

# EUROPEAN CREDIT TRANSFER SYSTEM AT MEDICAL UNIVERSITY-SOFIA

The Common Language of Recognition





**Dear students,**

I have the honour to welcome you to the Medical University in Sofia – a university with more than 100 years of history and tradition in higher medical education, the first of its kind in Bulgaria. And we are happy that you will join us and experience here one of the most popular mobility schemes in Europe – the Erasmus+ Programme.

Medical University-Sofia is a highly valued and recognized leader in its area of education in all 5 professional fields, as the national ranking of universities in Bulgaria for the past 6 years has shown. We are the leading Bulgarian university in Medicine, Dental Medicine, Pharmacy, Healthcare, and Public Health, based on academic staff qualification, participation in international co-

operation activities, number of papers published in national and foreign referred journals, as well as on teaching programmes developed in compliance with the EC standards.

Earlier this year we were awarded the Erasmus Charter for Higher Education with a total score of 100 points, thus committing to comply with the principles proposed in the Program for the European Credit Transfer System. Our participation in various European and international cooperation projects ensures that cooperation leads to sustainable and balanced outcomes for all partners, fosters its academic staff and students to participate in these activities and encourages learning with wider communities. In addition to this, I would like to stress on the fact that all study programmes in Medicine, Dental Medicine and Pharmacy are taught both in English and Bulgarian languages.

Medical University-Sofia integrates the modular system of education and clinical practice in our 13 hospital bases – a fact that both incoming and outgoing students highly appreciate. If the pandemic situation requires, our teachers are ready to replace or supplement the practical training with efficient online courses and teaching materials. We have already proved that effective during the academic year 2022/23.

I hope you feel welcome and at the right place here, at Medical University-Sofia. As you will see, we strive to develop a community of shared ideas and values, a community based on the ideas of commitment, dignity, knowledge, and constant development. Because this is the spirit of university education!

Join us and help us make our world better and more sensible!

Welcome to Medical University-Sofia!

Acad. Prof. Latchezar Traykov, MD, DSc  
Rector of Medical University – Sofia





## **MEDICAL UNIVERSITY – SOFIA, RECTORATE**

*15, Acad. Ivan Geshov Blvd., 1431 Sofia, Bulgaria*

### **RECTOR**

Prof. Latchezar Traykov, MD, DSC

Phone: +359 2 9152 129, Fax: +359 2 9532 816

E-mail: [rector@mu-sofia.bg](mailto:rector@mu-sofia.bg)

### **VICE RECTOR**

**for Academic Affairs**

Prof. Karolina Lubomirova, MD

Phone: +359 2 9523 798,

Fax: +359 2 9532 898

E-mail: [k.lybomirova@fz.mu-sofia.bg](mailto:k.lybomirova@fz.mu-sofia.bg)

### **VICE RECTOR for**

**Science and Accreditation**

Prof. Valentina Petkova, PhD, DSC

Phone: +359 2 9152 163,

Fax: +359 2 954 11 53

E-mail: [vpetkova@pharmfac.mu-sofia.bg](mailto:vpetkova@pharmfac.mu-sofia.bg)

### **VICE RECTOR for**

**Postgraduate Studies and University Hospital Coordination**

Assoc. Prof. Elitsa Deliverska, MD

Phone: +359 2 9152 180, Fax: +359 2 9152 167

E-mail: [elitsa.deliverska@fdm.mu-sofia.bg](mailto:elitsa.deliverska@fdm.mu-sofia.bg)

### **VICE RECTOR for International Integration and Project Funding Department**

Prof. Tsvetalina Tankova, MD, DSC

Phone: +359 2 9152 180, +359 2 9152 167

E-mail: [ctankova@medfac.mu-sofia.bg](mailto:ctankova@medfac.mu-sofia.bg)







## **ECTS GUIDE**

### **MEDICAL UNIVERSITY – SOFIA**

Medical University – Sofia is the oldest National Higher Medical Educational Institution. It was founded by Decree of His Majesty King Ferdinand in 1917.

Medical University – Sofia comprises four faculties. These are the Faculty of Medicine, Dental Medicine, Pharmacy and Public Health, along with the Central Medical Library, Medical College for education of paramedics (social workers, X-ray technicians, laboratory technicians, assistant pharmacists, dental technicians, etc.) and the Center for Foreign Languages, Physical Education and Sports (CFLPES). Thirteen university hospitals are associated as clinical educational bases at the University. Over 82,000 medical specialists have graduated Medical University – Sofia since its foundation including 10,500 international students from more than 80 countries.

The fundamental goals of the University are provision of superior education of under-, post-graduate and PhD students, scientific research and delivery of specialized, highly qualified and modern healthcare. Medical University - Sofia is internationally recognized for the achievements in cardio-thoracic surgery, neurosurgery, ophthalmic surgery, high-tech diagnostics, prevention programmes for cardio-vascular and inherited diseases, bone-marrow transplantation, development of new compounds of synthetic and natural origin, etc.

The main objectives of the University are to provide high-quality education in an environment supported by research; to preserve and strengthen its position as an educational and scientific institution of the highest international quality; to inspire high professional and humane virtues of its graduates in the spirit of the European democracy and tolerance; to foster the formation of high quality lecturers and instructors and improve their effectiveness.

The aims and objectives of the Erasmus+ mobility project are set in line with the European Union flagship initiatives: Youth on the Move; European Solidarity Corps and the Renewed

modernization agenda of Europe's higher education systems in compliance with the specific national and institutional needs and challenges listed in the National Strategy for Higher Education and the Institutional Strategy for internationalization and the Erasmus+ Policy Statement of Medical University – Sofia.

As stated in the main institutional documents listed above, the quality and relevance of learning and teaching is the main priority of Medical University – Sofia. Our educational goals and learning outcomes are regularly set up and adopted at meetings of the Academic Council during the years.

Medical University – Sofia has started to exchange students since 2000, when the Erasmus + Programme was open for participation for Bulgaria as a pre-accession country in 1999.

For over 20 years now 150 Erasmus+ Inter-institutional Agreements have been signed with partner universities from 25 Programme countries and 8 Partner Countries.

During the years of our Erasmus history, over 500 outgoing students have been sent and over 400 incoming students received at MU-Sofia. The number of students who have spent time abroad for studies and/or internship during their full degree study at Medical University – Sofia is fairly stable over the times. In the past three years the number of incoming students exceeded the outgoing ones due to the fact that the education at the Medical University – Sofia explores the patients' bedside learning approach. A lot of practical hours are included in the Curriculum. During the course of studies our students practice in all 13 university hospitals under the supervision of highly qualified Professors. This opportunity is greatly appreciated by the students from our partner universities.

Additionally our Teaching staff has the opportunity to realize teaching and/or training Erasmus+ period at more than 80 partner universities in 25 Programme and Partner counties. Most training periods abroad were undertaken by academic staff for teaching (75%) followed by general administrative staff, including the international office (25 %).

Teaching assignment mobility contributes to achieving the objectives set in the strategy of internationalization of Medical University – Sofia, developed in accordance with the EU Programme for modernisation and its priority areas and implementation of the Communiqué 2013 on "Open Education", in particular: improving the quality of education through mobility and cross-border cooperation. Particular emphasis is placed on mobility of teachers, in order to:

- provide support to promote the development of new ways of learning, in particular the integration of a wide variety of ways of learning through new forms of personalized learning, strategic implementation of educational resources, free access to platforms and virtual learning;
- Internationalization of the Medicine curriculum at the Medical University – Sofia with the ones from European and non-European countries.
- Exchange of research knowledge and results and development of joint research and educational projects.

The European Community promotes co-operation between universities as means of improving the quality of education for the benefit of students and higher education institutions, and student mobility is the predominant element of the cooperation. The recognition of studies and diplomas is a prerequisite for the creation of an Open European area of education and training where students and teachers can move without obstacles. That is why The European Credit Transfer System (ECTS) has been developed to improve academic recognition for studying abroad.





## ECTS - EUROPEAN CREDIT TRANSFER SYSTEM

### What is ECTS?

ECTS, the European Credit Transfer System, developed by the Commission of the European Communities, is designed to provide common procedures to guarantee academic recognition of studies abroad. It provides a way of measuring and comparing learning achievements of students by using commonly acknowledged measurements, credits and grades, and transferring them from one institution to another, thus widening the choices available to students. In fact, ECTS in no way regulates the content, structure or equivalence of the study programmes.

ECTS is a decentralized system, based on the principle of mutual trust and confidence between the participating education institutions. The few rules of ECTS, concerning *Information* (on courses available), *Agreement* (between the home and host institutions) and the *Use of Credit Points* (to indicate students' workload) are set out to reinforce this mutual trust and confidence.

### ECTS credits

In general, the ECTS credits are a value allocated to the course units. ECTS credits represent the workload of a given course or year of academic study at the institution, including lectures, practical work, seminars, individual work (in the library or at home), and examinations or other assessment activities. Sixty ECTS credits represent the workload of an academic year of study, normally 30 credits are given for a semester. No special courses are set up for ECTS purposes, all courses are compulsory courses for the home students at the participating institutions. Credits are also allocated to elective courses, project work, thesis, and practical placements, which form an integral part of the degree programme.

ECTS credits are allocated to the course units only in case the students have successfully completed the course by satisfying the assessment requirements.

In the academic year 2004/2005 the credit system, compatible with the ECTS, was introduced at Medical University – Sofia at the Faculties of Medicine, Dental Medicine, Pharmacy, and Public Health.

### **THE EUROPEAN CREDIT TRANSFER SYSTEM AT MU-SOFIA**

1. The Regulation № 21/30.09.2004 of the Ministry of Education and Science authorized the credit system to be implemented for all the students at the Medical University – Sofia.
2. Each student at the Medical University – Sofia should earn 60 credits per year from:
  - Compulsory courses;
  - Participation in scientific research programs;
  - Authorship of scientific reports;
  - Elective courses (modules).
3. Credits are a digital representation of students' workload and the learning outcomes of their study. Credits are awarded upon completing and passing the course with minimum grade 3 (Satisfactory) assessed through exams or other forms of evaluation for acquired knowledge and skills according to the education plan.
4. The elective courses are chosen by the students according to their personal interests from a number of optional courses in the curriculum. A minimum of earned credits is mandatory for all students.
5. The elective course training is organized by the Course Supervisor and by the department in authority. The syllabus and schedules for each class are presented to the Dean's Office in the beginning of the school year.
6. The Head of the Department in authority issues certificates for completion and passing the elective courses. A list of the successful students who have completed the course is sent to the Dean's Office at the end of the academic year. The course supervisor is responsible for entering the credits in the student's academic record.
7. The student is awarded credits for participation in scientific research after presenting to the Education Department at the Dean's Office a copy of an abstract, publication and/or projects accompanied by an official confirmation from the Department or the Project Principal Investigator that the student has been part of the project/research team in the time period.
8. On condition that the student was not awarded with the required credits for the school year, the option is a provisional authentication of the year completion. In this case, the required credits should be obtained in the following year.
9. The students are enrolled in an elective course or a project at the Department in authority. The responsible persons are the Course Supervisor or the Project Principal Investigator.

#### **Description of the institutional grading system**

Local grade	Local definition	ECTS grade
6	Excellent	A
5	Very Good	B
4	Good	C
3	Satisfactory	DE
2	Poor (Fail)	FX
		F





## GENERAL PRACTICAL INFORMATION

### Academic calendar

The academic year at the Medical University runs from mid-September to late December (Autumn semester) and from mid-February to the beginning of June (Summer semester). Winter examinations are from the beginning of January to the beginning of February. Summer examination session is from mid-June to mid-July.

The academic year is as follows: *Autumn semester*: mid- September to December 28<sup>th</sup>

*Summer semester*: mid- February to May 31<sup>st</sup>

The clinical studies for the medical students are organized in a module teaching system from September up to the end of July.

### Official holidays

January 1<sup>st</sup> – New Year

March 3<sup>rd</sup> – Bulgaria's National Day, celebration of the liberation from Ottoman rule

Easter (Orthodox Easter is based on the Julian calendar, which often differs from the Gregorian calendar)

May 1<sup>st</sup> – Labor Day

May 6<sup>th</sup> – Bulgarian Army Day

May 24<sup>th</sup> – Day of Bulgarian Enlightenment and Culture

September 6<sup>th</sup> – Bulgaria's Unification Day

September 22<sup>nd</sup> – Independence Day

December 24<sup>th</sup> , 25<sup>th</sup> , 26<sup>th</sup> – Christmas

## International Students

1. *Exchange students within the frame of the Erasmus+ programme (Erasmus+Incoming Students).* Medical University – Sofia works within the Erasmus + program with many universities. Students with proficiency of any language of the EU are welcome to participate. In addition, Medical University – Sofia offers master programs in Medicine, Dental Medicine and Pharmacy in English. Erasmus+ exchange students from universities under bilateral agreement are admitted for up to two years of studies/training; the minimum stay is three months. The international Erasmus+ students are helped by their Bulgarian mates in any everyday issues. There is an option to apply for accommodation at the University dormitory. Since the number of rooms is restricted the incoming students should apply for this option with the application procedure for admission.

2. *International students.* Foreign citizens are admitted to Medical University – Sofia in accordance with the terms and conditions of the Law on Higher Education and of the Ordinance on State Requirements for Enrollment of Students in Higher Education Institutions of the Republic of Bulgaria. The candidates are eligible in case they have completed secondary school education in their home country with a diploma required for admission in a higher education institution. In addition, the applicants should **have grades in Biology and Chemistry in their secondary education diploma or an equivalent of the diploma for secondary education document.**

A preparatory academic year is organized and carried out by the Center of Foreign Languages, Physical Education and Sports (CFLPES) at the Medical University – Sofia. The curriculum includes courses in Bulgarian language, English language and special language training for improvement of the English language skills in Biology, Chemistry, Anatomy and Physiology. Foreign citizens who declare Bulgarian or English language knowledge pass a test-exam for evaluation of the level of their language proficiency.

Detailed description of the Application Procedure and the required documents for admission is available on the website of the Medical University – Sofia: <https://mu-sofia.bg/priem/ksk/priem-chuzdenci/>

## Admission and Registration of Erasmus+ Incoming Students

The required documents for incoming Erasmus+ students at Medical University – Sofia are:

- Standard Student Application Form
- Learning Agreement for Studies/Traineeship
- Three passport photographs
- Valid transcript of academic records

The deadline for the application procedure is June 15<sup>th</sup> for students applying for the entire academic year or for the first semester of the respective academic year only, and December 1<sup>st</sup> for students applying for the second semester. Upon arrival all incoming students should report to the Office of International Relations at the University. In addition, the incoming students should register with the respective Faculty offices. The admission of the applying Erasmus+ candidates is based on their sufficient for Medical University – Sofia standards adequate background knowledge and academic ability to pursue successfully the proposed programme of study. Erasmus+ students do not pay the due tuition, yet accommodation at the dormitory must be paid.



## Host country formalities

According to the Law of Foreigners' Stay in the Republic of Bulgaria every foreigner may enter the country with a valid passport and an entry visa for Bulgaria. Entry visas are issued in all Bulgarian diplomatic missions abroad. No visas are required from citizens of countries from the European Union and a number of other countries as well. Upon arrival in Bulgaria every foreigner (if not accommodated in a hotel) should register in the Passport Service for Foreigners (Sofia, 48 Maria Louisa Blvd.) to receive a residence permit. Those foreigners who are admitted as students at the University should present their documents for admission issued by the University.

## Accommodation

Accommodation for Erasmus+ Incoming students can be arranged in several ways:

- *Students' dormitory* – Incoming Erasmus+ students may apply for the students' dormitory. Limited number of rooms is available – first come, first served. Please state your preference in the Application Form - <https://students.mu-sofia.bg/campus>
- *Private flats* – A common option for foreign students is to rent a flat within easy reach of the university for a monthly fee. The cost depends on the size, comfort, location of the housing and varies between 200 € - 350 € per month. The rent excludes electricity, phone, water supply and central heating costs.
- *Private rooms*. Contact Erasmus+ Student Network (ESN) – Bulgaria for help with the accommodation for finding private rooms from 100 - 150 EUR (monthly). The rent excludes electricity, phone, water supply and central heating costs.

For more details contact: <https://esnbg.org/>

<https://www.facebook.com/esnbulgaria>

e-mail: [bulgaria@esnbg.org](mailto:bulgaria@esnbg.org)

The International Office of the University will help incoming Erasmus+ students in finding the accommodation that matches their preferences best: <https://mu-sofia.bg/mezhdunarodna-dejnost/md-kontakti/>

## Banks and Currency exchange

The lev (Bulgarian: лев, plural: leva, levove/лева, левове) is the currency of Bulgaria, which equals to 100 stotinki. Banknote denominations include 5, 10, 20, 50 and 100 leva, as well as coins of smaller denominations. One Euro is equal to 1, 95583 leva. The exchange rate to the USD and other currencies is announced every day by the Bulgarian National Bank. Many local banks and currency exchange offices function in the capital and in the big cities as well. Big international banks have offices in Sofia: BNP-Paribas, Bulgarian American Credit Bank, Raiffeisen Bank, ING Bank, Alpha Bank – Greece, Societe Generale Expressbank, etc. Near the main building of the university you can find branches of Bulgarian banks, such as Eurobank, Fibank (First Investment Bank), Unicredit Bulbank, etc. They are usually open between 9.00 a.m. and 5.00 p.m. There are numerous Automated Teller Machines (ATMs) in most cities; they accept cards issued by any of the major international banking networks (Visa, MasterCard, American Express, etc.). Credit or debit cards are accepted in most of the hotels, shops, supermarkets, etc.

## Catering facilities

Various catering establishments in Sofia can satisfy the different tastes and needs of the visitors. Along with local specials Italian, Chinese, Indian, Mexican food can be found. Most restaurants are open 11.00 a.m. – 24.00 p.m. Around the main university building there are small restaurants and cafeterias offering traditional Bulgarian cuisine, as well as fast food places where you could

get a proper meal for as much as 4.00 – 6.00 Euro. Food expenses may vary on average daily basis, depending on your personal choice – from 4.00 up to 15.00 Euro. All food stores work usually until 19.00 or 20.00. There are also 24 hour open stores, and stores working on Saturdays and Sundays.

### **Health insurance**

Foreign students are advised to get medical insurance in their home country or in one of the numerous Bulgarian insurance companies. It will cover medical treatment and stay at a hospital here, should the need arise. There are many clinics and private medical offices where medical help is offered at a quite reasonable price.

### **Library**

All faculties of the Medical University – Sofia provide access to Internet and e-mail for the students in their computer rooms. Moreover, in the Central Medical Library, there is a computer room which offers free access to data bases, Internet, and a number of multimedia products and videos. The Library has a fund of more than 750 000 volumes, offers computerized book catalogue of books, issued after 1990, and gives access to more than 800 periodicals. The Library has a reading room with 35 seats, a student reading room with 40 seats.

### **Sport facilities**

The Medical University has a multipurpose gymnastics hall, which offers excellent conditions for aerobics, basketball, bodybuilding, badminton, volleyball, and calanetics. The open-air playgrounds are used for football, basketball and volleyball. Students may use the tennis court and the swimming pool of the sport club "Academic".

### **Cost of living**

To give an idea of the cost of living in Bulgaria, an estimated monthly budget (in BG Leva; exchange rate 1 Euro=1.95 BG Leva) as estimated in 2018, might be as follows:

<b>Item</b>	<b>Expenditure in Euro (average per month)</b>
<b>Food</b>	200-300
<b>Accommodation</b>	300-350
<b>Local public transportation</b>	20-30





## FACULTY OF MEDICINE

*Address: 1 St. Georgi Sofiyski Str.  
1431 Sofia, Bulgaria  
<http://www.medfac.acad.bg>*

**Dean:** Prof. Dimitar Bulanov, MD, PhD  
*Phone: +359 2 9521 046,  
E-mail: [dean@medfac.mu-sofia.bg](mailto:dean@medfac.mu-sofia.bg)*

**Erasmus+ Faculty Coordinator:** Assoc. Prof. Lyubomir Traykov, PhD  
*Phone: +359 2 9172576  
E-mail: [lltraikov@medfac.mu-sofia.bg](mailto:lltraikov@medfac.mu-sofia.bg)*

The Faculty of Medicine consists of 47 departments and clinical centers. More than 800 academic and research fellows, the innovative equipment and modern views guarantee the educational, diagnostic and curative, and scientific activities.

The complete course of medical education lasts six years and is organized in three stages. Preclinical training provides the students with the fundamental biological and medical knowledge, offering the basis for their clinical training. Clinical training is aimed at acquisition of knowledge and skills in diagnostics and treatment. Clinical education at the Medical Faculty after the third year is organized in a modular system. Pregraduation practice is carried out under the form of rotations at the departments of the University hospitals. It aims at the application of knowledge and skills at the patient bedside and at the outpatient's clinics. The final state examination comprises five exams in Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynecology, and Hygiene and Ecology. The successful graduates are conferred the "Master" degree and qualification "Physician".

*The subjects studied during the first year of the programme are Anatomy and Histology; Cytology; Biology; Physics; Chemistry; Medical Ethics; Latin language; Foreign Language; Sports.*

*During the second year students continue their studies in Anatomy and Histology and Foreign language plus Biophysics; Biochemistry; Physiology; Medical Informatics and Biostatistics; Social Medicine; Medical Psychology; Microbiology.*

*Clinical education starts in the third year with Propaedeutics of Internal Medicine and General and Operative Surgery; in addition the students continue with Microbiology and start training in General Pathology; Pharmacology; Pathophysiology; Medical Genetics; and Medicine of Disasters.*

*In the fourth and fifth years the education is organized in a modular system and covers the subjects Internal Diseases and Therapy; Surgery; Clinical Pathology; Pediatrics; Obstetrics and Gynecology; Neurology; Dermatology and Venerology; Ophthalmology; Oto-Rhino-Laryngology; General Medicine; Neurosurgery; Orthopedics and Traumatology; Imaging diagnostics, Nuclear medicine and Oncology; Clinical Laboratory and Clinical Immunology; Clinical Pharmacology; Hygiene, Ecology and Occupational Diseases.*

*In the sixth year the modules are in Psychiatry; Urology; Anesthesiology and Reanimation; Epidemiology, Infectious Diseases, Medical Parasitology and Tropical Diseases; Physical Therapy and Rehabilitation; Forensic Medicine and Deontology. The programme also includes clinical clerkships (rotations) in Internal Medicine; Surgery; Pediatrics; Obstetrics and Gynecology; General Medicine; Hygiene, Infectious Diseases, Epidemiology and Social Medicine.*

The Medical Faculty has 57 accredited PhD programs for 3 years full time studies or 4 year part time studies.

The Medical Faculty is a basis for 3 to 5 year postgraduate education in 52 medical specialties. The postgraduate qualification is acknowledged after a final examination in front of a State Examination Commission.

## DISCIPLINES

**BIOLOGY:** ECTS credits 8.2

**Horarium:**

<b>Semester 1</b>	Lectures	45	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 2</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Contents:** Structure of the living organism, heredity, variation, immunological homeostasis. Sexual reproduction; individual development. Biological evaluation. Antropogenesis. Ecology. Evolution of invertebrates with elements of medical parasitology. Comparative anatomy of invertebrates. Normal human and animal karyotype. Methods of population genetics. Incidence of mutations, selection, migration, isolation, genetic drift, inbreeding coefficient. Immune genetics.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

**MEDICAL PHYSICS:** ECTS credits 5.8

**Horarium:**

<b>Semester 1</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 2</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15



**Contents:** Mechanics, acoustics, molecular physics. Electricity and magnetism. Optics. Ionization radiation. Measurements during microscopy. Evaluation of the microscopic object mean size. Photometric parameters and measurements. Refractions in liquids. Principles of the optical atomic and molecular spectral analysis. Activity of the radioactive source. Radionuclide semi-decay period. Main parameters in medical radiology.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

#### **MEDICAL CHEMISTRY: ECTS credits 5.8**

##### **Horarium:**

<b>Semester 1</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 2</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Contents:** Chemical linkage and structure of the molecule. Complex compounds: structure and function. Chemical kinetics. Enzyme catalysis. Chemical equilibrium. Disperse systems. Acid-base equilibrium. Hydrolysis. Buffers. Electron transfer processes. Biological oxidation. Relationship between the structure and features of the organic substances. Lipids, phospholipids, carbohydrates, amino acids and nucleic acids: structures and features. Heterocyclic compounds. Compounds possessing steroid skeleton.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

#### **LATIN LANGUAGE: ECTS credits 4.9**

<b>Horarium:</b>	Practicals	60	Weeks	30
<b>Semesters:</b>	1 and 2			

**Objectives:** General knowledge of the Latin language in the field of medicine.

**Contents:** Substantives and adjectives with their declension. Word formation, prefixes, suffixes and terms of Latin and Greek origin. Prescriptions - general principles, abbreviations. General principles in the clinical nomenclature and official forms.

**Assessment:** Ongoing assessment, semester 2<sup>nd</sup>

\*\*\*

#### **HUMAN ANATOMY AND HISTOLOGY: ECTS credits 21. 0**

##### **Horarium:**

<b>Semester 1</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 2</b>	Lectures	45	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 3</b>	Lectures	45	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 4</b>	Lectures	45	Weeks	15
	Practicals	30	Weeks	15
<b>Semesters:</b>	1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup>			

**Contents:** Bone and muscular system. Digestive system. Respiratory system. Urinary system. Reproductive system. Endocrine system. Cardiovascular system. Lymphatic system and the organs of haematopoiesis. Central nervous system. Autonomous nervous system. Skin and the

breasts. Sensory organs. Topographic anatomy of the head, neck, trunk, upper and lower extremities.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

### **HUMAN CYTOLOGY, GENERAL HISTOLOGY AND EMBRYOLOGY:**

ECTS credits 6.6

<b>Horarium:</b>	Lectures	45	Weeks	15
	Practicals	45	Weeks	15
<b>Semester:</b>	1			

**Contents:** General principles of the cytological and histological examination, external and internal morphology of the cell. Cell membrane, membrane cellular organelles, nonmembrane cellular organelles. Physiology of the cell. General histology. General embryology.

**Assessment:** W/O, semester 1<sup>st</sup>

\*\*\*

### **BIOPHYSICS:** ECTS credits 4.0

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester:</b>	3			

**Contents:** Biophysics of the complex sensory systems. Biological thermodynamics. Biological membranes. Transport processes. Electrogenesis in the living cells. Electrokinetic phenomena. Free radicals in the living systems. Biomechanics phenomena.

**Assessment:** W/O, semester 3<sup>rd</sup>

\*\*\*

### **MEDICAL PSYCHOLOGY:** ECTS credits 1.2

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester:</b>	3 <sup>rd</sup>			

**Contents:** The course aims to acquaint students with the contribution that the science of psychology has to the medical practice. Students acquire basic skills to establish a therapeutic conduct, therapeutic communication, needed for therapeutic collaboration .

**Assessment:** W/O, semester 3<sup>rd</sup>

\*\*\*

### **MEDICAL BIOCHEMISTRY:** ECTS credits 10.4

#### **Horarium:**

<b>Semester 3</b>	Lectures	60	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 4</b>	Lectures	60	Weeks	15
	Practicals	45	Weeks	15

**Contents:** Enzymes. Biopolymers (proteins and nucleic acids). Bioenergetics. Citric acid cycle. Glycolysis. Carbohydrate metabolism. Metabolism of lipids. Aminoacid metabolism. Relationship between different metabolic pathways. General regulation of metabolism in the organism. Hormones, growth factors, cytokines: molecular mechanisms of the action. Molecular



mechanisms of diabetes. Liver biochemistry. Muscular tissue biochemistry. Molecular biology and pathology. Carcinogenesis. Molecular genetics.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

**PHYSIOLOGY:** ECTS credits 12.0

**Horarium:**

<b>Semester 3</b>	Lectures	45	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 4</b>	Lectures	60	Weeks	15
	Practicals	60	Weeks	15

**Semesters:** 3<sup>rd</sup> and 4<sup>th</sup>

**Contents:** Homeostasis. Physiology of the neuron. Intercellular communication. Physiology of muscle: skeletal, smooth, cardiac. Cardiovascular physiology. Blood flow and arterial pressure regulation. Blood. Regulation of erythropoiesis. Pulmonary ventilation. Gas diffusion and transport. Gastrointestinal physiology: motor function, secretion, digestion and absorption. Physiology of the kidney. Mechanisms of urine formation. Central nervous system: motor, sensory, autonomic and integrative functions. Physiology of the endocrine system.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

**BIOSTATISTICS AND MEDICAL INFORMATICS:** ECTS credits 2.3

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 3<sup>rd</sup>

**Contents:** Stages in information processing. Information transfer. Computers. Means for information transfer and processing. Computer networks. Logical principles of programming. Disk operation system. WINDOWS operation environment. Databases. Expert systems. Statistic evaluation of the medical and biological phenomena.

**Assessment:** Ongoing assessment, semester 3<sup>rd</sup>



\*\*\*

**MEDICAL ETHICS:** ECTS credits 3.2

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semesters:** 1

**Contents:** Biological and social dimensions in human life. Health and disease. Medical ethical problems related to the reproductive behavior. Paternalism and autonomy in medicine. Relationships between physician and patient. Physicians' confidentiality. Ethical and deontological dilemmas in medicine. Ethics, law and health policy.

**Assessment:** Ongoing assessment, semester 1<sup>st</sup>

\*\*\*

**BULGARIAN LANGUAGE FOR INTERNATIONAL STUDENTS:** ECTS credits 6.3

<b>Horarium:</b>	Practicals	120	Weeks	30
------------------	------------	-----	-------	----

**Semesters:** 1, 2

**Contents:** The language education in the Medical Faculty is obligatory. The students choose one of the following languages: French, German and Russian. Foreign language education requires the knowledge and skills, acquired during the secondary education. The aims are: To provide knowledge and ability to (1) read and translate specialized literature in the field of medicine, (2) make summaries using the foreign language, (3) carry on conversation on medical problems.

**Assessment:** Ongoing assessment, semester 4<sup>th</sup>



\*\*\*

### **STUDENTS' SPORTS: ECTS credits 3.0**

<b>Horarium:</b>	Practicals	60	Weeks	45
<b>Semesters:</b>	1,2 and 3			

**Contents:** To help students and their teachers to balance weekly the mental load and the emotions, three forms of sport activity are being offered: standard term classes; competitive classes; additional courses on water and winter sports after the terms. Term classes: aerobics, badminton, basketball, bodybuilding, volleyball, calanetics, swimming, skiing, tennis, table tennis, and football. Yearly the Department organizes sea and mountain courses during the holidays. The students can practice yachting, sculling, surfing, and swimming. The students can acquire skiing skills (at two different levels) and practice tourism.

\*\*\*

### **SOCIAL MEDICINE: ECTS credits 5. 2**

#### **Horarium:**

<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semesters:** 4<sup>th</sup> and 5<sup>th</sup>

**Contents:** General methods of Social Medicine. Sociological information in medicine and health services. Primary sociological information collection. Public health. Physical health as a public health index. Morbidity. Medical and social problems in diseases leading to temporal inability to work and disability. Life style and health. International collaboration and international health organizations. Health care as a social system, fundamentals of health policy and legislation. Types of health care systems. Health care management. Management of human resources in the health institutions. Organizations and effectiveness of the work of physicians. Organization of medical care of population. Social and medical problems in the pensioners and the elderly. Working capacity assessment. Population health culture and behavior.

**Assessment:** W/O, semester 5<sup>th</sup>

\*\*\*

### **MEDICAL MICROBIOLOGY: ECTS credits 7.7**

#### **Horarium:**

<b>Semester 4</b>	Lectures	60	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semesters:** 4<sup>th</sup> and 5<sup>th</sup>

**Contents:** Taxonomy of bacteria. Morphology of bacteria. Physiology of bacteria. Viruses - structure and biological characteristics. Genetics of the bacteria and phages. Chemotherapy - principles. Resistance of the microorganisms. Infection, infectious process, infectious disease. Immunity. Natural resistance. Acquired immunity. Antigens. Antigenic structure of the microorganisms. Immune response. Cellular immunity. Immune pathology. Immunoprophylaxis and immunotherapy. Vaccines and serums – types. Immunization Calendar in the Republic of Bulgaria. Immunomodulation.

**Assessment:** W/O, semester 5<sup>th</sup>

\*\*\*

### **MEDICINE OF DISASTERS: ECTS credits 2.3**

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 5<sup>th</sup>

**Contents:** General characteristics of the disasters. Organization of the defense of the population. Organization of the medical care in disasters. Planning and management. Radioecology. Biological action of the ionizing radiation in external irradiation. Biological action during radionuclide incorporation into the organism. Principles of the treatment of acute poisoning. Radiation injuries. Methods and means of detection of toxic substances and gas cleaning.

**Assessment:** Ongoing assessment, semester 5<sup>th</sup>

\*\*\*

### **MEDICAL GENETICS: ECTS credits 2.9**

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 5<sup>th</sup>

**Contents:** Methods of genetic examination. Mutagens and teratogens. Chromosomal diseases. Molecular diseases. Hereditary errors in metabolism. Pharmacogenetics. Immune response genetic control. Genetic polymorphism. Polygene. Inborn malformations. Genetics of mental insufficiency. Genetic predisposition to malignant diseases. Medical genetic consultation. Prenatal diagnostics. Genetic screening and monitoring. Organization of the genetic prevention in the country and the tasks of the medical practitioners.

**Assessment:** W/O, semester 5<sup>th</sup>

\*\*\*

### **PATHOPHYSIOLOGY: ECTS credits 6.8**

<b>Horarium:</b>	Lectures	60	Weeks	30
	Practicals	60	Weeks	30

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Health and disease. Terminal states. General etiology. General pathogenesis. Peripheral circulation and microcirculation. Reactivity and resistance. Immune reactivity. Hypoxia. Inflammation. Fever. Pathological physiology of the blood, respiratory, cardiovascular, and digestive system; liver, urinary, endocrine, and nervous systems.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

### **PHARMACOLOGY: ECTS credits 8.6**

**Horarium:**

<b>Semester 5</b>	Lectures	45	Weeks	15
	Practicals	45	Weeks	15

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** General principles of pharmacology: pharmacokinetics, drug interaction, toxicology. Chemical mediators: cholinergic and adrenergic transmission and other peripheral mediators. Neurotransmission. Neuropsychopharmacology. Drugs used in treating motor disorders:



Epilepsy, Parkinsonism. Central and local anesthetics. Analgetics. Cardiovascular pharmacology. Diuretics. Haemopoiesis. Haemostasis. Anti-coagulants. Pharmacology of the respiratory system. Gastro-intestinal pharmacology. Endocrine system pharmacology. Reproductive system. Chemotherapy: antibacterial, antiviral. Antifungal, antiprotozoal, antihelminthic agents. Cancer chemotherapy. Immunopharmacology.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

#### **GENERAL PATHOLOGY: ECTS credits 0**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

<b>Semester 6</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Injuries of the cell and intercellular matrix. Necrosis. Circulatory disturbances. Inflammation. Immunotherapy. Compensatory and reparative processes. Tumors. Abnormalities in the development of the organism.

**Assessment:** 0

\*\*\*

#### **PROPEDEUTICS OF INTERNAL DISEASES: ECTS credits 11.6**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Initial examination of the patient. History. Status. Physical methods of patient examination. Main syndromes and symptoms in the respiratory system diseases. Main symptoms and syndromes in cardiovascular system diseases. Disease manifestations and methods of examination of the gastrointestinal system. Liver. Bile ducts. Pancreas. Principal symptoms and syndromes. Main diseases. Principal symptoms and syndromes in urinary system diseases; methods of examination. Haematopoietic system. Endocrine system. Insulin-producing apparatus. Diabetes mellitus. Hypoglycaemia. Other disorders of the metabolism. Diseases of the muscles, joints, and bones.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

#### **GENERAL AND OPERATIVE SURGERY: ECTS credits 8.6**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15

Epilepsy, Parkinsonism. Central and local anesthetics. Analgetics. Cardiovascular pharmacology. Diuretics. Haemopoiesis. Haemostasis. Anti-coagulants. Pharmacology of the respiratory system. Gastro-intestinal pharmacology. Endocrine system pharmacology. Reproductive system. Chemotherapy: antibacterial, antiviral. Antifungal, antiprotozoal, antihelminthic agents. Cancer chemotherapy. Immunopharmacology.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

#### **GENERAL PATHOLOGY: ECTS credits 0**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

<b>Semester 6</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Injuries of the cell and intercellular matrix. Necrosis. Circulatory disturbances. Inflammation. Immunotherapy. Compensatory and reparative processes. Tumors. Abnormalities in the development of the organism.

**Assessment:** 0

\*\*\*

#### **PROPEDEUTICS OF INTERNAL DISEASES: ECTS credits 11.6**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Initial examination of the patient. History. Status. Physical methods of patient examination. Main syndromes and symptoms in the respiratory system diseases. Main symptoms and syndromes in cardiovascular system diseases. Disease manifestations and methods of examination of the gastrointestinal system. Liver. Bile ducts. Pancreas. Principal symptoms and syndromes. Main diseases. Principal symptoms and syndromes in urinary system diseases; methods of examination. Haematopoietic system. Endocrine system. Insulin-producing apparatus. Diabetes mellitus. Hypoglycaemia. Other disorders of the metabolism. Diseases of the muscles, joints, and bones.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

#### **GENERAL AND OPERATIVE SURGERY: ECTS credits 8.6**

##### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15



**Semesters:** 5<sup>th</sup> and 6<sup>th</sup>

**Contents:** Surgical department (clinic) organization and planning. Surgical instruments. Suture materials. Dressing and additional materials. Surgical clothing. Antiseptics and aseptics. Surgical operation. Main procedures and interventions in surgery. Puncture. Sounding. Tomia, incision, excision, stoma, anastomosis, bypass, resection, amputation. Main principles of transplantation. Organ transplantation. Anaesthesia. Local anaesthesia. Pain and pain relief. Resuscitation. Shock. Clinical death. Traumatic diseases. Bleeding. Blood transfusion. Surgery, AIDS, Hepatitis B. Surgical infection. Surgical oncology. Necrosis and gangrene. Ulcer and fistula. Surgical endoscopy. Endoscopic surgery.

**Assessment:** W/O, Semester 6<sup>th</sup>

\*\*\*

### **IMAGING DIAGNOSTICS, NUCLEAR MEDICINE AND ONCOLOGY (Module):**

ECTS credits 5.0

**Horarium:** Lectures - 40 hours

Practicals - 95 hours

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 3 weeks

**Contents:** Techniques for X-ray examination. Radiological investigation of the central nervous system, urinary tract and bones. Basic theory and principles of the nuclear medicine.

Radio pharmaceuticals. Equipment. Radioimmunologic analysis. Nuclear diagnostics of the urinary tract, respiratory system, cardiovascular system, haematopoietic organs, digestive tract, locomotory system, and nervous system. Radioactivity. Clinical dosimetry. Radio biologic actions of the ionizing radiation. Indications and contraindications for radiotherapy.

**Assessment:** W/O, year 4<sup>th</sup>

\*\*\*

### **OTO-RHINO-LARYNGOLOGY (Module):** ECTS credits 3.6

**Horarium:** Lectures - 30 hours

Practicals - 60 hours

**Study period:** Year 4, module teaching system. Duration - 3 weeks

**Contents:** Clinical anatomy of the middle and the inner ear. Physiology of the auditory and vestibular sensory systems. Acute inflammations of the middle ear. Mastoiditis. Chronic otitis - mesotympanitis, epitympanitis. Otosclerosis. Menier's disease. Extradural and subdural abscess. Deafness and deafdumbness. Clinical anatomy and physiology of the nose. Nosebleed. Acute and chronic rhinitis. Anatomy of the throat. Adenoid vegetations. Tonsillitis. Chronic pharyngitis. Chronic tonsillitis. Clinical anatomy of the larynx. Physiology of the larynx. Acute and subchordal laryngitis. Chronic laryngitis. Laryngeal edema and abscess. Tracheotomy. Laryngeal paralyses. Laryngeal carcinomas.

**Assessment:** W/O, year 4<sup>th</sup>

**HYGIENE, ECOLOGY AND OCCUPATIONAL DISEASES (Module):** ECTS credits 6.0

**Horarium:** Lectures - 45 hours  
Practicals - 105 hours

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 4 weeks

**Contents:** Hygienic and ecological problems of population. Climate and weather. Acclimatization. Climatotherapy and climatoprophylaxis. Water and water-supply. Personal hygiene. Mental health. Nutriology and nutrition hygiene. Occupational risk factors and occupational diseases. Physical factors. Micro-climate and nonionizing radiation. Occupational chemical factors. Childhood and adolescence hygiene. Pneumoconioses. Occupational bronchial asthma and chronic bronchitis. Chronic poisoning. Vibration disease. Occupational disorders of the hearing and vestibular analyzers. Occupational disorders of the vision. Occupational accidents and diseases.

**Assessment:** W/O, year 4<sup>th</sup>

\*\*\*

**OPHTHALMOLOGY (Module):** ECTS credits 3.6

**Horarium:** Lectures - 30 hours  
Practicals - 45 hours

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 3 weeks

**Contents:** Light sensing. Colour sensing. Visual acuity – techniques for examination. Binocular visus. Diseases of the orbital cavity and eyelids, conjunctiva, and lacrimal apparatus, cornea and sclera, vascular cover of the eye, retina, optic nerves, lens and the vitreous body. Glaucoma. Eye injuries. First aid in ophthalmology. Operating theater.

**Minimum practical skills:** Inspection of the eye-ball and eyelids movement. Examination of the light sensing and adjustment. Color sensing examination using tables. Visual acuity, perception and projection examination. Tentative perimetry. Forster's perimetry. Focal lighting, simple and combined. Ophthalmoscopy. Retinoscopy. Palpatory investigation of the eye pressure. Eye pressure measurement using Maclakov's tonometer. Refraction and adjustment investigation. Refraction glasses choice by neutralization. Corneal sensitivity investigation. Concomitant and paralytic strabismus differentiating. Manual examination of the orbital edge. Shirmer's tear secretion test. Lacrimal sac pressing out. Color test for lacrimal tract patency investigation (lacrimal tract and nose tests). Upper lid up turning and fornix exposing. Conjunctival cavity bathing. Eye-drop and eye ointment application. Mono- and binocular binding up. Fluorescein coloring of corneal epithelial defects. Mirror-image investigation of the cornea. Deviated cilia epilation. Conjunctival and corneal foreign bodies' removal. Pupillary light reflex examination.

**Assessment:** W/O, year 4<sup>th</sup>

\*\*\*

**NEUROLOGY (Module):** ECTS credits 5.9

**Horarium:** Lectures - 60 hours  
Practicals - 60 hours

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 4 weeks

**Contents:** Reflex activity - pathological changes. Sensory functions. Motor functions. Autonomic nervous system. Reticular formation and limbic system. Supreme cortex functions. Peripheral nervous system. Cranial nerves. Peripheral nerve diseases. Meningitis. Encephalomyelitis. Demyelinating encephalomyelitis. Borreliosis of the nervous system. Congenital degenerative diseases of the nervous system. Epilepsy. Injuries of the nervous



system. Neurologic conditions caused by alcohol abuse. Neurointoxications. Neuroses. Headache.

Minimum practical skills: Clinical examination of the patient with neurological disorders. Diagnosis, differential diagnosis and management of patients with the following most important diseases: acute cerebrovascular disorders (including transportation and outpatient stroke management); epilepsy and status epilepticus; meningitis and other inflammatory diseases of the central and peripheral nervous system; skull and brain injuries - emergency treatment and transportation; myasthenic crisis – emergency management; peripheral nervous system diseases and severe pain syndromes (including polyneuritis and discal hernia) - management and a medical specialists' report. Indications and contraindications for a spinal puncture. Liquor tests interpretation.

**Assessment:** W/O, year 4<sup>th</sup>

\*\*\*

**GENERAL MEDICINE (Module):** ECTS credits 3.2

<b>Horarium:</b>	Lectures	15	Week	15
	Practicals	15	Week	15

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 5 days

**Contents:** Health care organization. Primary health care in the Republic of Bulgaria. Main duties of the General Practitioner in health care, prevention and treatment in general practice. Communication between the physician and the patient. Health management: the General Practitioner as an organizer and main executor of the tasks in the established practice.

**Assessment:** Ongoing assessment, year 4<sup>th</sup>

\*\*\*

**CLINICAL PATHOLOGY (Module):** ECTS credits 8.0

**Horarium:** Lectures - 45 hours

Practicals - 60 hours

**Study period:** Year 4<sup>th</sup>, module teaching system. Duration - 4 weeks, in parallel with Internal Diseases.

**Contents:** Diseases of the digestive system, liver, gall bladder, and the pancreas, cardiovascular system, respiratory tract, hemopoietic system, lymphatic nodes, endocrine glands, urinary tract, male and female reproductive systems. Diseases related to gravidity and delivery. Diseases of the fetus. Drug related disorders. Diseases of the bones and muscles.

**Assessment:** W/O, year 4<sup>th</sup>

\*\*\*

**CLINICAL PHARMACOLOGY (Module):** ECTS credits 2.4

**Horarium:** Lectures - 30 hours

Practicals - 30 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration - 2 weeks.

**Contents:** Pharmacokinetic approaches to drug dosage. Drug therapy monitoring. Clinical pharmacodynamics. Clinical chronopharmacology. Clinical pharmacokinetics. Drug administration in gravid and breast feeding women. Drug administration in elderly patients. The disease progress as a factor influencing drug action. Clinically significant drug interactions. Clinical and pharmacological approaches to vigilance treatment optimizing and pain treatment optimizing. Adverse drug reactions. Pharmacoepidemiology. Pharmacoeconomics.

Minimum practical skills: Drug treatment necessity assessment. Appropriate drug choice according to the individual characteristics of the particular patient. Personal drug list development and enlisting the chosen medicine. Preparing of the rationale regimen of the chosen drug. Effective communication techniques to promote patient cooperation and compliance with treatment. Assessment of the effect and the treatment duration.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

## **OBSTETRICS AND GYNECOLOGY (Module):** ECTS credits 8.0

**Horarium:** Lectures - 60 hours

Practicals - 150 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration - 6 weeks.

**Contents:** Fertilization. Constitutional changes in pregnant women.

Normal delivery. Prematurely pregnancy interrupting. Abortion and premature birth. Hemorrhages during the fetus and placenta delivery. Fetus in jeopardy. Diabetes and pregnancy. Abnormal presentations of the fetus. Geminated pregnancy. Physiology and pathology in the new-born and shielded period. Delivery anaesthesia. Cesarean section. Physical examination in gynecology. Precanceroses and neoplasms of the vulva, vagina and cervix. Extrauterine pregnancy. Myoma of the uterus. Sterility. Childhood and adolescence gynecology. Family planning. Breast diseases. Endometrioses. Congenital diseases of the genital organs. Climacteric. Menopause.





**Minimum practical skills:**

**Obstetrics:** History taking and physical examination of the pregnant woman. Fetal sounds auscultation. Endovaginal examination. Basic skills in ultrasound examination. Conducting normal delivery. Participation in Cesarean section. Initial management of the newborn. Primary resuscitation of the newborn. Management of the woman in the early puerperium.

**Gynecology:** History taking and physical examination in gynecology. Vaginal examination using speculum. Bimanual palpation. Native preparation microscopy. Taking probe for cytological testing. Cytological and histological report analysis. Participation in experimental uterine curettage and rectouterine pouch puncture. Preoperative and postoperative management of the woman. Participation in abdominal and vaginal gynecological surgery.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

**DERMATOLOGY AND VENEROLOGY (Module): ECTS credits 3.6**

**Horarium:** Lectures - 45 hours

Practicals - 45 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration - 3 weeks.

**Contents:** Physiology and functions of the skin. Treatment of the skin diseases. Skin diseases caused by external agents influence. Eczema. Allergic dermatoses. Papulose and erythematose-squamose dermatoses. Genodermatoses. Bullose dermatoses. Autoimmune connective tissue diseases. Vascular dermatoses. Skin neoplasms. Diseases of the skin appendices. Mycoses. Bacterial infections of the skin. Dermatoviroses. Venereal diseases. Syphilis. Gonorrhea. AIDS.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

**PEDIATRICS (Module): ECTS credits 8.4**

**Horarium:** Lectures - 90 hours

Practicals - 120 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration - 6 weeks.

**Contents:** Current clinical and prevention problems of pediatrics. Physiologic characteristics of the water – electrolyte balance in children. Physiology of immunity. Immune deficiency disorders in children. Genetic problems in pediatrics. Cytological diagnosis. Prenatal prevention of the congenital disorders. Neonatal pathological conditions. Jaundice in infants and children. Physiology and pathology of the puberty. Rickets and rickets-like conditions. Childhood pneumonopathies. Bronchial asthma. Congenital heart diseases. Myocarditis. Connective tissue disorders. Anemia in children. Reactive arthritis and spondylarthropathia. Hemorrhagic diatheses. Leukemia and malignant lymphoma. Oncological diseases in childhood. –Acute and chronic diarrhea in childhood. Infusion therapy. Chronic hepatitis and liver cirrhosis. Acute glomerulonephritis. Hematuria in children. Chronic nephritis. Nephrosis. Endocrine disorders in children. Carbohydrate metabolism disorders. Diabetes. Convulsion disorders; coma in children. Heart failure in the newborn and infants.

**Minimum practical skills:** History taking and physical examination of the newborn, infants and children. Anthropometric measurements. Thyroid gland palpation. Blood pressure measurement in children. Sputum sampling. Peripheral blood count. Bone marrow sampling. General and sterile urine sampling and testing. Joint physical examination (edema, local temperature, motion capacity, circumference and goniometry). Venous blood sampling and intravenous drug application. Mantoux test performance and interpretation. Insertion and management of central and peripheral intravenous catheter. Oxygen mask setting and control. Urethral catheter

insertion. Upper respiratory tract secretion aspiration. Lumbar puncture performance. ECG recording. Vital signs monitoring. Pulse therapy - conduction and monitoring. Genetic consultation recommending. Genealogical investigation. Physical examination in patients with large and small congenital abnormalities.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

**INTERNAL DISEASES (Module):** ECTS credits 21.6

**Horarium:** Lectures - 150 hours

Practicals - 360 hours

**Study period:** Module teaching system during the fourth and fifth academic year. Duration -18 weeks, including preliminary examination at the end of each cycle.

**Contents:**

**Cardiology**

Chronic congestive heart failure. Acute heart failure. Cardiogenic shock. Rhythm and conduction disturbances. Heart valve diseases. Atherosclerosis and ischemic heart disease. Myocardial infarction. Essential systemic hypertension. Secondary hypertension. Infectious endocarditis. Myocarditis and cardiomyopathies. Acute and chronic pericarditis.

**Gastroenterology**

Instrumental examinations and laboratory tests in gastroenterology. Esophageal, stomach, and duodenal diseases. Chronic diseases of the liver. Diseases of the pancreas. Differential diagnosis of the jaundice. Diagnosis and treatment of the intestinal diseases. Diagnostic algorithm and management of gastrointestinal neoplasm.

**Nephrology**

Acute glomerulonephritis. Chronic glomerulonephritis. Concomitant nephropathies. Pyelonephritis. Interstitial nephropathies. Acute renal failure. Chronic renal failure.

**Pulmonology**

Chronic obstructive pulmonary disease (COPD). Treatment of the bronchial obstruction. Pneumonia. Pulmonary carcinoma. Pulmonary tuberculosis.

**Endocrinology**

Diabetes mellitus. Function and diseases of the hypothalamus and the pituitary gland. Adrenal glands – function and diseases. Diseases of the thyroid gland.

**Hematology**

Anemia. Leukemia. Lymphomas. Paraproteinemia. Hemorrhagic diathesis. Thromboembolism.

**Allergology**

Basic theory of pathogenesis and treatment of allergic diseases. Bronchial asthma. Medicamentous allergy. Anaphylactic shock and serum disease. Treatment of the allergic diseases.

**Rheumatology**

Rheumatoid arthritis. Collagenosis.

**Toxicology**

Acute exogenous poisoning. Drug toxicity. Poisoning with industrial and home-made toxins.

**Assessment:** W/O, year 5<sup>th</sup>



\*\*\*

### **CLINICAL LABORATORY (Module):**

ECTS credits 2.4

**Horarium:** Lectures - 30 hours Practicals - 30 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration – 2 weeks.

**Contents:** Hematologic laboratory tests of peripheral blood samples. Laboratory tests of the bone marrow. Cytochemical and cytometric techniques. Laboratory diagnosis of the red blood cell diseases. Laboratory diagnosis of leukemia and other diseases of the white blood cells.

Clinical and laboratory testing of blood clotting and fibrinolysis. Water balance and osmolality. Electrolyte and microelements testing. Protein detecting in biological fluids. Albuminuria. Laboratory testing of patients with renal diseases. Enzyme detecting in biological fluids. Laboratory determination of lipids and lipoproteins. Carbohydrate metabolism

disturbances investigation. Hormone determination in biological fluids. Drug monitoring and toxicology. Laboratory diagnosis of malignant neoplasms, genetic and multifactorial diseases.

**Assessment:** Ongoing assessment, year 5<sup>th</sup>



\*\*\*

### **CLINICAL IMMUNOLOGY (Module):** ECTS credits 1.2

**Horarium:** Lectures - 15 hours

Practicals - 15 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration - 1 week

**Contents:** Immune deficiency diseases. Autoimmunity and autoimmune diseases. Immunologic aspects of renal and gastrointestinal diseases, hepatic and biliary immune-mediated diseases. Lymphoproliferative and hematologic diseases. Transplantation immunology. Immunology of neoplasm growth.

**Assessment:** Ongoing assessment, year 5<sup>th</sup>

\*\*\*

### **SURGERY (Module):**

ECTS credits 10.8

**Horarium:** Lectures - 90 hours

Practicals - 180 hours

Clinical attachment - 60 hours

**Study period:** Module teaching system during the fourth and fifth academic year. Duration - 8 weeks, including preliminary examination in the 4<sup>th</sup> and final examination in the 5<sup>th</sup> academic year.

**Contents:**

**Forth academic year:**

**Chest surgery** - Lung cysts and neoplasms. Diseases of the pleura. Mediastinal diseases. Esophageal and diaphragm diseases. Chest injuries – blunt and opened.

**Cardiovascular surgery** - Acute chronic venous and arterial insufficiency. Surgery in congenital and acquired heart diseases.



**Fifth academic year:**

**Abdominal, neck, and breast surgery** - Multiple and combined injuries. Ileus. Acute and chronic appendicitis. Peritonitis. Acute pancreatitis. Congenital, traumatic, and inflammatory diseases and neoplasms of the neck. Thyroid gland diseases. Breast diseases. Ulcer diseases. Precanceroses and carcinoma of the stomach. Cholelithiasis. Cholecystitis. Echinococcus and abscess of the liver. Hepatic and extrahepatic biliary system neoplasms. Spleen diseases. Pancreas neoplasms. Neoplasms of the bowel. Hemorrhoids. Fistula. Paraproctitis, dermoid cysts. Rectal carcinoma.

**Face surgery**

**Pediatric surgery** - Acute appendicitis, peritonitis, and intussusception in childhood. Acute purulent diseases of the lung and the pleura in childhood. Congenital diseases of the esophagus, small intestine and the bowel.

**Neurosurgery** - Injuries of the skull and the brain. Brain tumors. Injuries of the spinal cord and the periphery nerves.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

**NEUROSURGERY (Module):** ECTS credits 1.2

**Horarium:** Lectures - 10 hours

Practicals - 20 hours

**Study period:** Module teaching system during the fifth academic year.

**Contents:**

**Neurosurgery** - Injuries of the skull and the brain. Brain tumors. Injuries of the spinal cord and the periphery nerves.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*



## **ORTHOPEDICS AND TRAUMATOLOGY (Module): ECTS credits 3.6**

**Horarium:** Lectures - 30 hours  
Practicals - 60 hours

**Study period:** Year 5<sup>th</sup>, module teaching system. Duration – 3 weeks.

**Contents:** Clinical examination in orthopedics and traumatology. Basic operative and non-operative curative techniques. Instruments in orthopedics and traumatology.

Aseptic necrosis. Congenital hip dislocation. Bone neoplasm. Degenerative disorders and inflammatory diseases of the bones and muscles. Curative techniques in patients with distortion, luxation, and fractures. Humeral, elbow, forearm and palmar fractures and luxations. Pelvic and coxofemoral fractures and luxations. Leg fractures and luxations. Knee injuries. Spinal column fracture and fracture-luxation.

**Minimum practical skill:** Examination of the orthopedic patient. Dressing. Stitches taking out. Plaster setting performing. Direct and indirect extension techniques application. Large joint puncture. Local corticosteroid application. Preoperative surgeon hands and operative field preparing. Participation in orthopedic surgery. Orthopedic devices application.

**Assessment:** W/O, year 5<sup>th</sup>

\*\*\*

## **PSYCHIATRY (Module): ECTS credits 3.6**

**Horarium:** Lectures - 45 hours  
Practicals - 30 hours

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration - 3 weeks.

**Contents:** The course is designed to acquaint students with the basic psychiatric procedures.

Therapeutic communication – the emphasis is on the confidence forming and susceptibility enhancing as prerequisites for interview or session performing.

Clinical skills – training in selected fields of the clinical psychiatric assessment (interview).

Theoretical training – introduction to basic theory of psychiatry needed in daily clinical practice.

Training programmes are based on the active participation of the students.

**Minimum practical skills:** Therapeutic communication. Preadmission examination. Following up. Psychological test performing. Case report. Therapeutic programme formulation. Individual session. Compulsion exerting. Team session. Case discussion. Supervision. Depression, anxiety, suicide intention, psychosis, relapse, delirium, dementia, and drug side effects assessment. Collaboration with psychologist.

**Assessment:** W/O, year 6<sup>th</sup>

\*\*\*

## **UROLOGY (Module): ECTS credits 2.4**

**Horarium:** Lectures - 15 hours  
Practicals - 30 hours

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration – 2 weeks.

**Contents:** Urogenital system abnormalities. Urolithiasis. Urogenital neoplasms. Prostate gland adenoma and carcinoma. Inflammatory diseases of the urogenital system. Urogenital tuberculosis. Andrologic problems in urology.

**Assessment:** Ongoing assessment, year 6<sup>th</sup>



\*\*\*

### **ANESTHESIOLOGY AND REANIMATION (Module): ECTS credits 3.6**

**Horarium:** Lectures - 30 hours

Practicals - 45 hours

**Clinical attachment - 22.5**

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration – 3 weeks.

**Contents:** Types of anesthesia. General anesthesia. Inhalatory anesthesia. Equipment. Inhalatory anesthesia conduction. Muscle relaxants. Intravenous anesthesia. Neuroleptanalgesia. Total intravenous anesthesia. Clinical application of the contemporary anesthetics. Local anesthetics. Preoperative, operative and postoperative resuscitation. General response of the organism to an injury. Homeostasis. Infusion therapy. Definition of the terms water-electrolyte balance, protein balance, base-acid balance, and caloric balance. Enteral, parenteral and mixed feeding. Syncope, collapse and shock. Hypovolemia. Management of the shock. Hemotransfusion. Drug treatment. Acute respiratory disorders. Methods of outpatient and hospital artificial respiration. Acute circulatory disorders. Apparent death. Anesthesia and intensive care in obstetrics and gynecology.

**Assessment:** Ongoing assessment, year 6<sup>th</sup>

\*\*\*

### **PHYSIOTHERAPY AND REHABILITATION (Module): ECTS credits 2.4**

**Horarium:** Lectures - 15 hours

Practicals - 30 hours

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration – 2 weeks

**Contents:** Rehabilitation – character, classification, aims, equipment, and contingent. Galvanic treatment. Low frequency and low voltage current treatment. Medium frequency current treatment. Ultrasound. High frequency current. Light. Kinesiatrics. Application in preventive medicine. Natural physical factors – water therapy, balneotherapy, climatotherapy.

**Assessment:** Ongoing assessment, year 6<sup>th</sup>

\*\*\*

### **EPIDEMIOLOGY, INFECTIOUS DISEASES, MEDICAL PARASITOLOGY AND TROPICAL DISEASES (Module): ECTS credits 7.2**

**Horarium:** Epidemiology and infectious diseases

Lectures - 60 hours

Practicals - 60 hours

Medical Parasitology and Tropical Diseases

Lectures - 15 hours

Practicals - 15 hours

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration – 6 weeks.

**Epidemiology** - Theory of the epidemiological process. Epidemiology of the salmonellosis, abdominal typhus and paratyphus A, B and C; diphtheria; influenza and acute respiratory diseases; Eruptive infectious diseases; virus hepatitis, neuroinfections, AIDS, hospital infections; enterovirus infections; chlamydial infections.

**Infectious diseases** - Infection, infectious process and infectious diseases. Diagnosis and treatment of the infectious diseases. Diarrhea. Salmonellosis, abdominal typhus, paratyphus A,B

and C. Diphtheria. Influenza and acute respiratory diseases. Virus hepatitis, Neuroinfections. AIDS. Arbovirus infections. Rickettsial diseases: Q-fever, Marseilles fever. Shigellosis and colibacillosis. Cholera. Clinical manifestations and treatment of the hospital infections. Tetanus, anthrax. Hemorrhagic fever. Lyme disease.

**Parasitology** - Parasitism. Parasite-host interaction. Epidemiology of parasitoses. Pathogenesis of the parasitoses. Contemporary diagnostic techniques, basic principles of therapy and drug-prevention of parasitoses. Malaria. Blood and intestinal protozoan infections. Tropical parasitoses. Helminthiases. **Tropical medicine** - Mycobacterial and spirochete tropical infections. Arbovirus tropical infections. Penetrating mycoses. Tropical rickettsial and chlamydial infections.

**Assessment:** W/O, year 6<sup>th</sup>

\*\*\*

### **FORENSIC MEDICINE AND DEONTOLOGY (Module): ECTS credits 3.6**

**Horarium:** Lectures - 30 hours

Practicals - 45 hours

**Study period:** Year 6<sup>th</sup>, module teaching system. Duration – 3 weeks.

**Contents:** Forensic medicine experts' report in patients with mechanical trauma; transport injuries. Vital and postmortal injuries. Forensic medicine corpse investigation. Forensic medicine personality identification. Sex, sexual manifestations and sexual crimes. Investigation in contested parenthood, mechanical asphyxia, and poisoning. Medical deontology. Experimental trial in humans. Euthanasia. Medical mistakes and accidents in medical practice.

**Minimum practical skills:** Forensic medicine experts' report drawing up using forensic medicine record data. A living person certification. Documentation issuing. Preparing of lung native preparation for fatty embolism testing. Histological test sample preparing. A living person and corpse blood sampling for alcohol testing, for chemical testing. Sample preparing for virusological, bacteriological, biological testing. Air embolism testing.

**Assessment:** W/O, year 6<sup>th</sup>

\*\*\*

### **SUMMER PRACTICE**

after the 2<sup>nd</sup> semester            15 calendar days

after the 4<sup>th</sup> semester            15 calendar days

after the 6<sup>th</sup> semester            15 calendar days

### **TOTAL HOURS OF PRACTICE**

After the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year- 45 days, 8 hours per day - 360 hours

### **PRACTICE AFTER THE 2<sup>nd</sup> and 4<sup>th</sup> SEMESTER**

#### **Activities**

Sanitary treatment of a newly admitted patient – bathing, dressing, getting into a hospital. Hospital bed arranging. Special considerations of surgery, intensive care, and infant patient bed arranging. Patient's household linen changing. Care for in-patient's personal hygiene. Patient feeding. Patient and room preparation for doctor's round. Disinfectant solution preparing and usage. Dressing preparing for sterilization. Linen preparation. An in-patient transportation using

a stretcher or sedan-chair. A motionless patient accompanying. Blood group determination. Participation in an on duty report and duty delivering.

### **PRACTICE AFTER the 6<sup>th</sup> SEMESTER**

Temperature and pulse frequency measurement. An enema giving. Injections – intravenous infusion setting. Massage performing and compress applying. Secretion sampling, principles of sputum and feces sampling. Principles of blood sampling for microbiological testing Principles of stomach lavage performing. Blood pressure measurement. Formal medical documentation acquainting. Participation in scientific meetings. Plaster dressing and splinting. Assisting in surgery interventions.

## **II. CLINICAL PRACTICE AND PRE-GRADUATE INTERNSHIP**

### **4<sup>th</sup> and 5<sup>th</sup> year /module system/**

92 weeks (5 working days per week)	- 460 working days
460 working days (2 hours per day)	- 920 hours (115 days)
6 <sup>th</sup> year – pre-graduate internship	
240 calendar days (8 hours per day)	- 1920 hours

**TOTAL: CLINICAL PRACTICE AND PRE-GRADUATE INTERNSHIP - 2 840 hours**



## **III. ALLOCATION OF PRE-GRADUATE INTERNSHIP (in calendar days)**

Internal Diseases	- 30 days
Surgery	- 30 days
Obstetrics and Gynecology	- 30 days
Pediatrics	- 30 days
Hygiene, Infectious Diseases, Epidemiology and Social Medicine	- 35 days
Emergency Medicine	- 20 days
General Medicine Examination	- 15 days
Sessions	- 50 days
<b>TOTAL</b>	<b>240 days</b>





Clinical practice on a module system - 116 days

**TOTAL pre-graduate Internship and  
clinical practice 356 d**

Pre-graduation internship scored on three variables:

Clinical knowledge and skills – history collection and physical examination; diagnosis formulation (plan for diagnosis and diagnostic tests making; clinical diagnosis basing); patient therapeutic plan making.

Practical skills – medical manipulations, instrumental diagnostic and therapeutic procedures, performing of different imaging diagnostic procedures and image analysis, risk assessment and ways for its diminishing. Each student must perform at least 4 different manipulations, chosen by the lecturer.

Theoretical knowledge – test examination including one or two clinical cases, situation problem and specific questions.

## **GRADUATION EXAMINATIONS (STATE CERTIFICATION EXAMINATION)**

Graduation examinations (including Internal Diseases, Surgery, Obstetrics and Gynecology, Pediatrics, and Hygiene, Epidemiology, Infection Diseases and Social Medicine) are to be passed at the end of the corresponding probation. Students who pass the state examinations are awarded a Master's degree and the qualification of "Master of Medicine (MMed)" with a licence to practise medicine.

**The elective courses/modules for the respective Academic Year are published on the official website of the Faculty of Medicine- Sofia – <http://medfac.mu-sofia.bg>**







## FACULTY OF DENTAL MEDICINE

*Address: 1 St. Georgi Sofijski Str.  
1431 Sofia, Bulgaria  
<http://www.fdm.mu-sofia.bg/>*

**Dean:** Prof. Bozhidar Yordanov, PhD  
Tel.: +359 2 952 05 53  
*E-mail: [dean@fdm.mu-sofia.bg](mailto:dean@fdm.mu-sofia.bg)*

**Erasmus + Faculty Coordinator:** Assoc. Prof. Todor Uzunov, PhD  
Tel.: +359 2 9541 393  
*E-mail: [uzunov@fdm.mu-sofia.bg](mailto:uzunov@fdm.mu-sofia.bg)*

The Faculty of Dental Medicine was founded by Decree №32/June 24th, 1942 of His Majesty King Boris III. The Faculty of Dental Medicine is the first autonomous and accredited institution of higher education in Bulgaria providing training of dental medicine doctors, awarding Masters Degree.

From its start in 1942 until now, over 18 000 students were trained here and over 10 000 Bulgarian and 1000 international students from 64 countries in Europe, America, Asia, Australia and Africa have graduated the faculty.

The Faculty of Dental Medicine is renovated with 340 new dental units. There are four auditoriums, seminar halls, research library, pre-graduation training base, post-graduate students' dental surgeries, Center for continuing education in Dental Medicine, preclinical practice training rooms, clinical practice training rooms equipped with typodonts, dental technician



laboratory, center for CAD/CAM technologies, Museum on Phylogenesis of Masticatory system, etc. There are a number of well functioning students' research circles and research projects.

The education plan and programmes are in accordance with the directives of the European Union. Currently, 136 highly qualified regular lecturers and teachers work at the Faculty of Dental Medicine, 61 of them with PdD degree, and 6 – with DSc.

The education of students in dental medicine is organized in three stages with duration of five years and six months as pre-graduate internship. During the first two years students receive medico-biological training. The clinical and medical training is realized from the second to the tenth semester and includes education in general medical and specialized dental medicine disciplines. The teaching is carried out by 8 departments. The prediploma internship includes Pediatric Dental Medicine, Conservative Dental Medicine, Oral and Maxillofacial Surgery, Prosthetic Dental Medicine, Periodontology and Orthodontics, and ends with state examinations. Students who pass them successfully are awarded the qualification of a Doctor in Dental Medicine and a Master's degree.

*In the first two years* the programme covers subjects such as Human Anatomy and Histology, Human Cytology and Embryology; Physiology, Physics; Chemistry; Biology; Dental and Biomaterials; Biophysics; Computer Science; Latin language, Foreign Language; Biochemistry; Microbiology; Pharmacology; Preclinical Pediatric Dental Medicine, Preclinical Conservative Dental Medicine, Preclinical Prosthetic Dental Medicine; Social Medicine and Medical Ethics, Medical Psychology, Disaster Medicine, Computer Sciences.

*In the third year* the subjects are: Pathophysiology; Pharmacology; Preclinical Prosthetic Dental Medicine; Clinical Prosthetic Dental Medicine; Preclinical Pediatric Dental Medicine; Clinical Pediatric Dental Medicine; Preclinical Conservative Dental Medicine; Preclinical Oral and Maxillofacial Surgery, General Surgery, Hygiene and Epidemiology.

*In the fourth year* the studied subjects are: Diagnostic Imaging; Oto-Rhino-Laryngology; General Pathology; Internal Diseases; Forensic Medicine, Clinical Prosthetic Dental Medicine; Clinical Conservative Dental Medicine; Orthodontics; Clinical Pediatric Dental Medicine; Clinical Oral a Maxillofacial Surgery, Clinical Dental Allergology; Pediatrics and Infectious Diseases, Obstetrics and Gynecology, Periodontology.

*In the fifth year* the subjects are: Clinical Conservative Dental Medicine; Physiotherapy; Oral and Maxillofacial Surgery; Dermatology and Venerology; Neurology and Psychiatry; Ophthalmology; Clinical Prosthetic Dental Medicine; Orthodontics; Clinical Pediatric Dental Medicine; Periodontology.

Students go through training in a number of other disciplines – Dental Physiotherapy, Allergology, Implant Dentistry, Gnathology and Occlusion, Prevention of Dental Diseases, Oral Pathology.

The Faculty carries out specialization in ten specialties: Pediatric Dental Medicine, Prosthodontics, Oral Surgery, Maxillofacial Surgery, Implant Dentistry, Orthodontics, Periodontology and Diseases of Oral Mucosa, Social Medicine and Public Dental Health, General Dentistry, Maxillofacial Radiology and Oral Imaging Diagnostics. The Faculty disposes of the largest library in the field of Dental Medicine in Bulgaria.

## DISCIPLINES

**CHEMISTRY:** ECTS credits 5.0

<b>Horarium:</b>	Lectures	45	Weeks	15
	Practicals	30	Weeks	15
<b>Semester:</b>	1			



**Objectives:** Studying the general chemical principles, laws and reactions in relation to the student's future practice.

**Contents:** Inorganic chemistry: acid-base equilibrium. Electron transfer. Formation of complex compounds. Organic chemistry: Chemical structure – biological activity relationship (SAR). Chemical properties of the basic classes of organic compounds in the living organisms. Chemical properties of many drugs of importance.

**Assessment:** Ongoing assessment, Final examination - W/O, semester 1<sup>st</sup>

\*\*\*

**PHYSICS:** ECTS credits 5.0

<b>Horarium:</b>	Lectures	45	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 1

**Objectives:** Studying the physical phenomena connected with medicine and stomatology.

**Contents:** Physical methods for diagnostics and treatment in medicine and stomatology. Physical phenomena and principles in functioning of the human organs and systems. Principles of human protection from hazardous physical factors. Basic physical concepts, quantities and units used in medicine and stomatology.

**Assessment:** Ongoing assessment; final examination - W/O, semester 1<sup>st</sup>

\*\*\*

**HUMAN BIOLOGY:** ECTS credits 7.0

<b>Horarium:</b>	Lectures	45	Weeks	30
	Practicals	60	Weeks	30

**Semesters:** 1 and 2

**Objectives:** Getting acquainted with the organization of the living systems and the cellular and molecular principles involved.

**Contents:** Material nature of life. Heredity and diversity. Living organisms as an integrated system. Immunological homeostasis. Gametogenesis. Ontogenesis. Biological evolution. Genetics of the population. Anthropogenesis. Ecology. Parasitology. Comparative anatomy.

**Assessment:** W/O, 2<sup>nd</sup> semester

\*\*\*

**LATIN LANGUAGE:** ECTS credits 4.0

**Horarium:** Practicals 60 hours per week 2 Weeks 30

**Semesters:** 1 and 2

**Objectives:** General knowledge of the Latin language in the field of medicine.

**Contents:** Substantives and adjectives with their declension. Word formation, prefixes, suffixes and terms of Latin and Greek origin. Prescriptions - general principles, abbreviations. General principles in the clinical nomenclature and officinal forms.

**Assessment:** Ongoing assessment, 2<sup>nd</sup> semester





\*\*\*

## **FOREIGN LANGUAGE (BULGARIAN FOR FOREIGN STUDENTS, ENGLISH INSTRUCTIONS): ECTS credits 8.0**

### **Horarium:**

<b>Semesters 1,2</b>	Practicals	120	Weeks	30
<b>Semester 3,4</b>	Practicals	120	Weeks	30

**Objectives:** To provide knowledge to translate scientific medical literature; learn to make summaries and annotations in the foreign language. Learning medical and stomatological terminology.

**Contents:** The students learn the specific characteristics of the scientific text. Terms definition. General linguistic functions, themes and thesis.

**Assessment:** Ongoing assessment, 4<sup>th</sup> semester

\*\*\*

## **COMPUTER SCIENCE: ECTS credits 2.0**

<b>Horarium:</b>	Practicals	30	Weeks	15
<b>Semester:</b>	2			

**Objectives:** Studying the modern means and methods for information processing.

**Contents:** Operation systems, text processing systems, data base systems, statistical software.

**Assessment:** W/O, 2<sup>nd</sup> semester

\*\*\*

## **HUMAN CYTOLOGY AND EMBRYOLOGY: ECTS credits 4.0**

### **Horarium:**

<b>Semester 1</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** The students acquire knowledge about the structure of the cell and its parts.

**Contents:** Structure of the cell and its parts (external membrane, nucleus, cyto-center, cytoskeleton, cellular organelles). Epithelial tissue. Connective tissue. Blood. Muscle tissue. Nervous tissue. General embryology.

**Assessment:** W/O exams, semester 1<sup>st</sup>

\*\*\*

## **HUMAN ANATOMY AND HISTOLOGY: ECTS credits 16.0**

### **Horarium:**

<b>Semester 1</b>	Lectures	0		
	Practicals	15	Weeks	15
<b>Semester 2</b>	Lectures	45	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

**Objectives:** The students acquire knowledge about the normal structure of the organs and systems of the human body.

**Contents: ANATOMY:** Skeletal bones and their connection. Muscles, blood vessels and nerves of the extremities. Muscles, vessels and nerves of the head. Muscles, blood vessels and nerves of the trunk. Viscera. Central nervous system and sensory organs. Topographic anatomy of head and neck.

**Assessment:** W/O, 3<sup>rd</sup> semester

\*\*\*

**BIOCHEMISTRY:** ECTS credits 4.0

<b>Horarium:</b>	Lectures	60	Weeks	30
	Practicals	60	Weeks	30

**Semesters:** 2 and 3

**Objectives:** Gaining basic knowledge in biochemistry, molecular biology, and molecular pathology in order to achieve understanding of the human diseases, their diagnostics and treatment.

**Contents:** Biopolymers. Bioenergetics. Metabolism of carbohydrates, lipids, amino acids and nucleotides, and their interactions. Hormones and mechanism of action. Functional biochemistry: blood, liver, kidney, neural tissue, muscle tissue, bones, teeth. Biochemical basis of nutrition. Molecular biology and molecular pathology. Disturbances of the metabolism.

**Assessment:** W/O, 3<sup>rd</sup> semester

\*\*\*

**BIOPHYSICS:** ECTS credits 2.0

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester:** 3

**Objectives:** General physical and physico-chemical principles in the biological systems based on precise quantitative methods. Gaining knowledge on the modern cellular biophysics' achievements, as well as of the theoretical principles of diagnostic and therapeutic methods in stomatology.

**Contents:** Thermodynamics of biological processes. Structure, dynamics and functioning of biological membranes. Transport of substances through biological membranes. Mechanisms of biopotentials. Passive electrical properties of cells and tissues and their utilization in the therapeutic and diagnostic practices. Free radicals in the living systems.

**Assessment:** W/O, semester 3<sup>rd</sup>

\*\*\*

**HUMAN PHYSIOLOGY:** ECTS credits 10.0

**Horarium:**

<b>Semester: 3</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester: 4</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Objectives:** Teaching the relationship between human organism and its interaction with the environment.

**Contents:** General principles of regulation in the human body. Homeostasis. Transport through cellular membranes. Physiology of excitable tissue. Synapses. Mediators. Physiology of muscles. Blood and lymph. Cardiovascular system. Respiration and gas exchange. Digestion. Function of the liver. Vitamins and microelements. Metabolism, energy and substances. Body

temperature. Physiology of the skin. Function of kidneys. Fluid and acid-base balance. Endocrine systems. Reproductive and endocrine function of sexual glands. Vegetative nervous system. Sensomotor function of nervous system. Cortical system. Physiology of physical work. Characteristics of oral cavity's vascularity and teeth's mineralization. Physiological role of saliva. Characteristics of sensible functions in the facial maxillary area. Toothache.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

### **MICROBIOLOGY: ECTS credits 7.0**

#### **Horarium:**

<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Studying the morphology, structure and physiology of microbes. Agents of infectious diseases and principles of microbiological diagnostics. Principles and means for the treatment of infectious diseases. Chemotherapy. Biospecimens. Infectious process and immunity. The meaning of normal microflora. Ethiological role of oral microflora.

**Contents:** General microbiology, infection and immunity, special microbiology.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

### **SOCIAL MEDICINE AND MEDICAL ETHICS: ECTS credits 3.0**

#### **Horarium:**

<b>Semester 4</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** To educate students, studying dental medicine, an integral social medical approach and attitude to the patient and to the problems of the public health care.

**Contents:** Applying social approach in respect to health and attitude to the patient as well. Epidemiological methods applied in public dental medicine health study. Public health evaluation. Approaches and indicators used in dental medicine health studies. Moral and legal aspects of dental medicine practice. Health promotion. Emergency medical services.

#### **Assessment:**

W/O, 4<sup>th</sup>  
semester

\*\*\*



## **MEDICAL PSYCHOLOGY: ECTS credits 2.0**

### **Horarium:**

<b>Semester 3</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Assessment:** W/O, 3<sup>rd</sup> semester

\*\*\*

## **DISASTER MEDICINE: ECTS credits: 2.0**

### **Horarium:**

<b>Semester 4</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Objectives:** Theoretical and practical training for work under urgent conditions.

**Contents:** General characteristics of the disasters. Diagnostics and treatment of traumatic and radiation injuries. Intoxication with toxic substances. Frequent epidemic diseases in catastrophes. Organization, planning and management of health care in critical situations.

**Assessment:** W/O, 4<sup>th</sup> semester

\*\*\*

## **PHARMACOLOGY: ECTS credits 7.0**

### **Horarium:**

<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 5</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Studying the pharmacological and toxicological effects of drugs, applied in dental medicine.

**Contents:** Main principles of general pharmacology. Drugs' effects on cholinergic and adrenergic mediators, applied in dental medicine. Drugs' effects on central nervous system; Drugs' effects on cardiovascular, respiratory and digestive systems. Local and general anesthetics applied in dental medicine. Pharmacology and toxicology of chemotherapeutics, applied in dental medicine. Principles of drug interactions in dental medicine.

**Assessment:** Practical and theoretical – W/O, 5<sup>th</sup> semester

\*\*\*

## **PATHOPHYSIOLOGY: ECTS credits 5.0**

### **Horarium:**

<b>Semester 5</b>	Lectures	45 Hours per week	3 Weeks	15
	Practicals	30 Hours per week	2 Weeks	15

**Objectives:** Studying the etiology and pathogenesis of diseases.

**Contents:** General etiology and pathogenesis. Pathological processes (inflammation, fever, metabolic disorders and hypoxia). General clinical syndromes of vital systems under structural-dynamic violations.

**Assessment:** W/O, 5<sup>th</sup> semester

\*\*\*

### **HYGIENE AND EPIDEMIOLOGY: ECTS credits 4.0**

#### **Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** To develop professional knowledge and abilities for a prophylactic approach, professional behavior for carrying out the sanitary anti-epidemic activity.

**Contents:** The program is developed in accordance with the requirements of the general practitioner's qualification references. It is considered also with the normative documents for dental medicine prophylactics, children's education for oral hygiene, environment preservation, and hospital hygiene. The envisaged topics are in greatest extent in conformity with the dental medicine direction of training.

**Assessment:** W/O, 5<sup>th</sup> semester

\*\*\*

### **PATHOLOGICAL ANATOMY: ECTS credits 4.0**

#### **Horarium:**

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Teaching the structural lesions in diseases.

**Contents:** General pathology - morphologic manifestations of disturbances in metabolism. Blood circulation. Structural processes in inflammation. Compensatory and repair processes. Tumors. Clinical pathology - diseases of the oral cavity and the digestive system. Morphologic alterations in organs. Infectious diseases.

**Assessment:** W/O, 7<sup>th</sup> semester

\*\*\*

### **SURGERY incl. ANAESTHESIOLOGY AND EMERGENCY CONDITIONS:**

ECTS credits 5.0

#### **Horarium:**

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Contents:** Antiseptics and aseptics. Principles of anesthesiology and resuscitation. Congenital diseases in the maxillofacial area. Traumatic diseases. Urgent diseases in surgery. Haemorrhage and blood transfusion. Occupational diseases in stomatology - panaritium, tendovaginitis.

**Assessment:** W/O, 6<sup>th</sup> semester

\*\*\*

### **OTORHINOLARYNGOLOGY: ECTS credits 2.0**

#### **Horarium:**

<b>Semester 7</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Objectives:** The course gives basic knowledge and practical skills necessary for the practicing stomatologist.

**Contents:** Ear, nose and throat anatomy and physiology. Etiology, symptomatology, examination and treatment of oto-rhino-laryngological diseases.

**Assessment:** W/O, 7<sup>th</sup> Semester

\*\*\*

#### **INTERNAL DISEASES: ECTS credits 3.0**

**Horarium:**

<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 8</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15

**Objectives:** The students are acquainted with socially important internal diseases.

**Contents:** The programme emphasizes on the relationship between the internal diseases and the pathology of the oral cavity and dentition.

**Assessment:** W/O, 8<sup>th</sup> semester

\*\*\*

#### **PEDIATRIC AND INFECTIOUS DISEASES: ECTS credits 4.0**

**Horarium:**

<b>Semester 8</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Acquainting the student with the infectious diseases.

**Contents:** Infection, infectious process and infectious diseases. AIDS. The course focuses on the wide dissemination of infectious diseases of great social importance.

**Assessment:** W/O, 8<sup>th</sup> semester

\*\*\*

#### **FORENSIC MEDICINE: ECTS credits 2.0**

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester:** 8

**Objectives:** Training of students in dental medicine of the basics of forensic medicine for the general practice in cases of legal dental medicine problems, identification and increase of their law-consciousness.

**Contents:** Correct evaluation of the physical injuries in maxillofacial area. Participation of dental medicine doctors in the identification of persons and dead bodies with unknown identity. Legal deontological problems in the dental medicine practice: relations between colleagues, dental medicine-nurse and dental medicine - patient. Criminal civil and administrative responsibilities of the dental medicine in his professional activity, according to the legislation of republic of Bulgaria.

**Assessment:** W/O, 8<sup>th</sup> semester

\*\*\*

#### **OBSTETRICS AND GYNECOLOGY: ECTS credits 2.0**

**Horarium:**

<b>Semester: 8</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Objectives:** The students acquire the necessary knowledge for the treatment of pregnant women and maternity patients.



**Contents:** Normal pregnancy. Development of the fertilized egg. Role of the placenta. Diagnosis of early and advanced pregnancy. Normal delivery. Morphologic and functional changes in the pregnant woman. Pregnancy - gingivitis, stomatitis, caries. Early pregnancy and dental medicine. Normal and pathologic puerperal period. Puerperal infections. Delivery anesthesia. Effect of some drugs on the pregnant woman and the fetus. Premature interrupting of pregnancy. Premature birth. Fetus in jeopardy. Modern methods for diagnosis of the threatened fetus. Neonatal asphyxia and resuscitation. Contraception. The role of the doctor in dental medicine in female consultation.

**Assessment:** W/O, 8<sup>th</sup> semester



\*\*\*

## **DERMATOLOGY AND VENEROLOGY: ECTS credits 3.0**

### **Horarium:**

<b>Semester 9</b>	Lectures	15	Weeks 15	15
	Practicals	30	Weeks 15	15

**Objectives:** Studying the skin, oral mucous and skin appendages diseases.

**Contents:** Structure of the skin. Infectious bullose dermatoses. Vascular dermatosis. Allergic dermatoses. Oral mucous diseases. Tumors of the skin and visible mucous. Sexually transmitted diseases.

**Assessment:** W/O, 9<sup>th</sup> semester

\*\*\*

## **NEUROLOGY AND PSYCHIATRY: ECTS credits 2.0**

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester:** 9

**Objectives:** Acquiring the necessary knowledge on nervous diseases and psychiatry.

**Contents:** Clinical knowledge of the main symptoms, syndromes and diseases in neurology and psychiatry with respect to the attitude of the specialist under specific conditions. Neurological pathology in regions of the face. Oral cavity and teeth neuralgia and neuritis of trigeminal and glossopharyngeal nerves, atypical neuralgia in these regions. Neurological complications in mixed trauma of the face, the teeth and the head and therapeutic obligations of the dental medicine doctor.

**Assessment:** W/O, 9<sup>th</sup> semester

\*\*\*

**OPHTHALMOLOGY:** ECTS credits 2.0

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester:** 9

**Contents:** Anatomy and physiology of the visual analyzer and its relation to the anatomy of the dental structures. Methods of examination in ophthalmology, facilitating the doctor in the differential diagnosis. Diseases of the orbit, anterior and posterior eye segment in the dental practice.

**Assessment:** W/O, 9<sup>th</sup> semester

\*\*\*

**DENTAL MATERIALS:** ECTS credits 4.0

<b>Horarium:</b>	Lectures	30	Weeks	30
	Practicals	30	Weeks	30

**Semesters:** 1, 2

**Objectives:**

**Assessment:** W/O, 2<sup>nd</sup> semester

\*\*\*

**PRECLINICAL PROSTHETIC DENTAL MEDICINE:**

ECTS credits 18.0 - Year 1 -5; Year 2 – 13;

**Horarium:**

<b>Semester 1</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 2</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15
<b>Semester 4</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15

**Objectives:** Gaining theoretical knowledge and practical skills for the treatment of crown teeth and dental arch defects.

**Contents:** Dental materials. Pre-clinical and Clinical prosthetic dental medicine.

**Assessment:** W/O, 4<sup>th</sup> semester

\*\*\*

### **CLINICAL PROSTHETIC DENTAL MEDICINE:**

ECTS credits 32.0 - Year 3 – 8.0; Year 4 – 10.0; Year 5 – 9.0; Year 6 – 4.0

#### **Horarium:**

<b>Semester 5</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 6</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 7</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 8</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 9</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 10</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Gaining theoretical knowledge and practical skills for the treatment of crown teeth and dental arch defects.

**Contents:** Dental materials. Pre-clinical and Clinical prosthetic dental medicine.

**Assessment:** W/O, 10<sup>th</sup> semester

\*\*\*

### **PRECLINICAL AND CLINICAL CONSERVATIVE DENTAL MEDICINE:**

ECTS credits 42.0 - Year 2 – 2.0; Year 3 – 11; Year

4 – 13.0; Year 5 – 12.0; Year 6 - 4.0

#### **Horarium:**

<b>Semester 4</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 6</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 7</b>	Lectures	15	Weeks	15
	Practicals	90	Weeks	15
<b>Semester 8</b>	Lectures	15	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 9</b>	Lectures	15	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 10</b>	Lectures	15	Weeks	15
	Practicals	75	Weeks	15

**Objectives:** Diagnostics and treatment of the hard dental tissues, tooth pulp and periodontium.

#### **Contents:**

**A.** Preclinic of conservative dentistry - cavity preparation of dental amalgam, composite materials and inlays; filling materials - qualities and application; endodontics - anatomy of pulpal camera, endodontic cavity preparation, treatment of root canals; fillig canals: means and methods.

**B.** Clinical conservative dentistry – clinic, diagnostics and treatment of hard dental tissues diseases, treatment of tooth pulp and periodontium diseases.



**Assessment:** Practical and theoretical –written and oral examination, semesters 6<sup>th</sup> and 10<sup>th</sup>

\*\*\*

**PHYSIOTHERAPY (general and special):** ECTS credits 2.0

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester:** 9

**Contents:**

**Assessment:** W/O, 9<sup>th</sup> semester

\*\*\*

**PRECLINICAL AND CLINICAL ORAL AND MAXILLOFACIAL SURGERY:**

ECTS credits 38.0 - Year 3 – 12.0; Year 4 – 10.0; Year 5 – 12.0; Year 6 – 4.0

**Horarium:**

<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 7</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 8</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 9</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 10</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15

**Objectives:** Learning the surgical methods for the treatment of surgical diseases in dental medicine.

**Contents:** Topographic anatomy and anesthesia in dental medicine surgery. Extraction of teeth. Periodontitis and jaw's cyst, abscesses and phlegmons in the facial-maxillary area. Osteomyelitis in the facial-maxillary area. Odontogenic sinusitis. Lymph nodes' diseases and specific inflammatory processes in the maxillary area. Diseases of salivary glands. Diseases of temporomandibular articulation and facial nerves. Trauma in the facial-maxillary area. Tumors of the oral cavity and the facial-maxillary area. Congenital and acquired defects of the labia and the palate. Dental, jaw and facial deformations.

**Assessment:** W/O, semesters 6<sup>th</sup> and 10<sup>th</sup>

\*\*\*

**PRECLINICAL PEDIATRIC DENTAL MEDICINE:** ECTS credits 2.0

Year 2 – 1.0; Year 3 – 1.0

**Horarium:**

<b>Semester: 4</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester: 5</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Contents:** Embryonic development, histogenesis, morphology and physiology of the tooth structures, gingiva and parodont. Definition of the permanent and deciduous tooth. Root resorption. Oral ecosystem - microflora and oral liquids (saliva, content of gingival sulcus).

**Assessment:** W/O, 5<sup>th</sup>

\*\*\*

### **CLINICAL PEDIATRIC DENTAL MEDICINE:**

ECTS credits 32.0 - Year 3 – 8.0; Year 4 – 10.0; Year 5 – 9.0; Year 6 – 4.0

#### **Horarium:**

<b>Semester 6</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 7, 8</b>	Lectures	30	Weeks	30
	Practicals	60	Weeks	30
<b>Semester 9</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 10</b>	Lectures	15	Weeks	15
	Practicals	60	Weeks	15

**Semesters:** 6,7, 8,9 and 10

**Objectives:** To acquaint the students with the pathology of the oral cavity in childhood. To build up abilities for correct diagnosis of the most common diseases of the teeth, gingiva and parodont and practical skills for their treatment. The students acquire practical skills on phantom models and only after that they work with up to 16 years old patients within the framework of three semesters. There is another semester of prophylactics to present the principal tendencies of dental prevention.

**Assessment:** W/O, semester 10<sup>th</sup>

\*\*\*

### **DENTAL HYGIENE and PREVENTION: ECTS credits 6.0**

#### **Horarium:**

<b>Semester: 6</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester: 7</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Assessment:** W/O, 7<sup>th</sup> semester

\*\*\*

### **DENTAL PUBLIC HEALTH (DPH): ECTS credits 7.0**

#### **Horarium:**

<b>Semester: 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester: 6</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Creating basic knowledge about the essence, structure, governance, financing and legal regulation of dental health services and skills for organization and management of dental practice.

**Contents:** DPH course gives an opportunity for gaining theoretical knowledge and competence about:

Structure and organization of national healthcare system

**Assessment:** W/O, 6<sup>th</sup> semester

\*\*\*

**ORAL PATHOLOGY: ECTS credits 2.0****Horarium:**

<b>Semester: 6</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Objectives:** Familiarization of future dental medicine doctor with damages of oral mucosa, periodontium and the teeth, associated with occupational risk factors. Prevention of occupational diseases and accidents at the work place.

**Contents:** Characteristics of the most common occupational diseases - intoxication with heavy metals; poisoning due to organic solvents; gas poisoning; damages due to noise and vibrations, dusts and allergens, etc.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

**DIAGNOSTICS IMAGING (general and special):**

ECTS credits 7.0 - Year 3 – 4.0; Year 4 – 3.0

**Horarium:**

<b>Semester: 6</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester: 7</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Objectives:** Studying the methods and techniques for X-ray examination and ITS application in practice.

**Contents:** Radiographs, methods and techniques of respiratory, cardiovascular, urogenital, digestive, and nervous system X-ray examination. Methods and techniques for examination of maxillofacial area, trauma, teeth diseases, parodont, periodontium. Traumatic, inflammatory and tumor diseases of temporomandibular articulations.

**Assessment:** W/O, 7<sup>th</sup> semester

\*\*\*

**DENTAL ALLERGOLOGY: ECTS credits 2.0**

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Semester: 7**

**Objectives:** Mastering of theoretical and practical knowledge for applying complex focal diagnostics and clinical dental allergology in diagnosing clinically healthy and medical compromised patents for demonstrating the connection between oral and all-medical diseases in conformity with current European standards.

**Contents:** The “Dental clinical allergology” course gives an opportunity to acquire practical and theoretical knowledge and competency on special dental clinical allergology and complex focal diagnostics.

**Assessment:** W/O, 7<sup>th</sup> semester

\*\*\*

**ORTHODONTICS: ECTS credits 20.0 - Year 4 – 7.0; Year 5 – 9.0; Year 6 – 4.0****Horarium:**

<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 8</b>	Lectures	15	Weeks	15



<b>Semester 9</b>	Practicals	30	Weeks	15
	Lectures	15	Weeks	15
<b>Semester 10</b>	Practicals	45	Weeks	15
	Lectures	15	Weeks	15
<b>Semesters:</b>	Practicals	60	Weeks	15
	7, 8, 9 and 10			

**Objectives:** Prevention and treatment of dental maxillary deformations and anomalies.

**Contents:** Development of dental-maxillary system and facial skeleton. Etiology of dental maxillary deformations and anomalies. Methods for diagnostics. Prophylactics and treatment of dental-maxillary deformations and anomalies.

**Assessment:** W/O, semesters 10<sup>th</sup>

\*\*\*

**PARODONTOLOGY:** ECTS credits 16.0 - Year 4 - 5.0; Year 5 - 9.0; Year 6 - 4.0

**Horarium:**

<b>Semesters 7</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 8</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 9</b>	Lectures	15	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 10</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Semesters:** 7, 8, 9 and 10

**Contents:** Instruments and instrumentation. Structural biology of periodontium and oral mucosa. Etiology and pathogenesis of periodontium and oral mucous diseases. Diagnostics of periodontium and oral mucous diseases. Treatment of periodontium and oral mucous diseases. Prophylactics of periodontium and oral mucous diseases.

**Assessment:** W/O, 10<sup>th</sup> semester





## FACULTY OF PHARMACY

*Address: 2 Dunav Str.  
Sofia 1000, Bulgaria  
<http://www.pharmfac.net/>*

**Dean:** Prof. Alexander Zlatkov, PhD, DSc

*Tel.:* +359 02 9236 604

*E- mail:* [dean@pharmfac.mu-sofia.bg](mailto:dean@pharmfac.mu-sofia.bg)

**Erasmus + Faculty Coordinator:** Prof. Valentina Petkova, PhD, DSc

*Tel.:* +359 2 9152 163; *Fax:* +359 2 954 11 53

*E-mail:* [vpetkova@pharmfac.acad.bg](mailto:vpetkova@pharmfac.acad.bg)

Historically, the Faculty of Pharmacy was founded in 1942 as a Department of Pharmacy at the Faculty of Natural Sciences and Mathematics, Sofia University. In 1951, it was transformed into a separate Pharmaceutical Faculty at the newly established Medical Academy. The Faculty of Pharmacy has become part of the newly founded Medical University – Sofia since 1995 and offers higher education in pharmacy. The Faculty of Pharmacy in Sofia celebrated its 79<sup>th</sup> Anniversary in 2021. It has six departments three of which teach pharmacy-oriented fundamental subjects (inorganic, analytical and organic chemistry, physical chemistry, botany and mathematics). Another departments offer the specific pharmaceutical subjects, such as Pharmaceutical technology and Biopharmacy, Pharmacognosy (Phytochemistry), Pharmaceutical Chemistry and Pharmaceutical Analysis, Pharmacology and Toxicology, Social Pharmacy. The medical subjects are taught by the corresponding departments at the Faculty of Medicine, Medical University – Sofia.



The education course is organized in three levels and lasts five years. The first level is aimed at securing fundamental training of future pharmacists. The second level is oriented towards gaining knowledge and acquiring skills specific for the pharmaceutical profession. The education is organized in three profiles – general, clinical and industrial, the choice being made after the sixth semester. Students of both majors study special pharmaceutical and medical subjects. The third level of the study course – practicum – takes place in the 10<sup>th</sup> semester in public or hospital pharmacies, which are established as training centers. The assessment of this practical work includes written and oral colloquia. For their graduation students in pharmacy are obliged to pass a state final certification examination or to prepare and defend a diploma thesis. The graduates are conferred a "Master" degree and the qualification of "Pharmacist".

*The first year* of the programme covers the subjects Mathematics; Biology; Physics and Biophysics; Latin language; Foreign Language; History of Pharmacy; Applied Mathematics; Anatomy and Physiology; Inorganic Chemistry.

*The second year* is dedicated to continuation of Anatomy and Physiology; the other subjects are Computer Techniques; Analytical Chemistry; Organic Chemistry; Microbiology; Pharmaceutical Botany; Physical Chemistry.

*In the third year* the curriculum includes Pharmaceutical Botany; Physical Chemistry; Pharmaceutical Chemistry; Pharmaceutical Technology and Biopharmacy, Part 1; Biochemistry; Clinical Chemistry; Hygiene and Ecology; Medical Techniques and Instruments; Pharmacognosy, Part 1; Pharmacology.

*In the fourth year* the studied subjects are Pharmaceutical Technology and Biopharmacy, Part 2; Pharmaceutical Analysis; Pharmacology; Social Pharmacy; Pharmacognosy; Pathonatomy and Pathophysiology; Toxicology; Pharmacognosy, Part 2; Medical Genetics; Clinical Medicine, Pharmacoeconomics and Pharmacotherapy.

The ninth semester covers the subjects Basics of Clinical Medicine; Pharmaceutical care, Biopharmacy and pharmacokinetics, Bromatology; Modern Requirements to the Production of Drugs.

The Faculty also offers instruction to extramural students and postgraduate education in five subjects: Pharmaceutical Technology and Biopharmacy; Drug Analysis; Medicinal Plants and Herbals; Clinical Pharmacy; Pharmacology; Hopital pharmacy; Organization and Economics of the pharmacy and distribution practice and Organization and Economics of the pharmaceutical manufacturing.

#### *Location*

The Faculty building is located in the centre of the city of Sofia, 50 m away from the temple "St. Alexander Nevski" and 150 m behind the building of the National Assembly, near the monument of Vassil Levski.

## **DISCIPLINES**

**MATHEMATICS:** ECTS credits 5.0

**Prerequisites:** Successful completion of secondary education.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 1

**Contents:** Elements of linear algebra and analytical geometry, elements of the theory of numerical series and numerical functions of one or two variables, elements of differential and integral calculus, elements of the theory of ordinary differential equations.



**Objectives:** Gaining of knowledge of the basic fields of higher mathematics necessary for the understanding of the quantitative methods and models in physical chemistry, biochemistry and pharmacology, and of capability of unaided solution of some of the often encountered problems in pharmaceutical research.

**Assessment:** W/O, semester 1<sup>st</sup>



**HISTORY OF PHARMACY: ECTS credits 3.0****Prerequisites:** None.

<b>Horarium:</b>	Lectures	30	Weeks	15
<b>Semester:</b>	1			

**Contents:** Development of the pharmaceutical knowledge and practice related to the development of society and cultural history of nations. The development of Bulgarian pharmacy is considered in the context of world pharmacy.

**Objectives:** To provoke respect to the pharmaceutical profession by acquainting the students with the contribution of various countries to the development of world pharmacy, as well as to elucidate the activities of famous old schools.

**Assessment:** W, semester 1<sup>st</sup>

\*\*\*

**MOLECULAR BIOLOGY: ECTS credits 5.0****Prerequisites:** Successfully passed entry exams on biology and chemistry.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 2

**Contents:** Material basis of life. Organization of the living systems. Heredity and variety. The organism as a unified system. Immunological homeostasis. Sexual reproduction and individual development. Biological evolution and population genetics. Anthropogenesis. Ecology. Poisonous plants and animals with medical significance.

**Objectives:** Obtaining knowledge on the basic principles of organization and function of the living systems. Cellular and molecular bases of life. The human as a product of the biological and social evolution. Ecology and the role of humans in the biosphere.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

**GENERAL AND INORGANIC CHEMISTRY: ECTS credits 10.0****Prerequisites:** Successfully passed competitive examination on chemistry.**Horarium:**

<b>Semester 1</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 2</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Contents:** The most important problems of the general theory as well as the systematic material of inorganic chemistry are included in the lecturing course. Particular attention is given to the macro-and microbiogenic elements and their substances which are of decisive importance for the existence and functioning of bio-systems. The laboratory exercises are preceded by a course of stoichiometric calculations. The practical training includes the solution of theoretical problems.

**Objectives:** Training in the basic manipulations in a chemical laboratory. Creation of a basis for the future education in all other chemical subjects.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

### **PHYSICS AND BIOPHYSICS:** ECTS credits 7.0

**Prerequisites:** Successfully passed examination on Higher Mathematics is recommended.

**Horarium:**

<b>Semester 1</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15
<b>Semester 2</b>	Lectures	30	Weeks	15
	Practicals	15	Weeks	15

**Contents:** Structure and properties of liquids and solids. Optics - basics of refractometry, dioptrometry, photocolometry, spectrophotometry, nephelometry, polarimetry, microscopy. Spectroscopy - atomic, molecular, X-ray, mass, NMR, EPR, Moessbauer. Ionization radiations - X-rays, radioactivity, dosimetry. Rheology of simple liquids and heterogeneous systems, haemorheology. Thermodynamics and Biothermodynamics. Biological and man-made membranes

- functions, types, chemical composition, structure. Free-radical lipid peroxidation in biomembranes. Transport of substances through porous and semipermeable membranes, facilitated diffusion, active transport. Electrical properties of cells and tissues - biopotentials: static and dynamic, surface electrical charge, electrical conductivity.

**Objectives:** Knowledge necessary for the study of Analytical Chemistry, Physical Chemistry, Organic Chemistry, Pharmaceutical Chemistry, Technology of Medicinal Substances, Processes and Apparatuses, Chemical-Pharmaceutical Technology. Skills acquired by laboratory training.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

### **LATIN LANGUAGE:** ECTS credits 5.0

**Prerequisites:** None.

<b>Horarium:</b>	Seminars	60	Weeks	30
<b>Semesters:</b>	1 and 2			

**Contents:** Notion of the Latin verb and some verbal forms in pharmaceutical terminology. Nouns, adjectives and numerals and their use in the specialized pharmaceutical language. Word-building: prefixes, suffixes. Term elements of Latin and Greek origin by means of which the complex medical and pharmaceutical terms have been created and are created at present. General rules in chemical nomenclature and in the formation of the denomination of drugs. Basics of the botanical nomenclature. Basic terms in pharmacognosy. Prescription – principles in making out a prescription, specific formulae in Latin and generally accepted abbreviations.

**Objectives:** Formation of a stable terminological basis in the beginning of the education in pharmacy which would facilitate the gaining of knowledge on the other objects foreseen in the teaching program.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

### **BULGARIAN LANGUAGE:** First academic year (for foreign students only): ECTS credits 4,0

**Prerequisites:** Training in a basic course of Bulgarian language and successfully passed examinations – oral and written.

<b>Horarium:</b>	Seminars	120	Weeks	30
<b>Semesters:</b>	1 and 2			



**Contents:** Texts from human anatomy and physiology, and biology, taught during the first academic year. Scientific-popular texts. Exercises on: basic phonetic rules in contemporary Bulgarian language. Lexicology – medical and pharmaceutical terminology. Functional-semantic structures building up the medical texts. Syntactic of the simple sentence.

Texts from human physiology, microbiology and botany, taught during the second academic year. Exercises on: syntax of the complex sentence. Structure of a scientific text. Functional semantic constructions typical of the Bulgarian medical text. Lexicology - medical and pharmaceutical terminology. Stylistics – text edition.

**Objectives:** Knowledge of the language necessary for the oral and written adequate communication in Bulgarian lingual medium - both in everyday life and in its academic aspects.

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

**SPORTS:** ECTS credits 5.0

**Prerequisites:** None

**Horarium:**

<b>Semester 1</b>	Lectures	0	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 2</b>	Lectures	0	Weeks	15
	Practicals	30	Weeks	15

**Contents:** To help students and their teachers to balance weekly the mental load and the emotions, related to sport activities. There are three forms of sport activity: standard term classes; competitive classes; additional courses on water and winter sports after the terms.

Term classes: aerobics, badminton, basketball, bodybuilding, volleyball, calanetics, swimming, skiing, tennis, table tennis, and football. Yearly the Department organizes sea and mountain courses during the holidays. The students can practice yachting, sculling, surfing, and swimming. The students can acquire skiing skills (at two different levels) and practice tourism.

**Objectives:** Maintaining good physical shape and mental health

**Assessment:** Engrossed (on the “yes” or “no” basis)

\*\*\*

**STATISTICAL METHODS IN PHARMACY:** ECTS credits 4.0

**Prerequisites:** Successfully passed examination in Mathematics.

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 2

**Contents:** Elements of combinatorics and classical probability theory - random experiments and events. Statistical, classical and geometrical probability. Basic formulae for the probability of a random event. Sequences of independent experiments. Random quantities and their numerical characteristics. Theorem of Chebishev, Bernouli’s law for big numbers and theorem of Liapunov. Elements of the mathematical statistics. Elements of the mathematical modeling.

**Objectives:** Knowledge of the basic sections of the probability theory, mathematical statistics and mathematical modeling that are necessary for the understanding of the quantitative methods and models of Physical Chemistry, Biochemistry, Biology, Medicine, Pharmacology and for the unaided solution of some of the problems often encountered in pharmaceutical research.

**Assessment:** W/O in two stages – practical and theoretical.

\*\*\*

**HUMAN ANATOMY: ECTS credits 4.0**

<b>Horarium:</b> Lectures	30	Weeks	15
Practicals	15	Weeks	15

**Objectives:** The students acquire knowledge about the normal structure of the organs and systems of the human body.

**Contents: ANATOMY:** Skeletal bones and their connection. Muscles, blood vessels and nerves of the extremities. Muscles, vessels and nerves of the head. Muscles, blood vessels and nerves of the trunk. Viscera. Central nervous system and sensory organs. Topographic anatomy of head and neck.

**Semesters: 2**

**Assessment:** W/O, semester 2<sup>nd</sup>

\*\*\*

**HUMAN PHYSIOLOGY: ECTS credits 7.0**

**Prerequisites:** None

**Horarium:**

<b>Semester 2</b>	Lectures	30	Weeks	15
	Practicals	0	Weeks	15
<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Contents:** Structure and function of cells, organs and systems building up the human organism. Mechanism, regulation and adaptation of physiological functions. Physiological methods for the investigation with applications in clinical and experimental practice.

**Objectives:** Understanding of the mechanism of action of medicinal substances.

**Assessment:** W/O, semester 3<sup>rd</sup>

\*\*\*

**PATHOANATOMY: ECTS credits 3.0**

**Prerequisites:** Successfully passed examinations on Anatomy and Physiology.

<b>Horarium:</b> Lectures	15	Weeks	15
Seminars	15	Weeks	15

**Semester:** 3

**Contents:** Processes of general pathoanatomy: necrosis and atrophy. Disorders in the metabolism of tissues and cells. Disorders in the development of the organism (teratology). Drug injuries (drug disease), etc.

**Objectives:** Basic theoretical knowledge in the field of medicine in order to facilitate the understanding of other taught subjects.

**Assessment:** W/O, semester 3<sup>rd</sup>

\*\*\*

**INFORMATION TECHNOLOGIES: ECTS credits 3.0**

**Prerequisites:** None

<b>Horarium:</b>	Practicals	30	Weeks	15
<b>Semester:</b>	3			

**Contents:** Lay-out and principle of action of contemporary personal computers and related operation systems. Contemporary text-processing, graphical, tabular, editing and communicative possibilities of computer systems. Practical usage of the basic Internet and e-mail services.

**Objectives:** Gaining of knowledge on the lay-out and principle of action of contemporary personal computers and related operation systems. Development of capabilities for the practical usage of contemporary computer systems and information technologies.

**Assessment:** W/O in two stages – practical and theoretical.

\*\*\*

#### **PATHOPHYSIOLOGY: ECTS credits 5.0**

**Prerequisites:** Successfully passed examinations on Anatomy and Physiology.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	30	Weeks	15

**Semester:** 4

**Contents:** Processes of general pathology: disorders in circulation, forms of inflammation, regenerative growth, disorders in the development of the organism (teratology). Drug injuries (drug disease), etc.

**Objectives:** Basic theoretical knowledge in the field of medicine in order to facilitate the understanding of other taught subjects

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

#### **ANALYTICAL CHEMISTRY: ECTS credits 15.0**

**Prerequisites:** Successfully passed examination on Inorganic Chemistry.

**Horarium:**

<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15

**Contents:** Qualitative analysis of cations and anions. Basic parts in the quantitative titrimetric analysis: acid-base equilibria, slightly soluble substances, complexometric equilibria, redox equilibria. Instrumental methods of analysis - potentiometry, spectrophotometry, chromatography (thin-layer chromatography and high-efficiency liquid chromatography).

**Objectives:** Gaining knowledge on the basic principles and methods of chemical analysis

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

#### **ORGANIC CHEMISTRY: ECTS credits 15.0**

**Prerequisites:** Successfully passed examinations on Physics, Mathematics, as well as General and Inorganic Chemistry.

**Horarium:**

<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15
<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	60	Weeks	15



**Contents:** Nomenclature of organic compounds. Structure of substances from the quantum-mechanical point of view. Basics of stereochemistry. Relationship between structure and reactivity. Mechanisms of organic reactions. Spectral methods of analysis (infrared spectroscopy, nuclear magnetic resonance, mass spectroscopy, electron spectroscopy). Fatty and aromatic, saturated and unsaturated hydrocarbons. Halogen derivatives, hydroxyl derivatives, aldehydes and ketones, carboxylic acids and their functional derivatives. Fatty and aromatic amines. Heterocyclic compounds with three- to six-atom cycles and one or two heteroatoms - oxygen, nitrogen and sulfur. Purines and pteridines. Organic compounds with biological activity. Medicinal substances.

**Objectives:** Fundamental knowledge of organic chemistry necessary for the training in pharmaceutical chemistry, pharmacognosy, biochemistry, technology of drug forms, chemical-pharmaceutical technology and other specialized subjects.

**Assessment:** Written examination on three themes and a problem on multistage synthesis in the frames of four hours; each theme and the problem have a relative assessment value of 25%.

\*\*\*

### **MICROBIOLOGY WITH VIROLOGY: ECTS credits 10.0**

**Prerequisites:** None.

#### **Horarium:**

<b>Semester 3</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Contents:** General microbiology, infection and immunity, special microbiology.

**Objectives:** Knowledge of the morphology, structure and physiology of microorganisms causing contagious diseases. Principles and means of the treatment of contagious diseases using chemotherapy and biopreparations. Contagious process and immunity of the organism. Causes of various infections and principles of microbiological diagnostics as well as the significance of the normal human microflora. Knowledge of the significance and application of microbiology for the specialty "Pharmacy". Modern biotechnologies using microorganisms for the preparation of antibiotics and other contemporary medicines. Methods of microbiological analysis and control of medicines and biopreparations.

**Assessment:** Continuous assessment, written tests, colloquium, examination.

\*\*\*

### **PHYSICAL CHEMISTRY WITH COLOID CHEMISTRY: ECTS credits 7.0**

**Prerequisites:** Successfully passed examinations on Pure Mathematics, Physics, and Inorganic Chemistry.

#### **Horarium:**

<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 5</b>	Lectures	15	Weeks	15
	Practicals	15	Weeks	15

**Contents:** Chemical principles in the pharmaceutical science are studied. Thermodynamics. Solutions of electrolytes and nonelectrolytes. Solubility and distribution phenomena. Interfacial phenomena. Colloids and rheology. Kinetics – transition - state theory. Catalysis. Enzyme kinetics. Pharmacokinetics. Quantum-mechanical principles in description of the chemical structure. Drug-biomacromolecule interactions.

**Objectives:** The physical chemical principles applied to the physical pharmacy, pharmacokinetics and pharmacodynamics.

**Assessment:** W/O, semester 4<sup>th</sup>

\*\*\*

**PHARMACEUTICAL BOTANY: ECTS credits 10.0**

**Prerequisites:** None.

**Horarium:**

<b>Semester 4</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15
<b>Semester 5</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Contents:** Anatomy of plants (cytology, histology, organography). Morphology. Physiology of plants, Phytogeography and ecology. Natural resources of medical plants. Methods of their effective use, protection and reproduction are studied together with their importance as sources of biologically active substances.

**Objectives:** Knowledge of the medical plants from the point of view of botany, in order to serve as a basis for the study of pharmacognosy.

**Assessment:** W/O, semester 5<sup>th</sup>

\*\*\*

**BIOCHEMISTRY: ECTS credits 7.0**

**Prerequisites:** Successfully passed examinations on Inorganic Chemistry, Analytical Chemistry and Organic Chemistry.

<b>Horarium:</b>	Lectures	45	Weeks	15
	Practicals	45	Weeks	15

**Semester:** 5

**Contents:** Structure and function of proteins and nucleic acids. Application of knowledge on polymers in the clinical practice. Enzymes. Clinical significance of enzymes. Antimetabolites. Bioenergetics. Citric acid cycle. Metabolism of carbohydrates. Metabolism of lipids. Metabolism of amino acids. Metabolism of nucleotides. Enzymopathies, related to metabolism. Integration and interrelations between metabolism of carbohydrates, lipids, amino acids and nucleotides. Metabolism of DNA, RNA and proteins. Carcinogenesis. Regulation of metabolism. Signal transduction. Hormones. Diabetes Mellitus. Biochemistry and functions of liver. Degradation and synthesis of porphyrins. Jaundices. Biochemistry of nutrition. Computer presentations are used at each lecture - Power Point illustrations and animations (molecular graphics) and other interactive programs.

This course is being now developed also for distance learning, appropriate for under- and post-graduates. The Web-based version of the course consists of lectures, interactive tests and simulations of clinical cases.

**Objectives:** As biochemistry is the study of the molecular basis of life, the goals of the unit are:

(i) to provide theoretical knowledge on the content, structure and functions of the cell components, on the chemical reactions and processes occurring in cells and their regulation, and to explain their significance for organisms in norm and in disease, giving in each category examples about the application of theory in the clinical practice;

(ii) to pass from passive teaching to active regular or distance problem-based learning via application of theory for solving interactive Web-based computer-simulated cases and to provide

self-assessment of knowledge via tests. To assure practical instruction and training in basic laboratory biochemical methods and professional teamwork.

**Assessment:** W/O, semester 5<sup>th</sup>

\*\*\*

**MEDICAL DEVICES :** ECTS credits 3.0

**Prerequisites:** Stereometry studied in the secondary school.

**Horarium:** Practicals 30 Weeks 15

**Semester:** 5

**Contents:** Students get familiar with an international technical language as well as with its rules and application, adapted to the needs of students in pharmacy. During the practical exercises, elements of the construction of heat-exchangers used in pharmaceutical industry are drawn and sized. Computerized approaches are also taught.

**Objectives:** Knowledge of the rules of the Bulgarian State Standard and practical skills in technical drawing.

**Assessment:** W/O , 5<sup>th</sup> semester

\*\*\*

**PHARMACEUTICAL CHEMISTRY:** ECTS credits 18.0

**Prerequisites:** Successfully passed examination on Organic Chemistry.

**Horarium:**

**Semester 5** Lectures 45 Weeks 15

Seminars 30 Weeks 15

Practicals 45 Weeks 15

**Semester 6** Lectures 45 Weeks 15

Seminars 30 Weeks 15

Practicals 30 Weeks 15

**Semesters:** 5 and 6

**Contents:** Classical and modern medicinal substances are studied on the basis of a combined pharmacotherapeutic and chemical classification. Each part includes characteristics, structure, chemical denomination, properties, methods of preparation, biotransformation, relationship between structure and activity. Possibilities are considered of alteration of properties, toxicity, etc. **Objectives:** In-depth knowledge of the items listed above.

**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

**PHARMACEUTICAL TECHNOLOGY, Part 1:** ECTS credits 17.0

**Prerequisites:** None

**Horarium:**

**Semester 5** Lectures 30 Weeks 15

Practicals 75 Weeks 15

**Semester 6** Lectures 30 Weeks 15

Practicals 75 Weeks 15

**Contents:** Conventional drug dosage forms - pulveres, liquida, unguenta, suppositoria, etc., pharmaceutical operations and pharmacopoeal characteristics.

**Objectives:** Providing the basic knowledge and practical skills in the preparation and characterization of conventional drug dosage forms.



**Assessment:** W/O, semester 6<sup>th</sup>

\*\*\*

**CLINICAL CHEMISTRY:** ECTS credits 5.0

**Prerequisites:** None

<b>Horarium:</b>	Lectures	15	Weeks	15
	Practicals	45	Weeks	15
<b>Semester:</b>	6			

**Contents:** Theoretical aspects of clinical chemistry. General problems concerning the materials used for investigation. Types of errors in laboratory diagnostics. Reference limits and values. Analytical reliability of the methods. Quality assurance in clinical laboratories. Basic knowledge on the methods used for the study of electrolytes, oligoelements, indices of the alkali-acidic state of blood, carbohydrates, proteins, enzymes, non-protein nitrogen-containing substances, lipids, hormones, drugs and drug monitoring.

**Objectives:** Skills for work in clinical laboratories as specialists in clinical chemistry.

**Assessment:** Oral examination, semester 6<sup>th</sup>

\*\*\*

**PHARMACOGNOSY, Part 1:** ECTS credits 17.0

**Prerequisites:** Successfully passed examinations on Botany and Organic Chemistry.

**Horarium:**

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	75	Weeks	15

**Contents:** The curative raw materials of animal and vegetal origin are studied using physical, chemical, physicochemical and biological methods.

**Objectives:** Identification, elucidation of the qualitative and quantitative content of biologically active compounds in drugs.

**Assessment:** W/O, semester 7<sup>th</sup>

\*\*\*

**PHARMACOLOGY:** ECTS credits 15.0

**Prerequisites:** Successfully passed majority of the courses dealing with medical and biological subjects.

**Horarium:**

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	75	Weeks	15

**Contents:** **Sixth semester.** Basic concepts of general pharmacology, necessary for the accumulation of fundamental information concerning the medicinal effect. Special pharmacology, in its parts on the central and autonomous neural systems is also started.

**Seventh semester.** Drugs affecting the cardio-vascular system, the cell-mediated systems, the endocrine system. The course also includes the study of the microbiological, pharmacodynamic, pharmacokinetic and healing aspects of the clinically applied antiinfectious drugs. Principles of chemotherapy for the selective toxicity with respect to bacterial, viral and fungal infectious causes are considered together with the chemotherapy of malignant tumors and chemoblastoses.

**Objectives:** On the basis of the already acquired knowledge on the essence of the physiological and pathophysiological processes in the organism, to focus on the medicinal effects of the various pharmacological remedies, with good knowledge of their pharmacodynamics, pharmacokinetics, therapeutic indications and undesired reactions.

**Assessment** W/O, semester 7<sup>th</sup>

\*\*\*

#### **SOCIAL PHARMACY AND PHARMACEUTICAL LEGISLATION:** ECTS credits 12.0

**Prerequisites:** Successfully completed seventh semester; passed examinations on basic pharmaceutical subjects.

**Horarium:**

<b>Semester 6</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Contents:** Possibility of harmonization of the problems of pharmaceutical legislation, management and marketing, and the good pharmaceutical practice in Bulgaria with those of the European countries.

**Objectives:** To create an overall concept on the stages from the investigation of drugs to their effective application to patients.

**Assessment:** W/O, semester 7<sup>th</sup>

\*\*\*

#### **HYGIENE AND ECOLOGY:** ECTS credits 4.0

**Prerequisites:** Completed education in Organic Chemistry, Inorganic Chemistry, Quantitative Analysis, Anatomy, Physiology, Pathoanatomy, Pathophysiology, Biochemistry and Clinical Chemistry, Clinical Medicine and Pharmacotherapy.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	15	Weeks	15

**Semester:** 7

**Contents:** Basic ecological problems of pollution, protection and control of atmospheric air, waters and soils. Effect on human health. Physiology of nutrition. Biological and chemical safety of foods. Nutritional diseases. Hygienic requirements to the design and exploitation of pharmacies. Safety in the production of medicinal substances. Physical, chemical and biological factors of the working environment and related professional diseases with emphasize on the specific pathology in the cases of pharmacy personnel and workers in the chemical-pharmaceutical industry. Infection and epidemic processes. Antiepidemic measures. Ecological and antiepidemiological regularities of the infections of the respiratory system. Intestinal, transmittive and coating infections.

**Objectives:** Possibilities of participation in the system for the monitoring of environment, incl. Biomonitoring. Sanitary control in pharmacies. Participation in the development of prophylactic programs, and in antiepidemic activities.

**Assessment:** W/O, semester 7<sup>th</sup>

\*\*\*

#### **PHARMACEUTICAL TECHNOLOGY, Part 2:** ECTS credits 18.0

**Prerequisites:** Successfully passed examination on Pharmaceutical Technology and Biopharmacy, Part 1.

**Horarium:**

<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 8</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

**Contents:** Classical and modern approaches to the development and characterization of drug dosage forms: solid - (granules, capsules, tablets), sterile - (Parenteralia, Ophthalmica) and phytotherapeutica. Modern requirements for effective and safe dosage forms.

**Objectives:** Basic theoretical and practical knowledge of the formulation, production and control of dosage forms.

**Assessment:** W/O, semester 8<sup>th</sup>

\*\*\*

#### **PHARMACEUTICAL ANALYSIS:** ECTS credits 18.0

**Prerequisites:** Successfully passed examinations on Analytical Chemistry.

##### **Horarium:**

<b>Semester 7</b>	Lectures	30	Weeks	15
	Practicals	75	Weeks	15
<b>Semester 8</b>	Lectures	30	Weeks	15
	Practicals	90	Weeks	15

**Contents:** Possibilities of functional analysis and instrumental methods of analysis (spectroscopy in the UV, visible and IR spectral regions, chromatography, etc.) for the identification and assessment of the amount and purity of the medicinal substances are considered.

**Objectives:** To assure knowledge and skills in the quality control of medicinal substances.

**Assessment:** W/O, semester 8<sup>th</sup>

\*\*\*

#### **PHARMACOECONOMY:** ECTS credits 6.0

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	45	Weeks	15

**Semester:** 8

**Contents:** It compares the value of one pharmaceutical drug to another. It is a sub-discipline of health economics. A pharmacoeconomic study evaluates the cost (expressed in monetary terms) and effect (expressed in terms of monetary value, efficacy or enhanced quality of life) of a pharmaceutical product. There are several types of pharmacoeconomic evaluation: costminimization analysis, cost-benefit analysis, cost-effectiveness analysis and cost-utility analysis. Pharmacoeconomic studies serve to guide optimal healthcare resource allocation, in a standardized and scientifically grounded manner.

**Objectives:** Knowledge of the basic theoretical requirements and practical skills related to the teaching subject.

**Assessment:** W/O, semester 8<sup>th</sup>





\*\*\*

### **TOXICOLOGY: ECTS credits 7.0**

**Prerequisites:** Basic knowledge in the fields of the medicobiological and pharmaceutical subjects, the respective examinations being successfully passed.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	8	Weeks	2
	Practicals	52	Weeks	13

**Semester:** 8

**Contents:** General toxicology. Basic modern principles of medicinal toxicology, toxicokinetics and toxicodynamics. Mechanisms of toxic action. Undesired effects of drugs. Drug safety - monitoring of the undesired effects of drugs. Genotoxic, mutagenic, cancerogenic, teratogenic, immunotoxic action. Biotransformation – enzyme mechanisms. Cytochrome P450. Factors affecting toxicity (endogenic and exogenic). Toxicological aspects of medicinal interactions. Misuse of drugs, Drug dependence. Toxicomanias.

Special toxicology. Toxicological characterization of basic pharmacological groups. Mechanisms of the medicinal injuries of organs and systems. Injuries by nonmedicinal agents - alcohol and nicotine. Interaction with drugs. Toxic substances from the environment: pesticides, heavy metals, organic solvents, industrial and domestic gases, etc. Effect on the biotransformation processes. Toxicologic characteristics of medical plants and nutritive additives. Acute medicinal intoxications - modern antidotes, detoxicants.

**Assessment:** W/O, semester 8<sup>th</sup>

\*\*\*

### **MEDICAL GENETICS: ECTS credits 3.0**

<b>Horarium:</b>	Lectures	15	Weeks	15
	Seminars	15	Weeks	15

**Semester:** 8

**Contents:** The etiology of inherited diseases, chromosome diseases and differential diagnosis with the teratogene effects of drugs and other exogenic factors in the etiology and pathogenesis of innate malformations are considered. Basic classes molecular diseases with emphasize on the pharmacogenetic defects, enzymopathies, defects in the connective tissue and the role of genetic factors in the oncogenesis as well as approaches to genetic prophylaxis and therapy, and principles of gene therapy also includes.

**Objectives:** Basic knowledge of the problems of inherited pathology.

**Assessment:** W/O semester 8<sup>th</sup>

\*\*\*

### **PHARMACOTHERAPY: ECTS credits 12.0**

**Prerequisites:** Successfully passed majority of the courses dealing with medical and biological subjects and the examinations on Pharmacology and Toxicology.

#### **Horarium:**

<b>Semester 8</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15
<b>Semester 9</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Contents:** The clinics and medical treatment of the following syndromes and diseases are considered: the infectious-inflammatory syndrome with lung localization, incl. bronchial asthma as well as the bronchospastic syndrome. Syndrome of cardiac insufficiency. Thromboembolic

syndrome. Dislipidemias. Hypertonia; Syndrome of cardiac inhemia. Cardiac arrhythmia. Hyperacidic syndrome. Noninfectious-inflammatory syndrome. Malignant tumors and chemoblastoses. Hyperglycemia and other endocrine disorders. Dermatologic diseases. Cerebral-vascular disease. Undesired reactions caused by prolonged pharmacotherapy.

**Objectives:** To provide information on the clinics of various syndromes and diseases of internal medicine, on the mechanisms of the pathologic process and on the pharmaco-therapeutical approaches to their effective healing.

**Assessment:** W/O, semester 9<sup>th</sup>

\*\*\*

#### **BIOPHARMACEUTICS AND PHARMACOKINETICS:** ECTS credits 10.0

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	90	Weeks	15

**Semester:** 9

**Contents:** Drug delivery systems – development and characterization; stability and stabilization of drugs, methods of assessment of the drug stability and of prediction of the drug shelf-life. Methods for the biopharmaceutical study of dosage forms; in vitro release and dissolution - mathematical evaluation and modes of presentation of the results. Pharmaceutical and bio-equivalence of drug preparations.

**Objectives:** To provide knowledge on modern drug delivery systems; basic methods for the evaluation of drug stability and stabilization, biopharmaceutical characterization of drug dosage forms.

**Assessment:** W/O, semester 9<sup>th</sup>

\*\*\*

#### **BROMATOLOGY:** ECTS credits 5.0

**Prerequisites:** Successfully passed examinations on Pharmaceutical Chemistry and Analytical Chemistry.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	30	Weeks	15

**Semester:** 9

**Contents:** Composition of foods – proteins, fats, carbohydrates, vitamins, mineral salts, nutrient additives. Drug-food interactions on the level of resorption, distribution, metabolism, excretion. Food-poisonings of chemical and microbiological origins.

**Objectives:** To assure knowledge of the methods of food analysis and of the drug-food interactions.

**Assessment:** W/O, semester 9<sup>th</sup>

\*\*\*

#### **PHARMACOGNOSY, Part 2:** ECTS credits 7.0

**Prerequisites:** Successfully passed examination on Pharmacognosy, Part 1.

<b>Horarium:</b>	Lectures	30	Weeks	15
	Seminars	12	Weeks	3
	Practicals	48	Weeks	12

**Semester:** 9

**Contents:** Extraction of drugs from freely growing and cultivated medicinal plants - advantages and drawbacks. Standardization of drugs and standard documents. Methods of isolation,

identification, qualitative and quantitative analysis of biologically active substances of vegetal origin. Types of phytopreparations and stages of their manufacturing. Phytopreparations from various groups naturally occurring substances. Chemotaxonomy and significance for pharmacy.

**Objectives:** On the basis of the theoretical knowledge acquired from Pharmacognosy, Part 1, to provide the students with practical skills in this respect.

**Assessment:** W/O, semester 9<sup>th</sup>

\*\*\*

#### **PHARMACEUTICAL CARE: ECTS credits 6.0**

**Prerequisites:** None

<b>Horarium:</b>	Lectures	30	Weeks	15
	Practicals	45	Weeks	15

**Semester:** 9

**Contents:** Scientific principles and international requirements at every stage of drug therapy for the purpose of achieving the elimination or reduction of a patient's symptomatology; arresting or slowing of a disease process; or preventing a disease or symptomatology. This process requires a review of patient's medication with reference to the doctor's diagnoses, laboratory tests and patient's information. It teaches good communication skills in order to gain a correct understanding of the relevance and impact of the various medications on the patient's pathology.

**Objectives:** Knowledge of the modern strategies in providing quality and safety at every stage of drug treatment.

**Assessment:** W/O, semester 9<sup>th</sup>





## FACULTY OF PUBLIC HEALTH

*1527 Sofia, 8 Bialo More Str.*

<https://foz.mu-sofia.bg/>

**Dean:** Prof. Magdalena Aleksandrova, MD, PhD

*Tel. +359 2 9432 127*

*E mail: [aleksandrova@fz.mu-sofia.bg](mailto:aleksandrova@fz.mu-sofia.bg)*

**Erasmus + Faculty Coordinator:** Prof. Antoniya Yanakieva, PhD

*Tel. +359 2 851 01 22*

*E-mail: [erasmus@fz.mu-sofia.bg](mailto:erasmus@fz.mu-sofia.bg)*

The Faculty of Public Health is one of the four faculties within the structure of Medical University – Sofia, the oldest and most authoritative academic organization in the field of medicine and healthcare in the Republic of Bulgaria. The Faculty of Public Health was established with the support of the Stability Pact and in partnership with leading institutions in the countries of the European Union and the World Health Organization with Decree of the Council of Ministers №160/20.06.2001. The founder of the Faculty of Public Health is Prof. Tzeconomir Vodenitcharov, PhD, DSc. The strategy of the Faculty of Public Health is defined by modern ideas and movement in the European Health for All in the 21st Century, including:

- Public health, which is a primary issue not only for the health sector, but also for other sectors of public life and various civic organizations;

- Security of all people that healthcare is affordable, adequate and of good quality;
- Ensuring the basic right of every person to a good level of physical and mental health, including the right to adequate healthy food, the right to good housing conditions, the right to live and work in a safe living environment, the right to access to education and health information.

**The mission of the Faculty of Public Health includes:**

- to create a new generation of health managers, prepared for the challenges of the dynamically emerging market of health services, entrepreneurship spirit and respecting the universal ethical principles of healthcare practice;
- to provide continuous training and methodical support to health policy makers and managers in the modernization of Bulgarian healthcare.
- to provide continuous training and methodical support to health policy makers and managers in the modernization of Bulgarian healthcare.
- to contribute responsibly and creatively to the development of a methodological basis for educational and research activities in the field of public health and health management;
- capacity building by high-level professionals in public health and health management to provide better access to appropriate, sustainable high-quality healthcare;

**The vision of the Faculty of Public Health** is undoubtedly related to the constant and stimulated interest in the problems of the public health and the satisfaction of the needs of the trainees, with an emphasis on the actuality and significance of the theoretical and practical applied knowledge.

**The strategic objective of the Faculty of Public Health** is to develop the science and practice of public health and management and to optimize the organization, coordination and control of all activities performed. The aim is to form health politicians, managers and specialists with high managerial competence, with a new type of organizational behavior and pedagogical professionalism in providing medical and health care in the conditions of a changing social, economic and health system. All the study programs proposed are in correlation with the European policy and are adapted to Bulgaria. They are in line with the priorities and directives of the Bologna Declaration on the Development of Higher Education in Europe. In the ranking of the scientific directions "Public health" and "Health care" Medical University - Sofia is the first in Bulgaria.

**Erasmus + program**

Within the ERASMUS + Exchange Programs, the Faculty has concluded over 60 agreements with different universities for all majors in the following countries: Estonia, Greece, Spain, Italy, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Northern Macedonia, Turkey, Hungary, Finland, Croatia, Czech Republic. The Faculty of Public Health and the Medical College "Yordanka Filaretova", with the assistance of the International Integration and Project Financing Department of the Medical University-Sofia, organize an annually event "International Erasmus Staff Week". The purpose of the event is to expand international relations, establish new contacts and share the best teaching practices in the field of public health and medical care.

**Structure of the Faculty of Public Health**

- Department of Health Policy and Management
- Department of Health Economics
- Department of Ethics and Law in Medicine
- Department of Social Medicine

- Department of Medical Pedagogy
- Department of Preventive Medicine
- Department of Occupational Medicine
- Department of Health Care
- Department of Health Technology Assessment
- Department of Physiotherapy
- Study department
- Postgraduate training department
- Accounting department

The Faculty of Public Health carries out training in two professional fields. We prepare leaders with new management style. Future managers are able to effectively manage outpatient and hospital care in the country. The Faculty of Public Health educates students in the following specialties and degrees:

#### **BACHELOR'S DEGREE**

- Public Health and Health Management
- Health Care Management
- Nursing
- Midwifery
- Physiotherapy
- Emergency Medical Aid

#### **MASTER'S DEGREE**

- Public Health and Health Management
- Health Care Management
- Occupational Health
- Clinical Medical Care
- Strategic Management in the Pharmaceutical Industry
- Clinical Trials Management
- Medical Cosmetics
- Medical Rehabilitation and Balneology

### **MAJOR „PUBLIC HEALTH AND HEALTH MANAGEMENT” FOR BACHELOR'S EDUCATIONAL AND QUALIFICATION DEGREE - FULL-TIME STUDY**

The program aims to foster and develop students' practical skills like:

- views on the role and essence of the health management
- critical analysis of problems
- understanding of the issues and priorities of the health system
- Orientation in the economical aspects
- Applying of economical approaches
- identifying of ethical aspects and solving ethical dilemmas
- planning and conducting epidemiological researches
- Knowledge about the main rules and legislation about the drug policy
- Knowledge about the rules of making medicines
- Marketing knowledge about drug policy



- Role, purpose and position of the health insurance in the health policy
- Knowledge about preventing strategies
- Applying the Models of Financing in the Health System

**Objectives:** The main objective of the discipline is to form modern views on the essence of the future profession of the students.

**Assessment:** Theoretical exams & Semester examination



## Major Curriculum

### I semester

Number	Subject	ECTS
1	Introduction to the major of health management	7
2	Medical ecology and hygiene	6
3	Management of health resources	6
4	Introduction to economic knowledge	6
5	Latin and Medical Terms	3

### II semester

Number	Subject	ECTS
1	Social medicine	6
2	Accounting and Control	6
3	Economy of Healthcare	7
4	Medical ethics and deontology	6
5	Latin and Medical Terms	3

### III semester

Number	Subject	ECTS
1	Communication skills and conflicts management	7
2	Organization of the medical care	7
3	Medical sociology	6
4	Epidemiology of non-infectious diseases	6
5	Financial management in Healthcare	6
6	Training in patient practice with practical seminar	3

### IV semester

Number	Subject	ECTS
1	Methods of health training and education	6
2	Organization of the emergency medical care	6
3	Drug policy	6
4	Management of information – document flow in medicine and healthcare	7
5	The role of health management in occupational medicine	6
6	Training in patient practice with practical terminal	3
7	Bioethics	4
8	Time management	4

### V semester

Number	Subject	ECTS
1	Health Insurance & Finance modeling	7
2	Health promotion	6
3	Strategic management in Healthcare	7
4	Evidence based medicine	6
5	Training practice in emergency aid with practical terminal	3

### VI semester

Number	Subject	ECTS
1	Introduction to health management	6
2	Outpatient care organization	6
3	Informatics in healthcare	6
4	Marketing in healthcare	7
5	Training outpatient practice with practical seminar	3

## VII semester

Number	Subject	ECTS
1	Patients' rights	6
2	Fundamentals of occupational medicine	6
3	Problems related to ageing and old age	6
4	Labour and administrative law	6
5	Training outpatient practice with practical seminar	3
6	International health cooperation	6

## VIII semester

Number	Subject	ECTS
1	Health law	6
2	Sport	8





**MAJOR “NURSING”**  
**EDUCATIONAL AND QUALIFICATION DEGREE: BACHELOR**

**Total hours of theoretical and practical training, consultations, course assignments, semester and final state examinations – 5283 academic hours**



**Hours of theory – 2010 academic hours, including:**

- compulsory subjects + 2 Freely selectable – 1980 hours
- optional subjects – 30 hours

**Practical training – 3273 academic hours:**

- Training (clinical) practice - semester 1,2,3,4,5,6 – 1140 hours
- Pre-diploma (clinical) practice - 1600 astronomic hours (2133 academic h)

**Credits:**

One credit corresponds to 30 h workload (auditorium and independent) .

Credits from the course of study – 230.00

Credits from final state examinations – 10.00

Maximum number of credits – 240.00

**Major Curriculum**

**I semester**

Number	SUBJECTS	ECTS
1	Philosophy and introduction to nursing. Theoretical bases.	12
2	Nursing care for patients with somatic diseases	6
3	Human anatomy and clinical pathology	3
4	Human physiology and pathological physiology	3
5	Latin with Medical Terms	2
6	Medical psychology	2
7	Medical ethics and deontology	2
8	Sport	4

9	Clinical practice	51
10	Pre-graduation practice	47

## II semester

Number	SUBJECTS	ECTS
1	Philosophy and introduction to nursing. Theoretical bases.	12
2	Nursing care for patients with oncologic diseases	2
3	Microbiology, parasitology and virology	2
4	Pharmacology	3
5	Internal diseases	6
6	Health promotion	1
7	Computer Science	4
8	Sport	4
9	Clinical practice	51

## III semester

Number	SUBJECTS	ECTS
1	Nursing care for patients with surgical diseases	5
2	Paediatric nursing	3
3	Nursing for resuscitation and intensive care	3
4	Image diagnostics in the nursing practice	1
5	Hygiene and ecology	2
6	Dietotherapy	1
7	Internal diseases	6
8	Geriatrics	1
9	Surgery	5
10	Anaesthesiology and intensive care	4
11	Paediatrics and Neonatology	3
12	Clinical practice	51

## IV semester

Number	SUBJECTS	ECTS
1	Nursing for young mothers and newly-born babies	2
2	Nursing for ENT diseases	2
3	Nursing for patients with infectious diseases	3
4	Surgery	5
5	Infectious diseases and epidemiology	2
6	Obstetrics and gynaecology	2
7	Children pedagogy and children psychology	1
8	Children pedagogy and children psychology	2
9	Clinical practice	51

**V semester**

Number	SUBJECTS	ECTS
1	Nursing for patients with neurological diseases	3
2	Palliative nursing	2
3	Nursing for children and adults with disabilities	4
4	Medical devices in nursing	1
5	Medical genetics	1
6	Clinical laboratory, biochemistry and immunology	1
7	Nervous diseases and psychiatry	2
8	Eye diseases	1
9	ENT diseases	1
10	Skin and venereal diseases	1
11	Social and health law	2
12	Social medicine	2
13	Art therapy and art prophylaxis	2
14	Clinical practice	51

**VI semester**

Number	SUBJECTS	ECTS
1	Physical therapy and rehabilitation	1
2	Geriatrics	1
3	Principles and methods of training	3
	<b>Two optional subjects of:</b>	2
4	Art therapy and art prophylaxis	
5	Health education	
6	Alternative medicine	
7	Communicative training	
8	Clinical practice	51

**VII semester**

Number	SUBJECTS	ECTS
1	Pre-graduation practice	47

**VIII semester**

Number	SUBJECTS	ECTS
1	Pre-graduation practice	47



**MAJOR: MIDWIFERY**  
**EDUCATIONAL AND QUALIFICATION DEGREE: „BACHELOR”**

**Total hours of theoretical and practical training, consultations, course assignments, semester and final state examinations - 5298 academic hours**

**Hours of theory – 2025 academic hours, including:**

- *compulsory subjects + 2 Freely selectable – 1995 hours*
- *optional subjects – 30 hours*

**Practical training – 3273 academic hours:**

- *Training (clinical) practice - semester 1,2,3,4,5,6 – 1140 hours*
- *Pre-diploma (clinical) practice - 1600 astronomic hours (2133 academic hours)*

**Credits:**

One credit corresponds to 30 h workload (auditorium and independent) .

Credits from the course of study – 230.00

Credits from final state examinations – 10.00

Maximum number of credits – 240.00



## **Major Curriculum**

### **I semester**

Number	Subject	ECTS
1	Philosophy and introduction to nursing and midwifery. Theoretical bases	8
2	Anatomy and general clinical pathology of human	4

3	Human physiology and pathological physiology	4
4	Microbiology, parasitology and virology	2
5	Hygiene and ecology	1
6	Latin with Medical Terms	2
7	Medical psychology	2
8	Medical ethics and deontology	2
9	Sport	4
10	Clinical practice	51

## II semester

Number	Subject	ECTS
1	Philosophy and introduction to nursing and midwifery. Theoretical bases	8
2	Midwifery	20
3	Clinical laboratory and biochemistry	2
4	Medical devices in midwifery and gynaecology practice	1
5	Medical genetics	2
6	Dietotherapy	1
7	Computer Science	4
8	Sport	4
9	Clinical practice	51

## III semester

Number	Subject	ECTS
1	Special care for pregnant women with normal and pathological pregnancy	4
2	Special care for women in child-birth with normal and pathological delivery	6
3	Special care for pregnant women, women in child-birth and women with gynaecological diseases with somatic diseases	1
4	Special care for children in neonatology and paediatrics	4
5	Midwifery	20
6	Gynaecology	12
7	Neonatology	2
8	Pharmacology	3
9	Internal diseases	2
10	Principles and methods of training	1
11	Clinical practice	51

**IV semester**

Number	Subject	ECTS
1	Special care for pregnant women with normal and pathological pregnancy	4
2	Special care for women in child-birth with normal and pathological delivery	6
3	Special care for women with normal and pathological puerperium	4
4	Special care for children in neonatology and paediatrics	4
5	Midwifery	20
6	Gynaecology	12
7	Children's diseases	2
8	Image diagnostics in midwifery and gynaecology practice	1
9	Disaster medicine	2
10	Social and health law	2
11	Clinical practice	51

**V semester**

Number	Subject	ECTS
1	Special care for women with normal and pathological puerperium	4
2	Special care for pregnant women and women in child-birth in anaesthesiology and intensive therapy	2
3	Special care for pregnant women and women in child-birth with surgical diseases	2
4	Midwifery	20
5	Gynaecology	12
6	Physical therapy and rehabilitation	1
7	Surgery	2
8	Anaesthesiology, resuscitation and intensive care	2
9	Social and health law	2
	<b>Two optional subjects of</b>	
10	Operative midwifery technique	2
11	Ultrasound diagnostics in Obstetrics	2
12	Art therapy and art prophylaxis	2
13	Communicative training	2
14	Clinical practice	51



## VI semester

Number	Subject	ECTS
1	Special care for women with gynaecological diseases	3
2	Special care for pregnant women, women in child-birth and women with gynaecological diseases with infectious and venereal diseases	1
3	Midwifery and nursing for women with oncologic diseases	2
4	Midwifery	20
5	Gynaecology	12
6	Infectious diseases and epidemiology	2
7	Skin and venereal diseases	1
8	Eye diseases	1
9	ENT diseases	1
10	Sexology and family planning	2
	<b>Two optional subjects of:</b>	2
11	Operative midwifery technique	
12	Ultrasound diagnostics in Obstetrics	
13	Art therapy and art prophylaxis	
14	Communicative training	
15	Clinical practice	51

## VII semester

Number	Subject	ECTS
1	Pre-graduation practice	46

## VIII semester

Number	Subject	ECTS
1	Pre-graduation practice	46

## MAJOR "MEDICAL AID" FOR EDUCATIONAL AND QUALIFICATION DEGREE "BACHELOR"

**Total hours of theoretical and practical training, consultations, course assignments, semester and final state examinations – 5384 academic hours**

**Hours of theory – 2250 academic hours, including:**

*- compulsory subjects – 2190 hours*

- *freely selectable – 60 hours*
- *optional subjects – 30 hours*

### **Practical training – 3134 Practical training**

- *Training (clinical) practice - semester 1,2,3,4,5,6 – 1000 hours*
- *Pre-diploma (clinical) practice –1600 astronomic hours (2133 academic hours)*

### **Credits:**

One credit corresponds to 15 h workload.

Credits from the course of study – 230.00

Credits from final state examinations – 10.00

Maximum number of credits – 240.00

## **Major Curriculum**

### **I semester**

Number	Subject	ECTS
1	Biology	1
2	Human anatomy	6
3	Human physiology	6
4	Latin with Medical Terms	2
5	Microbiology, parasitology and virology	2
6	Medical ethics and deontology	2
7	Medical psychology	2
8	Communication skills	3
9	Sport	4
10	Training practice	37

### **II semester**

Number	Subject	ECTS
1	Human anatomy	6
2	Human physiology	6
3	Medical Physics and Equipment	3
4	Biochemistry	2
5	Clinical laboratory	2
6	Computer Science	2
7	Patient care and nursing equipment	2
8	Sport	4
9	Two optional subjects of:	4
10	Training practice	37

### III semester

Number	Subject	ECTS
1	Pharmacology	5
2	Physical therapy	1
3	Hygiene and Ecology	1
4	Pathoanatomy	2
5	Nutrition and Dietetics	1
6	Surgery	8
7	Internal diseases	24
8	Primary Level Health Care (Instead of General Medicine)	10
9	Social and health law	1
10	Medical insurance in emergency/ <u>disaster situations</u>	2
11	Training practice	37

### IV semester

Number	Subject	ECTS
1	Pharmacology	5
2	Pathophysiology	2
3	Surgery	8
4	Children's Diseases	4
5	Internal diseases	24
6	Eye diseases	1
7	ENT diseases	1
8	Skin and venereal diseases	1
9	Training practice	37

### V semester

Number	Subject	ECTS
1	<u>Imaging Diagnostics</u>	2
2	Orthopedics and Traumatology	3
3	Neurological diseases	3
4	Psychiatry	2
5	Resuscitation and intensive care	5
6	Children's Diseases	4
7	Internal diseases	24
8	Oncology and palliative care	2
9	Emergency medical care	10
10	Training practice	37



**VI semester**

Number	Subject	ECTS
1	Urology	1
2	Obstetrics and Gynecology	5
3	Geriatrics	4
4	Infectious Diseases and Epidemiology	4
5	Internal diseases	24
6	Emergency medical care	10
7	Social medicine and health promotion	2
	<b>Two elective disciplines from</b>	4
8	Quality of Life for Patients with Chronic Diseases	
9	Reanimate care and intensive care	
10	Emergencies in pediatric diseases	
11	Doctor's assistant at general practitioner	
	<b>Elective/ Faculty subjects</b>	2
12	Forensic Medicine - Practicals	
13	Emergencies in major types of diseases	
14	Emergency help in case of a sudden change in the state of health of adults and children	
15	Emergencies in major types of diseases	
16	Clinical practice	37

**VII semester**

Number	Subject	ECTS
1	Pre-graduation practice	46

**VIII semester**

Number	Subject	ECTS
1	Pre-graduation practice	46

**MAJOR „PUBLIC HEALTH AND HEALTH MANAGEMENT”  
FOR EDUCATIONAL AND QUALIFICATION DEGREE „MASTER”**

**I semester**

Number	Subject	ECTS
1	Social medicine	3
2	Health management I- resource and activity management	3
3	Health management II – Principals of HTA	3

4	Epidemiology – risk management	3
5	Extreme situations - risk assessment	2
6	Health management III – Strategic marketing in the healthcare	3
7	Organizational behavior	3
8	Health economics	3
9	Medical Sociology	2
10	Modern Health Policy Technologies	2
11	Prevention of stress and professional exhaustion/ burn out syndrome	2

## II semester

Number	Subject	ECTS
1	Bioethics	3
2	Financial Management, Financial Planning and Controlling in Healthcare	3
3	Health Promotion and Disease Prevention	3
4	Applied epidemiology - medicine and health policy based on evidence	3
5	Law in healthcare	3
6	Pharmacoeconomics	3
7	Ethics of Health Policy	3
8	Analytical modeling	2
9	Methodology and organization of the research work	2
10	<b>Elective/Faculty subjects</b> Communicative training	2
11	<b>Thesis Defence</b>	15

## MAJOR “ KINESITHERAPY”

EDUCATIONAL AND QUALIFICATION DEGREE: „BACHELOR”

## Major Curriculum

### I semester

Number	Subject	ECTS
1	Anatomy	8
2	Biochemistry	2
3	Latin with Medical Terms	2
4	Medical ethics and deontology	2
5	Medical psychology	2
6	Hygiene and Ecology	1
7	First Aid Health Care	1
8	Theory and Methodology of Physical Education and	1

	Sports Training	
9	Sport	1
10	Basic gymnastics	2
11	Health and Safety at Work	2
12	Medicine in disaster situation	2
13	Specialized English, German, French languages	2

## II semester

Number	Subject	ECTS
1	Anatomy	8
2	Biomechanics and biophysics	4
3	Physiology	4
4	Massage	11
5	Natural, transformed physical factors and balneology	11
6	Therapeutic bases and means of kinesitherapy	6
7	Kinesiological bases of kinesitherapy	2
8	General Methods for Functional Studies and Assessment in Kinesitherapy	5
9	Specialized English, German, French languages	2
10	Clinical practice	52
11	/Summer clinical practice	16

## III semester

Number	Subject	ECTS
1	Pathophysiology	2
2	Massage	11
3	Natural, transformed physical factors and balneology	11
4	Manual hand mobilization techniques of peripheral joints	3
5	Therapeutic bases and means of kinesitherapy	6
6	General Methods for Functional Studies and Assessment in physiotherapy	5
7	Pathogenesis - Functional Analysis and Assessment	4
8	Imaging Diagnostics	2
9	Pharmacology	2
10	Thai massage	2
11	Aroma therapy	2
12	Clinical practice	52

## IV semester

Number	Subject	ECTS
1	Pathoanatomy	2



2	Physiotherapy in orthopedics and traumatology	7
3	Massage	11
4	Natural, transformed physical factors and balneology	11
5	<u>Orthopedics and traumatology with orthotics and prosthetics</u>	6
6	Internal diseases	5
7	Neurological diseases	6
8	Clinical practice	52
9	Summer clinical practice	16

#### V semester

Number	Subject	ECTS
1	Physiotherapy in orthopedics and traumatology	7
2	Physiotherapy in internal diseases	6
3	<u>Kinesitherapy in neurological and mental diseases</u>	8
4	<u>Muscle techniques and mobilizations of peripheral nerves</u>	2
5	<u>Orthopedics and traumatology with orthotics and prosthetics</u>	6
6	Neurological diseases	6
7	Clinical practice	52

#### VI semester

Number	Subject	ECTS
1	Physiotherapy in internal diseases	6
2	<u>Kinesitherapy in neurological and mental diseases</u>	8
3	Physiotherapy in surgery	3
4	Physiotherapy in Obstetrics and Gynecology	2
5	Pediatrics	2
6	Physical analgesia	2
7	Obstetrics and Gynecology	2
8	General Surgery	2
9	<u>Rehabilitation of grip and gait</u>	2
10	Clinical practice	52

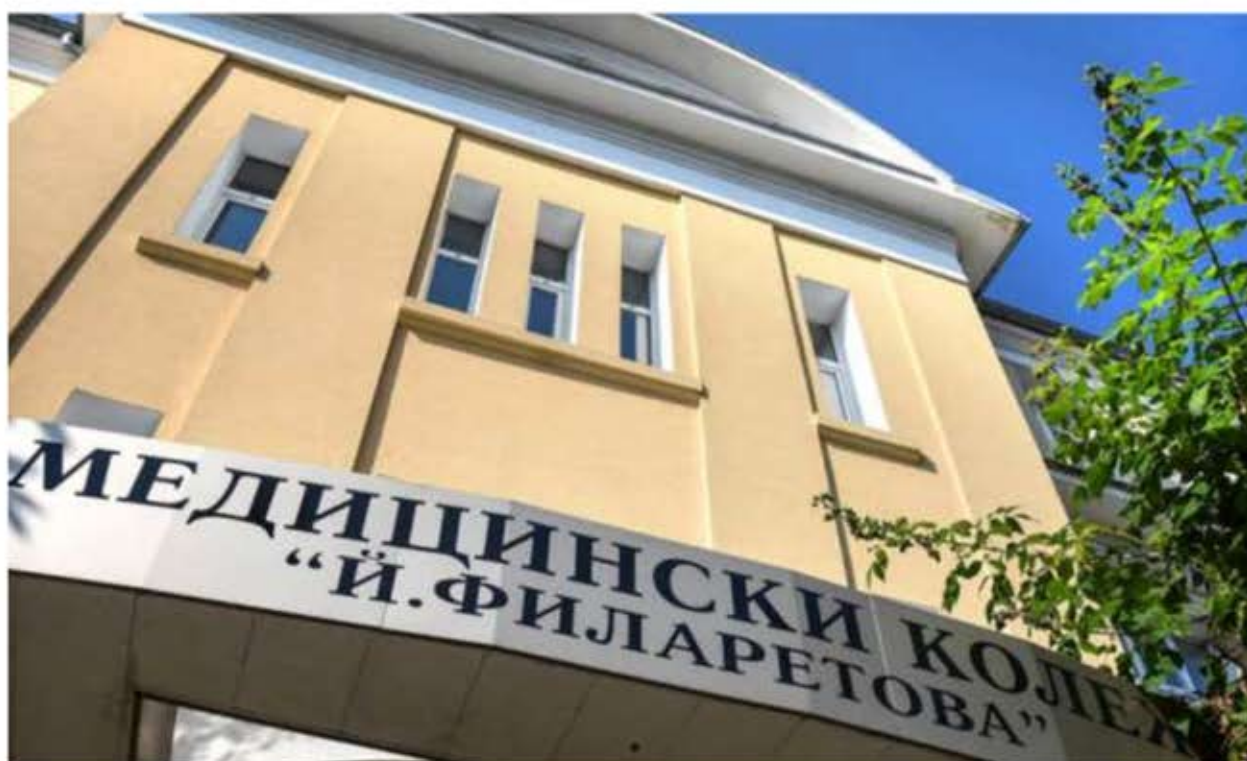
#### VII semester

Number	Subject	ECTS
1	Physiotherapy in child diseases	3
2	Physiotherapy in geriatrics	1
3	Ergotherapy	2
4	<u>Adapted physical activity</u>	2
5	Social medicine, social rehabilitation and health	2

	promotion	
6	Basics in Scientific Research	2
7	Social and health legislation	1
8	Clinical neurorehabilitation	2
9	Clinical cardiorehabilitation	2
10	Reflex Locomotion according Vojta	2
11	Clinical Onco Rehabilitation	2
12	Clinical practice	52

#### VIII semester

Number	Subject	ECTS
1	Pre-graduation practice	20



## MEDICAL COLLEGE – SOFIA

*Address: 3 Jordanka Filaretova str., Sofia*

*<https://mc.mu-sofia.bg/>*

**Director:** Prof. Zaharina Savova, MD, PhD

*Tel.: +359 2 915 46 46*

*Fax: + 359 2 852 40 40*

*E-mail: [secretary@mc.mu-sofia.bg](mailto:secretary@mc.mu-sofia.bg)*

**Erasmus + Faculty Coordinator:** Prof. Antoniya Yanakieva, PhD

*Tel.: +359 2 851 01 22*

*E-mail: [erasmus@foz.mu-sofia.bg](mailto:erasmus@foz.mu-sofia.bg)*

The Medical College “J. Filaretova” is the oldest medical institution and largest medical education institution in Bulgaria for the education of medical specialists with college degree in the field of healthcare. Following the complete three year course of education, the successful graduates of the college are awarded the educational qualification entitled “professional Bachelor in...”. The education at the Medical College is full-time.

The medical college educates its students by strictly following the latest educational plans and programs approved by the Bulgarian Ministry of Science and Education and the other countries in the European Union.

The educational process is carried out by leading specialists from the Medical University – Sofia – Professors, Assoc. Professors and Assistant Professors with Ph.D.

The practical education of the students is carried out in the most modern and prestigious hospitals, medical laboratories, facilities etc. in the Medical University – Sofia. There the students acquire, practice and refine the practical skills that they will need in their career.

All the specialties in the Medical College “J. Filaretova” are some of the most needed professions in the world. All countries in EU have a staggering need for our capable and well trained specialists. According to a recent study most of our specialties ranked near the top of the “100 recession proof jobs”.

The building of the college is an architectural and cultural landmark and was donated by the famous Bulgarian patriot J. Filaretova over 110 years ago. The college has many modern lecture halls, laboratories, and cabinets equipped with modern medical and AV technology, the college also has a computer room, library, sports saloon etc.

***Specialty “Medical Laboratory Assistant”*** Duration of education: 3 years

The motto of this specialty is: “Our goal is accuracy”.

The Medical Laboratory Assistant is the principal performer of a wide spectrum of activities in specialized clinical, microbiological, histological, parasitological and other laboratories. He/she gets professional training, acquires skills and knowledge for independent work in the pre-analytical, analytical and post-analytical phases of the laboratory assays.

The Medical Laboratory Assistant participates in the diagnostic, curative, prophylactic and scientific activities in hospitals and scientific institutes.

In order to achieve the educational and qualification degree “Professional Bachelor”, The Medical Laboratory Assistant has to master a certain knowledge and skills in solid list of Medical, Biochemical, Technical and Social Science and Practices.

The classes are lead in contemporary equipped educational laboratories with independent working places.

The tradition in education of Medical Laboratory Assistants in the Medical College – Sofia and the high level of training allows them to get successful professional realization. They are sought and preferred in the medical laboratory job sector.

The new graduates start work in prestigious medical, scientific and industrial clinical, hematological, microbiological, serological, histological, parasitological, genetic etc. laboratories.

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3905	876	1985 / 1044	6

***Specialty “X-Ray Technician”*** Duration of education: 3 years

Being an X-ray technician is a profession of extremely high expectations for the personal qualities and the professional characteristics of the specialists. The X-ray technicians must be dynamic, versatile, independent and good team players. It no longer applies to simple old X-ray pictures, but includes knowledge of a huge number of methods that are invisible to the human eye (ultra sound, mammography, MRI, CT scan, etc.)

The profession of an X-ray technician has been completely transformed in the past few decades and the old stigmas related to its jeopardy have been alleviated by many modern innovations and mechanizations. Being one of the fastest developing areas in health care it is more and more heavily dependent on Information and Communication Technologies which makes it the perfect choice for people who want to combine their love for modern technology and health care. Today most of the diagnostic tasks in front of the Physicians are done by the X-ray technicians. In order to be competitive in their field the X-ray technicians must have solid knowledge in physics,



anatomy, radiobiology. It is of vital importance for them to know the diagnostic process and treatment of various illnesses.

Our graduates can start work at:

- X-ray studios and X-ray wards at Diagnostic-consultant Centers, highly specialized hospitals, scientific institutes, dispensaries, sanatoria, resorts and many more, where they could use X-ray diagnostic sets for conventional investigation or contrast media investigations; DSA sets – for interventional radiology investigations, ultra sound sets, computer tomography sets, MRI sets, mammography sets, sets for post processing or saving images, X-ray sets used by dentists.
- Radiation therapy departments
- Nuclear medicine labs
- Radio-immunology labs
- Highly specialized labs where different methods are combined /EEG, EMG, etc./
- Radiobiology labs or studies where sources of radiation are used for diagnostic or treatment purposes

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3780	917	968 / 1895	6

**Specialty “Dental technician”** Duration of education: 3 years

The specialty “dental technician” is a medico-technical specialty that is vital for orthodontic and prosthetic dental medicine. This is a profession for the artist at heart, and for the people that love creating beauty and a wonderful smile in others.

The dental technician is a highly qualified specialist that plans, develops and creates, using the most modern materials and technological methods different kinds of tooth prosthetic constructions, face and jaw prosthetics, orthodontic apparatuses etc., that have been ordered from the dental doctors (dentists).

During their education students learn many different disciplines that will broaden their horizon and also give them knowledge and skills to make them extremely competitive after graduation. Some of the students start working even before graduation in dental labs, using the most modern materials, instruments, tools available to the profession.

Thanks to the close contacts with the leading dental firms often the medical college organizes guest lecturers to make presentations of the innovations in the field. Those students that have interest can also do scientific work along with their lectures.

The graduated dental technicians can work mainly in dental technician labs in Bulgaria but also anywhere in the world.

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3650	602	1013 / 2035	6

**Specialty “Physical Therapist”** Duration of education: 3 years

The Physical Therapist takes an active part in providing medical rehabilitation treatment during all stages of the treatment process.

The Physical Therapist works under the supervision of a Doctor of physical and rehabilitation medicine. The Physical Therapist develops and provides the rehabilitation program of each patient. The Physical Therapist is part of a multidisciplinary team of physicians, nurses, social workers, speech therapists, pedagogues, psychologists, occupational therapists.

The Physical Therapist should have a great amount of medical, social and special knowledge of kinesitherapy, massage, electrotherapy, hot- and cold-therapy, hydrotherapy, magnet-, ultra sound-and high-frequency therapy, aerosol therapy, spa therapy, occupational therapy.

The Physical Therapist who is graduated at the Medical College has competence to work in both state and private practices at specialized and general hospitals, medical centers, physical therapy departments, reflexotherapy and SPA centers, in the field of sport and professional injuries, social centers and special schools, resorts, sport clubs, home therapy etc.

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	4180	824	1251 / 2105	6

**Specialty “Assistant Pharmacist”** Duration of education: 3 years

The Assistant Pharmacist is an assistant to master pharmacists and takes active part in the medicine supplies and prescription drug production by delivering:

- assistance in the creation of pharmaceutical recipes and medicinal sheets;
- assistance in the preparation of injectable formulations;
- provides the medicine supplies to pharmaceutical and medical-prophylactic institutions;
- works in section “Drugs without prescriptions” in the reception department of pharmacy;
- participates as an analyst in the analysis of pharmaceuticals;
- is involved in the production of drugs and formulations in pharmaceutical factories.

There is an increased interest in this specialty largely due to the feasibility of development of private business. In cities with a population up to 5000 inhabitants assistant pharmacist has the right to open private pharmacies, manage it and also own a drugstore and work in it. Certified assistant pharmacists can work in pharmacies and hospital pharmacies, herbal pharmacies, pharmacy stores, control and analytical laboratories, research laboratories, pharmaceutical factories.

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3900	1012	888 / 2000	6

**Specialty “Public health inspector ”**

Duration of education: 3 years

The greatest leaps in longevity and quality of life are not due to better treatment but because of sanitary conditions and prophylactics. That is why our motto is: “It is far better to conduct prophylactics of a disease than treat it”. Public health care needs systematic monitoring of the factors of work, education, living, and surrounding environments in order to determine their effect on the health of the population.

In specialty “Inspector of Public Health” students conduct the following activities:

- Control of compliance with health requirements for sites of public-purpose products, goods and activities of importance to human health and factors of environment;
  - Control of infectious diseases;
  - Control on health status of people who have had contact with infected persons, contagious and suspected of suffering from infectious diseases, as well as other persons in epidemic indications;
  - Promotion of health and integrated disease prevention;
  - Laboratory control of the environment and analyzing and evaluating their impact on public health;
  - Monitoring, evaluation and control of noise in urban areas and public buildings, contaminants in food and drinking water;
- Our graduates can start work in the Regional Inspection for Protection of the Environment and Water, in departments of hospital hygiene, occupational health services, border control.

**FULL – TIME/ ECTS credits: 183**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3730	1072	778 / 1880	6

***Specialty "Medical Aesthetician" (Medical cosmetics)***

Duration of education: 3 years

Medical Cosmetics is a contemporary, modern and attractive specialty. Our motto is "Beauty and health for all". This is the first chance for quality higher education in the aesthetic medical care. In our college the students excel in the field of aesthetic cosmetics and beauty products.

The medical cosmetologist applies cosmetic care by him or her self according to the acquired professional skills and in collaboration with other medical and non-medical specialists. They also perform a myriad of tasks in the field of healthcare and cosmetic services.

Our graduates can start work in cosmetic studios, beauty centers, cosmetic medical centers; SPA-centers, fitness clubs, hotels, Dermatology Clinics/Offices, Clinics of Aesthetic Medicine, make-up in theater, cinema, television and others.

**FULL – TIME/ ECTS credits: 180**

Total for all semesters	Horarium	Lectures	Practical Exercises / pre-diploma training	Semesters
	3035	859	862 / 1350	6

***Specialty "Massage therapist" with visual impairments***

Duration of education: 3 years

This specialty has been created only for persons with visual impairments diagnosed by an official medical commission.

Massages are part of the therapeutical program and also for health promotion.

Massage therapists with visual impairments graduated at Medical College are medical specialists. Massage therapists work under the supervision of a doctor of physical and rehabilitation medicine and take part of a multidisciplinary team of physicians, physical therapists, nurses, social workers, pedagogues, psychologists, occupational therapists.

Massage therapists should have high level of communication and professional skills and also great knowledge of massage, kinesitherapy, hot- and cold-therapy and parts of electrotherapy.

Massage therapists have competence to work at specialized and general hospitals, medical centers, physical therapy departments, reflexotherapy and SPA centers, departments of hydrotherapy and sport medicine, resorts, sport clubs, social centers etc.

**FULL – TIME/ ECTS credits: 183**

<b>Total for all semesters</b>	<b>Horarium</b>	<b>Lectures</b>	<b>Practical Exercises / pre-diploma training</b>	<b>Semesters</b>
	3610	692	983 / 1935	6





## SUBSIDIARY – VRATSA

**Professor Ivan Mitev, MD**

*Address: Vratsa – 3000, University Complex*

*Corpus 1, fl.1 and fl. 2*

*<https://filialvratsa.mu-sofia.bg/>*

**Director:** Assoc. Prof. Pavlinka Dobrilova, PhD

*Tel.: +359 92 660 156*

*+359 92 645176*

**Erasmus + Faculty Coordinator:** Prof. Antoniya Yanakieva, PhD

*Tel.: +359 2 851 01 22*

*E-mail: [erasmus@foz.mu-sofia.bg](mailto:erasmus@foz.mu-sofia.bg)*

The subsidiary was founded in 1951 as a school for doctor's assistants. The aim was to assure the needs for medical staff in the central, southern and northwestern parts of Bulgaria. It used to be a school for doctor's assistants for 10 years, then a new specialty was founded – nurse with general qualification in 1961. During the next years a lot of specialties emerged:

- In 1966 – Children's nurse
- In 1974 – Dentist's nurse
- In 1990 – Midwifery
- In 2004 – Medical cosmetics

In 1997 by Decree of the Ministry of Councils of the Republic of Bulgaria the school was transferred from the Ministry of Health to the structure of the Medical University – Sofia, where it was established as a Medical college until 2009.

On June 2<sup>nd</sup> 2009 by Decree of the National Assembly the college was reorganized as a Subsidiary-Vratsa to the Medical University – Sofia for students' education in the specialties "Nurse" and "Midwife" of the professional direction "Healthcare".

The transition to the Medical University – Sofia requires academic structure. That is why two Departments are formed:

- Medico-social science
- Healthcare

The education in all theoretical disciplines meets the legal requirements for a subsidiary – over 70% of the lectures are delivered by PhD or doctor's degree lecturers from the Medical University

– Sofia.

The practical training is conducted at the accredited healthcare institutions, social and medico-social institutions as well.

The education in the two specialties – nurse and midwife lasts for 4 years and the students are awarded Bachelor's degree in the professional direction "Healthcare".

Post-graduate specializations are available, as follows:

- Social activities for nurse – 1 year for students with Bachelor's degree in Nursing;
- Breastfeeding, balanced and healthy diet consultant - 1 year for graduated nurses, midwives and doctor's assistants.

All successfully graduated students get a specialty-certificate.





## THE STUDENT'S COUNCIL OF MEDICAL UNIVERSITY – SOFIA

The functioning of the Student Councils as a compulsory structure in the Higher Education Institutions began before 1994. The idea behind their creation was to represent and express the opinion of the student community to the Higher Education Guidelines.



At the end of 1995, following some changes to the Higher Education Act, Student Councils were institutionalized as a compulsory unit at each university. The rights and obligations of the Council are now regulated by the Law on Higher Education. Under these powers, Student Councils are given a four-year term of office.

In March 2000, after successive amendments to the Law on Higher Education were made, a Constituent Assembly of the National Representation of Student Councils in the Republic of Bulgaria was held in Svishtov. The idea behind this organization was to unite student leaders and create partnerships between them. The main purpose of the National Representation of Students Councils is to promote the Councils as the main and significant partner of the University Guidelines in the country.

The Student's Council at the Medical University - Sofia was founded in 1997. In the spring of 1998 elections were held and the faculty councils of the representatives in the Faculty of Medicine and Pharmacy were established, then in the autumn of the same year they were established in other units of the Medical University - Sofia.

For its 20-year history, the Student Council has always strived to protect the students' interests, support and encourage them in their endeavors. Representatives of the Student's Council of the

Medical University - Sofia are members of the governing bodies of the University and work to resolve student problems and cases.

The Student's Council of the Medical University - Sofia is the only legitimate representative of the student community at the University and consists of representatives of the students and PhD students at the General Assembly of the Medical University - Sofia.

The goals of the Council are related to the realization of the rights of student self-government; protecting the social interests of trainees at the Medical University; conducting cultural, sports, scientific, creative, inter-university and international activities.

## **POWERS OF THE STUDENT COUNCIL**

The Student's Council is a structure existing under the Law on Higher Education and funded by the budget of the Medical University – Sofia. The powers of the Student Council of the Medical University - Sofia are regulated in Art. 73 of the Law on Higher Education and the Regulations on the Structure and Activities of the Student Council, as follows:

1. Organize the election of its representatives in the governing and supervisory bodies of the higher education institution, as well as in the Board of Trustees;
2. Make proposals for the introduction of additional courses;
3. Make proposals for inviting external lecturers;
4. Organize the establishment of scientific specialized student communities and the publication of their works;
5. Establish and manage its organizational units as necessary;
6. Establish internal and international educational, cultural and postgraduate contacts between students;
7. Express an opinion and make proposals for the development of sports activities in the higher school;
8. Participate in the management of student hostels;
9. Participate in the organization of the educational process, the distribution of scholarships and student aids;
10. Participate with its representatives in the monitoring of the internal system for evaluation and maintenance of the quality of education and of the academic staff in the higher education institution, as well as in the development of questions for the study of student opinion.

The Student's Council of the Medical University of Sofia comprises of Faculty Councils of Representatives at each school, as well as of the Council of Representatives of the Medical College "Yordanka Filaretova" and Branch Vratsa.

The governing bodies of the Student's Council are:

- The President of the Student's Council, the General Assembly - it is the supreme governing body of the Student's Council, in which all student advisers participate, delegated by each faculty student's representation of the quota principle, consistent with quotas of representation in The Academic Council of the Medical University - Sofia in accordance with Article 35, paragraph 5 of the Regulations on the Structure and Activity of the Medical University - Sofia and the number of students in structural units and representatives to PhD students .



- The Executive Board of the Student's Council - it is elected by the General Assembly of the Student Council, and its members are distributed on a quota principle between basic units of the Medical University - Sofia. It directs the day-to-day activities of the Council .
- Supervisory Committee of the Student's Council - it is elected by the General Assembly and consists of five members. It oversees the overall activities of the Council.

The permanent committees of the Student's Council are:

1. **COMMITTEE ON SOCIAL AND LIFE MATTERS FOR STUDENTS:** It consists of five members. The main activity of the committee is the classification and placement of students in the dormitories of Medical University - Sofia. MU - Sofia has 8 residential entrances (in Studentski grad and Lozenets residential area) and about 3000 beds. The meetings are held once a week during the study period, the Commission also examines complaints and domestic cases among students. The committee works in close cooperation with the Dormitory Campus of the Medical University - Sofia.
2. **COMMITTEE ON SCHOOL ACTIVITIES:** The core priority in the work of the committee are questions related to the learning process and curricula. It aims at updating of the Rules of academic activities in the University. Another focus in the work of the Commission of school activities is optimization of educational practices. The Commission regularly examines the received student proposals for optimization of the learning process.
3. **COMMITTEE ON SCIENTIFIC ACTIVITIES:** The main activity of the committee is the creation and publication of the journal " Praemedicus ", as well as the organization of International Biomedical Congress - Sofia. The magazine contains of scientific studies and publications of students, postgraduates and graduates of the Medical University - Sofia and other medical universities and faculties in Bulgaria. The magazine is issued twice a year. The committee carries out the selection of students for the financing of their participation in scientific forums of the Student Council .



4. **COMMITTEE ON INTERNATIONAL ACTIVITIES:** The main activity of the committee is the coordination of contacts of the Student Council at the Medical University - Sofia with other similar youth and professional organizations abroad. The committee works mainly towards the creation of possibilities for student exchange from/to European universities and the world.

5. **COMMITTEE ON CULTURAL ACTIVITIES:** The main activity of the committee is the organization of cultural and mass student events, such as visits to the theater , opera, ballet and other cultural events.

6. **SPORTS ACTIVITY COMMITTEE:** The committee manages the organization of mass sport events for students of the Medical University – Sofia, such as football, basketball, bowling and volleyball tournaments.

7. **COMMUNITY LIABILITY COMMITTEE:** The main activity of the committee is the coordination of the contacts of the Student Council at the Medical University - Sofia with other student and youth representations and organizations, with the media and the official institutions. The initiative of the committee is also the organization of charity campaigns and actions.

8. **COMMITTEE ON INFORMATION ACTIVITIES:** The main work of the committee is to maintain a page of the Student Council in the social network Facebook and the student website in current condition.







The Association of Medical Students in Bulgaria – Sofia (AMSB – Sofia) is a non-governmental organization which takes active part and has influence in the public health in Bulgaria. It is an organization with over 20 years of experience which represents students from the Medical University of Sofia.

Together with the other 5 Local Committees of AMSB, we take part in shaping youth and health policies in Bulgaria. Our members are ambitious, enterprising, qualified and responsible young people who are constantly occupied with different projects and programs connected with medical education, public and reproductive health and human rights. AMSB-Sofia is a member of the largest international students' association in the world, IFMSA – International Federation of Medical Students' Associations as well as the EMSA – European Medical Students Association, the Association of Medical Students in Bulgaria, the National Youngsters' Forum and many more.

The International Federation of Medical Students' Associations (IFMSA), founded in 1951, is one of the world's oldest and largest student-run organizations. It represents, connects and engages every day with medical students from 135 NMOs in 125 countries around the globe.

Their work is divided into four main global health areas: Public Health, Sexual and Reproductive Health and Rights, Medical Education and Human Rights and Peace. Each year, we organize over 13,000 clinical and research exchanges programs for our students to explore innovations in medicine, healthcare systems and healthcare delivery in other settings. IFMSA brings people together to exchange, discuss and initiate projects to create a healthier world. It trains its members to give them the skills and resources needed to be health leaders. It advocates for the pressing issues that matter to us to shape the world we want. And it does deliver: our projects, our campaigns and our activities positively impact the physicians-to be, the communities they serve, as well as the health systems around the world in which they practice as a trainee and eventually a medical doctor.

IFMSA was created to impact the world and to empower its members in taking their vision and ideas, and making them a reality. IFMSA has inspired generations of medical students to develop the leadership abilities and skills to take on challenges and to improve the world around them in an early yet crucial period of their career. Engaging in IFMSA encourages both professional and personal collaborations irrespective of geographical, social, cultural, religious, racial, sexual and political differences. As a result, future doctors are becoming more culturally aware and sensitive physicians.

The IFMSA experience shows students that they are not merely passive subjects in a rapidly globalizing world but rather valuable individuals with a potentially powerful role to play in global health. IFMSA hence offers medical students a taste of the real and pressing health issues worldwide, and help them learn that their idealistic goals can be achieved with readily attainable knowledge and commitment.

In IFMSA, the emphasis is placed on students returning to their local environments with new ideas and the skills to implement them. As the doctors of tomorrow and future leaders of health, we feel confident that our students will carry this spirit with them throughout their professional lives so that they positively impact the communities they serve.

### **Objectives:**

- To expose medical students to humanitarian and global health issues, providing them with the opportunity to educate themselves and their peers;
- To facilitate partnerships between the medical student community and international organizations working on health, education, and medicine;
- To give medical students the opportunity to take part in clinical and research exchanges worldwide;
- To provide a network that links active medical students across the globe, including student leaders, project managers, and activists, so that they can learn from and be motivated by each other;
- To provide an international framework in which medical student projects can be initiated, developed and implemented;
- To empower and train medical students to take a role in bringing about the necessary changes to improve the health of all global citizens.





## CONTENTS

1.	Rector's address to the students .....	1
2.	Medical University – Sofia, Rectorate – Contacts .....	2
3.	ECTS Guide – Introduction .....	4
4.	ECTS – The European Credit Transfer System at MU-Sofia .....	6
5.	General Practical Information .....	8
6.	Faculty of Medicine – Disciplines and ECTS credits .....	12
7.	Faculty of Dental Medicine – Disciplines and ECTS credits .....	35
8.	Faculty of Pharmacy – Disciplines and ECTS credits .....	52
9.	Faculty of Public Health – Disciplines and ECTS credits .....	69
10.	Medical College – Sofia .....	89
11.	Subsidiary Vratsa .....	95
12.	The Student's Council of Medical University – Sofia .....	97
13.	ICMS for students and young doctors .....	101