work on a doctoral dissertation.

The types of teaching activities are: lectures, study research work with preparation and presentation of seminar papers, "journal clubs", workshops, etc., consultations, exercises.

The distribution of courses by type was done as follows:

- theoretical and methodological 5,79%
- scientifically expert 94.21%

The course description includes: the name of the course and the name of the course leader (responsible teacher), the year and semester in which the teaching takes place, the contents of the course, the list of recommended literature, the method of assessment, the exam protocol with the number of points for pre-exam requirements and the final exam .

Standard 6: Quality, contemporary character and international conformity of the study program

The study program follows the contemporary world trends and the state of the profession and science in the relevant educational and scientific field, it is compliant with the country's strategic priorities and is comparable to similar programs in foreign higher education institutions within the European educational area.

The study programme of PhD studies at the School of Dental Medicine in Belgrade " Basic and Clinical Research in Dentistry" is the result of many years of monitoring the development of European higher education programs, in accordance with the recommendations of the regulations proposed by NAT, which define the standards and procedures for accreditation of PhD Studies.

Several documents were used to establish the basic principles that were adopted in the field of higher education in Europe:

1. The Bologna Declaration on the Establishment of a Single European Higher Education Area
2. Communication from the Berlin Ministerial Meeting on the creation of a unique research and educational space
3. The Zagreb Declaration on the Harmonization of PhD studies in Europe
4. Bergen Communiqués on achieving the goal of creating a European educational space
5. The Lisbon Declaration
6. London Communiqués on Creating a Common Educational Space in Response to the Challenge of Globalization, etc.

Qualifications proving completion of the third cycle of study are awarded to students who:

1. have demonstrated a systematic understanding of a particular field of study and superior mastery of research skills and methods appropriate to the field;
2. have demonstrated the ability to design, conduct and adapt a substantial research process with scientific integrity;
3. have contributed to the expansion of the frontiers of knowledge by conducting original scientific work, and who have achieved a significant work opus, the results of which can be published in peer-reviewed national and international publications;
4. are capable of critical analysis, evaluation and synthesis of new and complex ideas;
5. are able to communicate with their colleagues in the profession, with the broad scientific community and wider social environment in the areas of their expertise;

PhD studies at the School of Dental Medicine in Belgrade are coordinated with the following higher education institutions: University of Barcelona (Universitat de Barcelona), Spain, ACTA (Academisch Centrum Tandheelkunde Amsterdam), The Netherlands, and Medical University of Vienna (Medizinische Universitat Wien).

<http://www.giga.ub.edu/acad/pops/pub0201.php?id=H1101&lang=3>

<https://www.acta.nl/en/research/phd-traning-graduate-school/Courses-for-PhD-students/index.aspx>

<https://www.meduniwien.ac.at/web/en/studies-further-education/application-admission/phd-and-doctoral-programmes/>

Nevertheless, it should be kept in mind that there are hundreds of dental PhD programs in Europe, and all of these programs, as well as ours, carry their specificities, in addition to the general common principles on which they are based.

Standard 7: Student enrollment

In accordance with the social needs and needs of the development of science, education and culture, and its resources, the higher education institution, enrolls students for the study program of doctoral studies.

The decision on enrollment in PhD studies is made by the Faculty Academic Council (hereinafter: the Council), on the proposal of the Commission for Scientific Research.

The applicants who have:

- 1) completed studies of dental medicine with an average grade of at least 8, or
- 2) completed studies of dental medicine acquiring the professional title of Doctor of Dental Medicine and published scientific papers in journals from the list of relevant Ministry prior to enrollment in PhD studies, in accordance with the general acts of the School of Dental Medicine or the University

may be enrolled in PhD studies at the School of Dental Medicine, University of Belgrade.

Students must have satisfactory competences for the world language in which the study program is performed, as evidenced by the submission of an appropriate certificate at the time of enrollment in the study program: Certificate for Competence Level Upper Intermediate - B2, according to the Common European Framework of Reference for Languages (CEFRL).

The criteria for the classification of candidates are laid down in the Rules of Procedure and Regime of Study, in accordance with the general act of the University.

Documentation required for entry:

- a certified photocopy of the diploma of previously completed studies
- index
- relevant form
- Certificate of payment of tuition in the amount and dynamics according to the acts of the School

Standard 8: Evaluation and progress of students

Assessment of students is carried out by continuous monitoring of students' work and based on points earned in pre-examination obligations and the exam. The doctoral dissertation is assessed on the basis of the indicator of its scientific contribution.

The student attends classes as it is specified in the PhD curriculum. Assessment of students is carried out by continuous monitoring of students' work and on the basis of points earned by completing pre-exam requirements and taking exams, according to a pre-determined schedule.

During their studies, each student masters the study program by passing exams. Each individual course in the study program carries a certain number of ECTS credits, which the student gains when he successfully passes the exam. The number of ECTS credits is determined on the basis of the student's workload in mastering a particular course using a uniform higher education institution methodology for all courses. Students' success in mastering a particular course is continuously monitored throughout the classes and expressed in points. The maximum number of points a student can earn in a course is 100. The student earns points in the course by working in class, completing pre-exam requirements and passing exams. The minimum number of points that a student can earn by completing the pre-exam requirements during the class is 30, and the maximum is 70. Each course has a clear and available method to earn points. The way to earn points during the teaching process includes the number of points that the student earns on the basis of each type of activity during the class or by completing a pre-exam requirement and passing the exam. The student's overall success in the course is expressed in grades, from 5 (hasn't passed) to 10 (excellent). The student's grade is based on the total number of points earned by the student by completing the pre-exam requirements and passing the exam, and by the quality of the knowledge and skills acquired.

Upon completion of the course, the student gains the right to apply for the exam in the subject. Upon passing the exam, the course leader shall enter the grade in the index, the record of the examination and in the examination application, which he shall certify with his signature and submit to the Teaching and Student Affairs Department.

The candidate begins the procedure of preparation of the doctoral dissertation according to the procedure established by the Rulebook on PhD studies. The doctoral dissertation is evaluated on the basis of indicators of its scientific contribution.

Standard 9: Teaching staff

Teaching staff with the necessary scientific competence is ensured for carrying out the study program of doctoral studies.

Teaching in this study program is carried out by qualified and competent teaching staff, selected to vocations in accordance with the provisions:

- School Statute
- Criteria for the selection of teachers adopted by the Senate of the University of Belgrade.

The competence of teachers to pursue PhD studies is determined on the basis of scientific papers published in international journals (at least one paper published or accepted for publication in a journal from the SCI list), scientific papers published in national journals, papers published in proceedings of international scientific conferences, monographs, patents, textbooks, new product or substantially improved existing product and data on participation in national and international research projects.

The mentor should have at least five papers from the SCI list in the last ten years, while the PhD teacher should have at least one paper published or accepted for publication in a journal from the SCI list (Thomson scientific) in the last ten years and evidence on participation in the national or international scientific research projects.

If necessary, teachers from other faculties, institutes and other educational institutions that meet the special requirements prescribed by the standards for accreditation of higher education institutions and study programs adopted by the National Entity for Accreditation and Quality Assurance in Higher Education of Serbia - NEAQA may be hired, so that 50% of the total number of teachers will be full-time employers of the home institution of higher education.

Teaching staff with the requisite scientific capacity are provided for the implementation of the doctoral study program.

64 teachers are involved in the realization of doctoral academic programs. The number of teachers engaged meets the needs of this study program

Standard 10: Organizational and material resources

For the execution of the study program, relevant HR, spatial, technical and technological, library and other resources are provided that are relevant to the character of the study program of doctoral studies and the number of students enrolled.

The space and equipment currently available to the School is adequate for quality teaching process of all forms.

Library and IT activity at the School of Dental Medicine is shaped through the existence of the Central Library, which performs unique purchasing and centralized processing of literature (inventory, cataloging and classification of library material). The Library employs two people with appropriate qualifications.

The School's IT resources are satisfactory. The School has a large number of network computers. The IT Center integrates and provides IT support to all employees. Students can access computers in three computer classrooms, in the library, and through their own notebook computers via a wireless Internet connection in virtually all of the Faculty's premises.

Standard 11: Quality control

For the study program of doctoral studies, the higher education institution regularly and systematically conducts quality control through self-evaluation and external quality control.

Systematic monitoring and periodic quality checks are governed by the Quality Policy, the Quality Assurance Strategy and the Rules of Procedure of the Commission responsible for monitoring and improving the quality of teaching.

The School Council appoints the Commission, with the following tasks:

1. to monitor and analyze all study programs
2. to monitor and analyze the quality of teaching at all levels
3. to analyze the effectiveness of the study
4. to evaluate the acquisition of ECTS credits
5. to propose measures and activities for the improvement of teaching
6. to propose measures and activities for reforming study programs.

The Commission defines the result of monitoring, control and promotion of teaching in the self-evaluation report, which is an integral part of the self-validation report. The committee has 7 members, whose term is 3 years, except for the term of student representatives, which lasts for one year.

The committee includes:

- 1 representative from each department, from among the teachers;
- 1 member from among student representatives delegated by the Student Parliament;
- Vice-dean for teaching
- Vice-dean for scientific research
- 1 member from the staff of the School's Professional Service.

Standard 12: Transparency

The higher education institution provides public access to the study program and doctoral dissertation as final work of doctoral studies.

Electronic versions of the defended doctoral dissertations are permanently stored in the OSchool Library as well as the printed version.

The following are permanently kept in the professional service of the Faculty:

- dissertation evaluation committee reports,
- information about the mentor,
- information on the composition of the evaluation commission,
- information on the scientific papers of candidates whose publication was a prerequisite for defense.

All this information is publicly available on the Faculty's website during public consultation and afterwards in the professional service.

The Book of Mentors, available on the Faculty's website, contains all information:

- about mentors
- about mentors' competence
- about previous mentoring.

Standard 13: Studies in the foreign languages

The higher education institution may organize a study program of doctoral studies in a foreign language for each field and every educational-scientific field, if it has HR and material resources for teaching in accordance with the standards.

The School of Dental Medicine in Belgrade, has accredited the study program Basic and Clinical Research in Dentistry, representing PhD studies in medical sciences, in the field of dentistry, the third level of study. These studies last 3 school years, 6 semesters, with the completion of 180 ECTS and the professional title of PhD in Medical Sciences - Dentistry. 30 students will enroll in this study program. The study program is delivered in Serbian for 20 students and for 10 students in English.

Teachers and associates who teach students in English language have the appropriate competencies to teach in this world language.

Teaching materials are provided for teaching, as well as the required number of library units in English. Student Services are fully qualified to communicate with students who are following an English language course.

Public documents and administrative documentation shall be issued in a bilingual form, in the Serbian language in Cyrillic as well as in English language.

Students must have satisfactory competences for the world language in which the study program is performed, as evidenced by the submission of an appropriate certificate at the time of enrollment in the study program: Certificate for Competence Level Upper Intermediate - B2, according to the Common European Framework of Reference for Languages (CEFRL).