Subject	BIOCHEMISTRY
Study programme	Threeyears professional studies for graduate medical sister/technician
Code	SMS/T-122
Study year	First
Semester	Second
Total hours	65
Credits	3.5
Type of subject	Obligatory
Prerequisites	None
Perform by	Cathedra of biochemistry
Responsible professor	Doc. d-r Svetlana Cekovska
Address	Institute of medical and experimental biochemistry Medial faculty, 50 Divizija 6, 1000 Skopje, tel. +389 2 3230 431
Key words	Studies for medical sisters/technicians, basic subjects, biochemistry, biophysics
Aims of the subject	Gaining basic knowledge of biochemical mechanism in human organism Gaining basic knowledge of biophysics mechanisms of ultrasound, x-ray, computerization tomography and magnetic rezonance
Short content	**Teoretical lesssons:** **Biochemistry (30 hours):** ➢ Bases of molecular structure of organism from organic and inorganic origin ➢ Biomolecules foundation and their structure in organism ➢ The main structure of proteins, nucleic acids, lipids and carbohydrates ➢ Properties and functions of: vitamins, enzymes, koenzymes and hormones ➢ Metabolism of proteins, lipids and carbohydrates ➢ Metabolism of water and electrolytes ➢ Acid-base equilibrium maintenance in organism **Seminars:** **Biochemistry (10 hours)** ➢ Proteins of blood plasma (albumins, globulins, imunoglobulins, blood coagulation factors ➢ Biochemical characteristics of hepar and rens function ➢ Haemoglobin: structure, knowledge, metabolism, determination

<table>
<tr><td></td><td>Biophysics (25 hours)
Biophysics properties of ultrasound
Biophysics properties of x-ray
Biophysics properties of computerized tomography
Biophysics properties of magnetic rezonance</td></tr>
<tr><td>Organization</td><td>Teoretical education: 30 hours
Seminars: 35 hours</td></tr>
<tr><td>Methods of learning</td><td>Lectures, seminars</td></tr>
<tr><td>Foresight learning results</td><td>Knowledge and understanding:
Student will achieve knowledge about basic biochemical mechanism in organism. The student will also achieve knowledge about basic biophysics principles of diagnostic procedures that uses radiation.
Key skills:
Student will be enabled for application of knowledge from biochemistry and biophysics in other medical subjects overcome.</td></tr>
<tr><td>Specific recommendations for education</td><td>It is obligatory for student to follow all provided activities, including participation in continuous checking of knowledge to get a sign.
Appraisal of student’s activity:
<table><tr><td>Type of activity</td><td colspan="2">Points</td></tr><tr><td></td><td>Biochemistry</td><td>Biophysics</td></tr><tr><td>Teoretical education*</td><td>10</td><td>/</td></tr><tr><td>Seminars</td><td>10-20</td><td>10-20</td></tr><tr><td>Continous checking-2</td><td>15-25</td><td>15-25</td></tr><tr><td>Total</td><td colspan="2">60-100</td></tr></table>*presence in teoretical education:
51%-60% - 5 points;
61%-70% - 6 points;
71%-80% - 7 points;
81% -90% -8 points;
91%-100% - 10 points.

Prerequisite criteria: Student should visits theoretical lessons and seminars regularly to get a sign and approach to continous checking. Continous checkings are written and are performed after lessons and seminars completion for each part separately. The mark for total exam is formed according the table of marks, according the sum of points achieved from all activities, including continous checkings. The student is obligate to achieve minimum points (60%) from continous</td></tr>
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	checkings, on contrary, should go on complete exam. **Complete final exam**: The exam is written. It consists from continous checkings of those parts in which students didn't achieve enough points.
Textbooks	**Main:** • Chosen chapters from S.Dzhekova-Stojkova and col. Biochemisry, 1999. • B. Todorova. Textbook for practical exercises of biochemistry. Medical faculty.