MINISTRY OF HIGHER AND SECONDARY SPECIALIZED EDUCATION OF THE REPUBLIC OF UZBEKISTAN
MINISTRY OF HEALTH
TERMEZ BRANCH OF
TASHKENT MEDICAL ACADEMY
DEPARTMENT OF ANATOMY AND CLINICAL ANATOMY

« CONFIRMED »

Deputy director for educational affairs
_____ Y.B.Gulyamov
"27" 12 2022

ANATOMY

WORKING CURRICULUM OF THE MODULE

(SYLLABUS)

1st COURSE

Field of knowledge:: **900000** - Health care and social security

Field of Education: **910000** - Health care

Direction of Education: **60910200** – General medicine

Termiz - 2022

The working curriculum of the module was prepared on the basis of the "Anatomy" module program approved by the order No. 246 dated 05/08/2022 of the Tashkent Medical Academy.

Compilers:

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Reviewers:

Internal reviewer

K.H.Axmedov -	"Head of the Department of Normal Physiology, Pathological Physiology and Hygiene", Ph.D., Associate Professor

External reviewer

Mirsharapov U.M.	TMA Department of Anatomy and Clinical Anatomy, Ph.D., Professor.

"The working curriculum of the "Anatomy" module was reviewed by the "Anatomy and Clinical Anatomy" department and recommended to the branch council.
(2022 "___" in "___" - № statement "___")

The working curriculum of the module was discussed and approved at the branch council. (2022"27" "12" in "5" - № statement)

Head of the department: D.Y.Khojiev

Dean of the Faculty: J.A.Mustanov

Head of the educational and methodological department: Z.U.Berdiyeva

Module code	Academic year	Semester	Credits
COMA	2022-2023	1/2	10
Module type	**Language of instruction**	**Hours of classes per week**	
Compulsory	English	6	

Module Name	Credits	Audience training	Independent education (hours)	Total
Human anatomy	10	150 (28/122)	150	300

Content of the module

Purpose of teaching the module – is the formation of knowledge, skills (studies) and skills in students about the structure of the human body, functional and topographical anatomy of organs and tissues, age-related changes.

To achieve this goal, the module fulfills the tasks of forming students' theoretical knowledge, practical skills, methodological approach to the structure of the human body, and scientific outlook.

The function of the module – to teach students about individual and sexual differences in the structure of the body, age-related changes, anatomo-topographical relationships of systems and organs, their x-ray anatomy, defects in the development of systems and organs.

II. The main theoretical part

II.I. Distribution of recommended topics for lecture topics

№	Topics of lectures	hours
	1st semester	
1	Introduction to Anatomy Module. General information about the human skeleton. Age-related changes in the skeleton.	2
2	General anatomy of the bones of the skull	2
3	The science of bone fusion. Classification of associations. General anatomy of joints	2
4	Fusion of the bones of the hands and feet, their changes depending on age	2
5	General principles of muscle structure and function. Body muscles and fascia, their changes depending on age.	2
6	Arm and leg muscles, their changes depending on age.	2
7	Head and neck muscles, fascia. Their change depending on age. Topography of the neck. Contribution of Abu Ali Ibn Sina to the development of the anatomy module.	2
	1st semester total	14
	2nd semester	
1	Introduction to Splanchnology. General anatomy of digestive organs. Oral cavity, larynx, their functional and age anatomy.	2

	Functional and age anatomy of esophagus, stomach, small and large intestine. Liver, pancreas. Anatomy and topography of the ventricle.	
2	Functional and age-related anatomy of respiratory organs. Pleura, chest cavity. Thyroid, parathyroid and parathyroid glands.	2
3	Functional and age anatomy of urogenital organs.	2
4	Introduction to the study of the vascular system. Functional and age-related anatomy of the heart. Aorta. Branches of the aortic arch. Blood supply of the brain. Arm arteries.	2
5	Thoracic and abdominal aorta. Blood supply to the spinal cord and internal organs. Blood supply to the leg. Age-related changes in the arterial system.	2
6	Functional and age anatomy of the venous system.	2
7	Functional and age-related anatomy of the lymphatic and immune system.	2
	2nd semester total:	14
	1st year annual total:	28

The organization of lecture classes (form, type, equipment, etc.) is held for the flow of academic groups in auditoriums equipped with multimedia devices.

III. Instructions and recommendations for practical (laboratory) training: Suggested topic distribution for practice topics

№	Topics of practical training	hours
	1st year 1st semester	
1.	General osteology. General understanding of the skeleton. Understanding levels. Basic terminology. Bone structure. Cervical, thoracic, lumbar and lumbar vertebrae, their age characteristics.	5
2.	Ribs, sternum and breastbone, depending on their age features. Bones of the shoulder girdle and the free part of the arm: structure, age characteristics.	5
3.	Bones of the pelvic girdle and the free part of the leg: their structure and age-related characteristics.	5
4.	Skull. Bones of the cranial part of the skull: occiput, crown, forehead and parietal bones, their age characteristics.	
5.	Temporal and temporal bones: structure, age characteristics. Ticks of the temporal bone. Facial bones of the skull. Upper and lower jaw bone. Small bones in the facial area. Whole head. The base of the skull. Topography of the skull - eye socket, nasal cavity, temple, subtemporal and pterygoid-palatine pits: walls, opening canals, holes and cracks, their clinical significance.	5
6.	Joints. Joints of body bones and their characteristics in children. Fusion of skull bones. Temporomandibular joint.	5
7.	Joint of the bones of the shoulder girdle and the free part of the arm: formation, structure, axes of movement and levels.	5
8.	The pelvic girdle joint of the bones of the free leg: formation, structure, axes of movement and levels. General appearance of joints in arthrography, CT, NMR, MRI,	5

9.	Back group of superficial and deep muscles of the trunk. Their changes depending on age.	5
10	Chest muscles. Diaphragm. Their change depending on age. Abdominal muscles. Rectus abdominis sheath. The formation of a white line. Chow channel. Their change depending on age.	5
11	Shoulder girdle and shoulder muscles. Wrist muscles and fascia. Muscles of the palm of the hand. The tendons of the palm of the hand. Their age characteristics. Pelvic and thigh muscles. Calf and leg muscles. Synovial sheaths of the foot. Their age characteristics.	5
12	Head muscles. Chewing and facial muscles. Their age-related characteristics. Neck muscles. Neck triangles, neck facies. Their age-related characteristics. Head muscles. Age-related features of chewing and facial expressions.	6
	1st year 1st semester total:	61
	2nd semester	
1.	Oral cavity, teeth, their changes depending on age. Tongue, salivary glands, soft palate, their changes depending on age. People, people of Pirogov, their age changes.	5
2.	General information about the esophagus and abdominal organs. Stomach. Small and large intestine: structure, differences, changes depending on age.	5
3.	Liver, pancreas: structure, topography, changes depending on age. The structure of the peritoneum and its relation to the organs of the abdominal cavity, sinuses, sacs, pockets, their importance in surgical practice.	5
4.	The structure of the nasal cavity and changes depending on age. Chikhildok and its changes depending on age. Larynx, bronchi, lungs. Pleura. Chest area. Changes depending on age	5
5.	Kidney. Their changes depending on age. Urinary tract, bladder, urethra, their changes depending on age.	5
6.	Genital organs of men and women. Their change depending on age. The structure of the interstitial topography, pelvic and genital diaphragms, and gender differences.	5
7.	Endocrine glands. Hypophysis. Epiphysis. Endocrine parts of gonads, their changes depending on age. Thyroid, back and thyroid glands, adrenal and pancreatic glands, their changes depending on age.	5
8.	Structure of the heart, conduction system of the heart. Blood supply of the heart. Circulatory circles, changes of the heart depending on age. their change depending on age. Aorta, aortic arch, common and external carotid artery.	5
9.	Shoulder-head stem. Subvertebral artery. Blood vessels of the hand.	5
10.	Branches of the thoracic aorta and abdominal aorta. The importance of blood supply to internal organs in surgery is unique.	5
11.	Internal and external iliac arteries. Femoral artery. Calf arteries. Leg arteries.	5
12.	Venous system and its changes depending on age. Portal venous system and its changes depending on age. Venous system anastomoses. Blood circulation in the fetus. Lymphatic system and its changes depending on age. Organs of the immune system and their changes depending on age.	6
	1st year 2nd semester total:	61
	1st year annual total:	122

Practical classes are held separately in each academic group in auditoriums equipped with multimedia devices and laboratory equipment.

IV. Practical skills

1. Correct naming of all anatomical structures according to international anatomical terminology;
2. To find a sharp-edged tumor of the cervical spine VII ;
3. Counting vertebrae and ribs;
4. Finding the yoke hole;
5. Be able to show the places where the tubular bones protrude;
6. Determining the right or left side of the tubular bones;
7. To show the carotid tumor of the bones of the wrist and elbow through the skin;
8. To be able to show the mastoid tumor of the temporal bone through the skin;
9. Correct representation of the projection of holes in the facial area of the skull;
10. Being able to distinguish teeth from each other;
11. Skin detection of the lower edge of the liver;
12. Knowledge of internal organ golotopia and skeletopia;
13. Determination of lung excursion;
14. Determination of kidney topography;
15. Show heart border;
16. Determination of the projection of large blood vessels and nerves, directions of branching;
17. Finding a sleeping artery in a sleeping triangle;
18. Finding the femoral artery in the hip triangle;
19. Determination of pulsation points of arteries;
20. Being able to show subcutaneous veins;
21. Determination of location projection of regionary lymph nodes;
22. Skeleton of spinal segments, showing the puncture area of the subarachnoidal space around the spinal cord;
23. Determination of the places of exit of the nerves of the head from the brain, holes, channels and cracks in the skull, to be able to show them in the facial area;
24. Determination of anatomical structures using X-ray, OTT, CT, MRT and MSKT images.

Students should be able to master the knowledge of the whole organism, system and organs based on modern achievements of Medicine and apply them in the study of other fundamental and clinical modules, as well as their further acquired knowledge in the professional activities of doctors.

Based on the traditional principles of humanism and compassion, the object under study is self – esteem, as well as careful attitude towards the human body, organs and corpse; a medical higher educational institution should master the competencies of having high standards of good manners in sectional halls (if any).

V. Independent education and independent work
Distribution of topics recommended for Independent Education

№	Independent educational topics	hours
	1st course 1st semester	
1	X-ray of skeletal bones. Anomalies of the development of the skeleton.	8
2	Variant anatomy of the bones of the hand, developmental defects, the influence of internal and external factors on the development of the bones of the hand.	9
3	Features of the bones of the pelvis and legs in relation to age.	8
4	Influence of sports and labor activity on the bones of the groin and legs, developmental defects.	8
5	X-ray of the skull bones. Age and sexual differences of the skull.	8
6	Influence of external and internal factors on the structure of joints.	8
7	Biomechanics of joints. X-ray of associations.	8
8	History of X-ray study, study of bone and joint development using X-rays. New technologies in X-rayanatomy	9
9	Muscle work and biomechanics. Lesgaft's doctrine of muscles.	9
	1st course 1st semester total:	75
	1st course 2nd semester	
1	X-rayanatomy of the digestive organs and developmental defects.	8
2	X-ray anatomy of the teeth. Angiomas that occur in the Prikus and dental comb.	8
3	Breathing process. X-ray of the respiratory organs and developmental defects.	9
4	The mechanism of sound formation.	8
5	Developmental defects of the urinary organs.	8
6	The process of penetration of the testicle into the larynx and developmental defects of the genital organs.	8
7	Bone marrow: taraccioti, structure, function. Red marrow, yellow marrow.	8
8	The influence of social and biological factors on the combability and structure of lymphatic vessels. Thymus structure, cockroach and function.	9
9	Developmental defects of the heart. X-ray of the heart and blood vessels, angiography.	9
	2-Semester total:	75
	1st course year annual total:	150

Educational and methodological support recommended for the organization of Independent Education on the module: manuals, literature, macro-or micropreparations, photographs, Phantom, molluscs, simulators, equipment, tables, teaching and control tests, computer programs, etc.

VI. Educational results/ professional competencies

1- semester:

The student should know:

-The need for an anatomy module to absorb other fundamental and clinical modules, a violation of the anatomical and physiological functions of the organs on the basis of all diseases;

- The importance of a single whole of the organism, of the systems that make up the organism (musculoskeletal, internal organs, blood vessels, nervous and sensory organ systems;
- The essence of the Basic Laws of growth, formation, development of the organism, the systems that ensure their relationship with the external environment, as well as their change in age;
-To have an idea of the basics of the development of the musculoskeletal apparatus (bones, joints and muscles), as well as the most common defects, general structure and their functional anatomy; (knowledge)
- To show the faceted tumor of the VII cervical vertebra on the interactive anatomical Pirogov table (with existing one) in the form of a multiage, preparation and 3D format;
- To find the vertebrae, ribs calculated on an interactive anatomical Pirogov table (available) in the form of a mollusc, preparation and 3D format;
- To be able to find the yoke notch through the skin;
- To be able to find the shoulder bone skull on the interactive anatomical Pirogov table (available) in mulyaj, drug and 3D format;
- To show the elbow tumor on the interactive anatomical Pirogov table (available) in multiage, preparation and 3D format;
- Determination of the ligamentous protrusions on the elbow and wrist bones on the interactive anatomical Pirogov table (with existing ones) in the form of multiage, preparation and 3D format;
- To show the bone through the skin, on the interactive anatomical Pirogov table (as available) in multiage, preparation and 3D format;
- To be able to show the lateral edge and the anterior upper protrusion on the interactive anatomical Pirogov table (with existing ones) in multiage, preparation and 3D format;
- To show the symphysis area, the knee cover on the interactive anatomical Pirogov table (with available) in multiage, preparation and 3D format;
- Be able to show the front edge of the large calf bone, the ankles on the interactive anatomical Pirogov table (with existing ones) in mulyaj, preparation and 3D format;
- The tubular bones belong to the right or left side;
- Identification of forehead bumps on the skull muliary, drug and interactive anatomical Pirogov table in 3D format (with existing ones) ;
- To find and display the upper, lower and engak holes of the eye cup on the skull mulyaji and the interactive anatomical Pirogov table in 3D format (as available) ;
- Be able to show holes, channels and cracks in the base of the skull;
- To be able to show the arrows of movement in each joint of the body;
- Movements of the back, chest, abdomen and arms and legs formed as a result of muscle contraction, characteristic of muscles in the head and neck area
be able to show and use the characteristics of movement; (skill)
- Count the faceted tumor of the VII cervical vertebra, vertebrae, ribs and identify them through the skin;
- Cervical carvings, shoulder bone head, elbow tumor, angular outgrowths on the elbow and wrist bones, nohosimon bone, iliac edge and anterior upper tumor, symphysis area, kneecap, anterior edge of large calf bone, ankles, right or left side of the bones, forehead bumps, upper eye cup carving, eye cup bottom hole, anterior hole, sucker tumor area, controphors in the face area through the skin, X-ray and CT to be able to show clearly at the facility;
- Be able to clearly show joint spaces and shapes in X-ray and CT image;

- Being able to indicate the projection of the exact location of the main large muscles of the arms, legs, back, chest and abdomen through the skin;
- The axillary and elbow recesses, the chow Canal, the hip triangle and the canal, the axillary recess, must have the skills to be able to find the projection of the channels in the calf area through the skin. (qualification)

2- semester:
The student shpuld know:
- the essence of the Basic Laws of the development, formation, development of internal organs, systems that ensure their relationship with the external environment, as well as their change in age;
- fundamentals of the development of internal organs in ontogenesis and Phylogenesis, as well as many common organ defects;
- features of the development of the oral cavity and organs;
- development of teeth, general structure, signs, mutual differences and changes with age, occurring developmental anomalies;
- the essence of the Basic Laws of the general development, formation, development of the cardiovascular system, their relationship with the external environment and their change with age;
- large blood vessels and their main branches, areas of blood supply;
- structure, differences, functional significance of the artery, vein and lymphatic vessel wall;
- the concept of anastomoses, shunts and microcirculatory organs;
- gate vein and its tributaries;
- kava-kaval and porto-kaval anastomoses;
- understanding lymph flow, pathways, vessels and nodes;
- have an idea of the defects of the cardiovascular system that are common during ontogenesis; (knowledge)
-oral cavity wall moulding, preparation and 3D format interactive
anatomical Pirogov table (with existing one) display;
- to show the general structure and topogiafic properties of the organs of placement in the oral cavity on the interactive anatomical Pirogov table (available) in the form of a multiage, preparation and 3D format;
- to be able to show the muscles of the palate in exercises and preparations;
- to find tongue suckers, folk muscles and Pirogov-Valldey ring in mulyaj and preparations;
- to be able to find and display parts of the esophagus, gastric topography on an interactive anatomical Pirogov table (as available) in mulyaj, drug and 3D format;
- to be able to show the difference of the small intestine from the large intestine using a multiage, preparation and an interactive anatomical Pirogov table in 3D format (as available;
-structure, derivatives and topographic characteristics of the liver using the interactive anatomical Pirogov table in mullage, preparation and 3D format (in the existing case);
-Structure and topographic characteristics of saliva, pancreatic massage, preparation and interactive anatomical Pirogov table in 3D format (with availability);
- On the interactive anatomical Pirogov table in 3D format (with availability)of the abdominal curtain floors, sinuses, sacs, ducts and folds in the form of a multiage, preparation and;

- mulyaj, preparat va 3D formatdagi interaktiv anatomik Pirogov stolida (mavjud bo‘lgan holda) tashqi burun, burun bo‘shlig‘i, hamda hiqildoq tog‘aylari, bo‘g‘im va mushaklarni ko‘rsata olishni;
- interactive anatomical Pirogov table in multiage, preparation and 3D format (with existing ones) showing the parts of the kekirdak, the structure of the lungs, the differences, the bronx tree;
- interactive anatomical Pirogov table in multiage, drug and 3D format (with existing pleura and chest spacing, changing with age;
- Renal topography, structure, fixation apparatus and structure of the nephron with the help of an interactive anatomical Pirogov table in mullage, preparation and 3D format (in the case of an existing one);
- display of the bladder and urinary tract on an interactive anatomical table (available) with a polyac, drug and 3D format;
- structure, topographic properties and changes in venereal memberships with age;
- knowledge of the classification, structure and function of the endocrine glands;
- the structure of the heart, topographic characteristics, valve apparatus, conduction system, blood supply of the heart and its changes with age using the interactive anatomical Pirogov table in multiage, preparation and 3D format;
- projection of large blood vessels in the body, main branches, anastomoses and blood supply areas with the help of a multiage, drug and interactive anatomical Pirogov table in 3D format (in the case of existing ones;
-provision of blood supply to the face-jaw area, projection and anastomosis of the main branches using an interactive anatomical Pirogov table in multiage, preparation and 3D format (in the case of an existing one);
- complete determination of blood supply to the head brain (Villizium ring structure) on the table of mulyaj drug and Pirogov in 3D format (available;
- showing the upper and lower hollow veins, gated vein networks with the help of a multiage, preparation and an interactive anatomical Pirogov table in 3D format (in the case of an existing one);
- the circulation of lymph flow in the human body, the location of the surface and deep lymph node, changes with age;
- to know and be able to use the projection of lymph flow, lymph pathways and main lymph nodes with the help of a multiage, a drug and an interactive anatomical Pirogov table in 3D format (in the case of an existing one); (skill)
- With the help of an interactive anatomical Pirogov table in multiage, preparation and 3D format (available at the same time):
- determination of the wall of the oral cavity, the location of the salivary glands and their projection of the paths, opening holes;
- mutual differentiation of teeth with the help of dental signs, correct fixation of parts of the teeth;
-to be able to show anatomical structures that form the Pirogov-Valdey lymphoepithelial ring, popularly and esophageal projection;
- to be able to find the topographic characteristics of the stomach (golotopia, skeleton and synthopia), the main anatomical elements;
- determination of the difference of the small intestine from the large intestine, topographic features;
- showing the topographic characteristics of the liver (golotopia, skeleton and synthopia), the main anatomical elements;

- to find the main anatomical elements of the peritoneum (large and small charvi, liver, gastric anterior and charvi sac);
- determination of lung excursion;
- determination of heart topography;
- being able to find a sleep artery pulse;
- determination of the pulse of the wrist artery;
- being able to find subcutaneous veins;
- must have skills such as being able to find the projection of lymphatic nodes. (qualification)

VII. Educational technologies and techniques

- Interactive games;
- Practical (logical thinking, quick questions and answers;
- Work in groups;
- Introduction of presentations;
- Individual projects;
- Projects to work as a team and protect.

VIII. Requirements for obtaining credits:

Execution of tasks and tasks assigned in the form of current control, competent submission by intermediate and final types of control.

MID-TERM (MT)

On the anatomy module, MT is held once at the end of the semester. A student who has accumulated the appropriate loans under CC is included in the CT. A student who has not been able to collect a qualifying score (60 points) in the MT will not be put under final control. The process of conducting intermediate control is periodically studied with the participation of the commission formed by the head of the department, and in cases of violation of the procedures for its conduct, the results of intermediate control are canceled and intermediate control is carried out again.

Criteria for controlling and assessing the knowledge of the acquisition of practical skills in students by the module

Score	Level	Equivalent score	Mark	Criteria
90-100	A	5	Excellent	The student makes an independent conclusion and decision, can think creatively, observe independently, put into practice the knowledge received, understand the essence of Science (Subject), know,Express, tell, have an idea of science (subject)

85-89	B+	4	Very good	The student makes an independent conclusion and decision, observes independently, is able to apply the knowledge received in practice, understands the essence of science (subject), knows, can express, tell, has an idea of science (subject)
71-84	B	4	Good	The student observes independently, is able to put into practice the knowledge received, understands the essence of science (subject), knows, can express, tell and has an idea of science (subject)
60-70	C	3	Satisfactory	The student is able to put into practice the knowledge received, understand the essence of the subject (subject), know, Express, tell and have an idea of the subject (subject)
0-59	F	2	Unsatisfactory	The student has not mastered the science program, does not understand the essence of science (subject), does not have an idea of science (subject)

Basic literature

1. Ahmedov A.G., Mirsharapov O.M., Sagatov T.A., Rasulov H.A. Anatomiya, darslik. Tom I – II.Toshkent. 2018 y.
2. Ahmedov A., Rasulov H.A. Odam anatomiyasi, bolalar anatomiyasi asoslari bilan, darslik. Toshkent. 2013 y.
3.Axmedov A.G., Rasulov X.A. Atlas anatomii cheloveka, Tom I- II. Tashkent. 2015 g.
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Additional literature

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Websites

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MODULE SYLLABUS

<table>
<tr><td></td><td colspan="3"></td></tr>
<tr><td>Full title</td><td colspan="3">Human anatomy</td></tr>
<tr><td>code:</td><td>Credit amount: 10
From this:
CC –10 credit:
Anatomiya 1 -
1 semester – 5 credit;
2 semester – 5 credit;
MT – 0 credit (mandatory to be passed)
Final – 0 credit (mandatory to be passed)</td><td>Module transition period :

1,2-semester</td><td>ECTS value: 10</td></tr>
<tr><td>Direction of Education</td><td>60910200 – «General medicine»</td><td colspan="2">Stage 1 bachelors</td></tr>
<tr><td>Module duration</td><td colspan="3">24week</td></tr>
<tr><td rowspan="5">Training hours:</td><td>Total hour:</td><td colspan="2">300</td></tr>
<tr><td>So:</td><td colspan="2"></td></tr>
<tr><td>lecture</td><td colspan="2">28</td></tr>
<tr><td>practical training</td><td colspan="2">122</td></tr>
<tr><td>Independent Education</td><td colspan="2">150</td></tr>
<tr><td>The training module</td><td colspan="3">Block of preclinical modules</td></tr>
</table>

Status		
HEI name, address	Termez branch of Tashkent Medical Academy Termez city House 64 I.Karimov Street	
Name of department	Anatomy and Clinical Anatomy	
Information about the teachers of this course	**Lecturers:** D.Y.Khojiev **Practical trainingconductors:** M.Subkhonova	E-mail: dkhojiev@gmail.com mohigulsubxonova@gmail.com
Training time and place	Termez branch of Tashkent Medical Academy 1st Academic Building 2nd floor	
Contents of the module	During the anatomy module, a systematic (systematic) study of the structure of the human body and organs in healthy conditions is envisaged. The anatomy module is considered the fundamental (clinical oldi) module of Medicine and is of great importance in the study of all specialist modules and connects theoretical knowledge with practice. In the process of teaching the anatomy module, the inextricable connection of the structure of the members with their function (functional anatomy) is explained, which ensures the development of clinical thinking in the student. The purpose of the anatomy Module Program is aimed at comprehensive training in the field, which takes into account the individual structure of the human organism, its changes with age, sexual characteristics, external environment and the impact of Labor on the body. On this basis, the changes that the body undergoes during the fetal period (ontogenesis), topographic relationships, X – rayanatomy, changes in the development of the body, that is, cases of congenital malformations-anomalies, age-related characteristics are also taken into account.	
Pre-requisites	It is considered the theoretical part of Biological Science.	
Postrekvisites	Anatomy module takes all clinical and serves as a theoretical foundation for clinical modules.	
Module purpose	The main purpose of teaching the anatomy module is to teach the laws of the structure of a healthy human body, organs and tissues, to form in students knowledge, skills and abilities about the structure of the human body, functional anatomy of organs and tissues, changes with age.	
Module Functions	Teaching students individual and sexual differences in the structure of the organism, changes with age, anatomical-topographic relationships of the system and organs, their X-rayoanatomy, defects that occur in the development of the system and organs.	
Requirements for the	**At the end of the 1st semester** **The student should have imagination:**	

knowledge,skills and abilities of students in the module	-The need for an anatomy module to absorb other fundamental and clinical modules, a violation of the anatomical and physiological functions of the organs on the basis of all diseases; - The importance of a single whole of the organism, the systems that make up the organism (musculoskeletal, internal organs,vascular, nervous and sensory organ systems; - The essence of the Basic Laws of growth, formation, development of the organism, the systems that ensure their relationship with the external environment, as well as their change in age; - About the basics of the development of the musculoskeletal apparatus (bones, joints and muscles), as well as about the most common defects, general structure and their functional anatomy. **The student should know:** – To be able to show the faceted tumor of the VII cervical vertebra on the interactive anatomical pie chart (with existing one) in multiage, preparation and 3D format; -To find the vertebrae, ribs calculated on an interactive anatomical Pirogov table (with existing ones) in the form of a multiage, preparation and 3D; - how to find the yoke notch through the skin; -To be able to find the shoulder bone skull on the interactive anatomical Pirogov table (available) in the form of a polyage, preparation and 3D; – to be able to show the elbow tumor on an interactive anatomical Pirogov table (with existing ones) in the form of a compound, drug and 3D; – determination of the tumor in the elbow and wrist bones on the interactive anatomical Pirogov table (as available) in the form of a joint, preparation and 3D format; – to be able to show the pea bone through the skin, on an interactive anatomical pie chart (with availability) in the form of a polyac, a drug and a 3D format; – to be able to display the side edge and the front upper protrusion on an interactive anatomical pie chart (with existing ones) in combination, preparation and 3D format; – to be able to display the symphysis area, the knee cover on the interactive anatomical Pirogov table (available) in multiage, preparation and 3D format; – to be able to show the front edge of the large calf bone, the ankles on the interactive anatomical Pirogov table (with existing ones) in multiage, preparation and 3D format; – that the tubular bones belong to the right or left side; – determination of forehead bumps on an interactive anatomical Pirogov table (with available) in 3D format with skull massage, preparation and;

	– to find and display the top, bottom, and engak holes of the eye cup on the skull mulyaji and the interactive anatomical Pirogov table in 3D format (as available); – to be able to show holes, channels and cracks on the base of the skull; – to be able to indicate the movement axis in each joint of the body; - the fact that the back, chest, abdomen and arms and legs show their movements, which are formed as a result of muscle contraction, and the characteristic features of movement of the muscles in the head and neck area. **The student should be able to do:** – Counting the faceted tumor of the VII cervical vertebra, vertebrae, ribs, and identifying them through the skin; - neck carvings, shoulder bone head, elbow tumor, angular outgrowths on the elbow and wrist bones, pectoral bone, iliac edge and anterior upper tumor, symphysis area, kneecap, anterior edge of the large calf bone, ankles, whether its bones belong to the right or left side, forehead bumps, upper eye cup carving, eye cup OST opening, anterior hole, sucker tumor area, controphors in the face area through the skin, X-ray and CT to be able to show clearly at the facility; to be able to clearly show the joint cavities and shapes in the X-ray and CT image; – to be able to show the exact location projection of the main large muscles of the arms, legs, back, chest and abdomen through the skin; - to be able to find through the skin the projection of the channels in the armpit and elbow recesses, the chov Canal, the hip triangle and Canal, the taximal Fossa, the calf area. **At the end of the 2nd semester** **The student should have imagination:** - the essence of the Basic Laws of the development, formation, development of internal organs, the systems that ensure their relationship with the external environment, as well as their change in age; -fundamentals of the development of internal organs in ontogenesis and Phylogenesis, as well as many common organ defects; - features of the development of the oral cavity and organs; - development of teeth, general structure, symptoms, mutual differences and changes with age, common developmental anomalies; - the essence of the Basic Laws of the general development, formation, development of the cardiovascular system, their relationship with the external environment and their change with age; - large blood vessels and their main branches, areas of blood supply;

	- structure, differences, functional significance of the artery, vein and lymphatic vessel wall; -the concept of anastomoses, shunts and microcircuit Uzan; - gate vein and its tributaries; - kava-kaval and porto-kaval anastomoses; - understanding lymph flow, pathways, vessels, and nodes; - most common defects in the period of ontogenesis of the cardiovascular system. **The student should know:** - display of oral deors on an interactive anatomical Pirogov table (with existing ones) in multiage, preparation and 3D format; - showing the general structure and topogiafic properties of the organs of placement in the oral cavity on an interactive anatomical Pirogov table (with availability) in the form of a multiage, preparation and 3D format; - to be able to show the muscles of the palate in exercises and preparations; -to find tongue suckers, folk muscles and Pirogov-Valldey ring in mulyaj and preparations; - to be able to find and display parts of the esophagus, gastric topography on an interactive anatomical Pirogov table (with existing ones) in multiage, preparation and 3D format; - to be able to show the difference of the small intestine from the large intestine with the help of a multiage, preparation and interactive anatomical Pirogov table in 3D format (with existing ones; - with the help of a multiage, preparation and interactive anatomical Pirogov table in 3D format (in the existing case), the structure, properties and topographic characteristics of the liver; - structure and topographic features of the interactive anatomical Pirogov table (with existing) in saliva, pancreatic massage, preparation and 3D format; - on the interactive anatomical Pirogov table in 3D format (with availability)of the abdominal curtain floors, sinuses, sacs, ducts and folds in the form of a multiage, preparation and; - the interactive anatomical Pirogov table in multiage, preparation and 3D format (with existing ones) can show the external nose, nasal cavity, as well as cartilage, joints and muscles; - interactive anatomical Pirogov table in multiage, preparation and 3D format (with existing ones) showing the parts of the kekirdak, the structure of the lungs, the differences, the bronx tree; - interactive anatomical Pirogov table in multiage, preparation and 3D format (with existing pleural and thoracic spacing, changing with age; - the structure of the renal topography, structure, fixation apparatus and nephron using an interactive anatomical Pirogov

	table in the form of a polyage, preparation and 3D format; - showing the bladder and urinary tract on an interactive anatomical table (with availability) in the form of a polyage, drug and 3D format; - structure, topographic properties and changes in venereal memberships with age; - knowledge of the classification, structure and function of the endocrine glands; - the structure of the heart, topographic features, Valve apparatus, conduction system, blood supply of the heart and its changes with age using the interactive anatomical Pirogov table in mullage, preparation and 3D format; - projection, main branches, anastomoses and blood supply areas of large blood vessels in the body with the help of a multiage, drug and interactive anatomical Pirogov table in 3D format (in the case of existing ones; -provision of blood supply to the face-jaw area, projection and anastomosis of the main branches using an interactive anatomical Pirogov table in multiage, preparation and 3D format (in the case of an existing one) ; - complete determination of blood supply to the head brain (Villizium ring structure) on the table of mulyaj drug and Pirogov in 3D format (available; - showing the upper and lower hollow veins, gated vein networks with the help of a multiage, preparation and an interactive anatomical Pirogov table in 3D format (in the case of an existing one); - the circulation of lymph flow in the human body, the location of the surface and deep lymph node, changes with age; - knowing how to find the projection of lymph flow, lymph pathways and main lymph nodes using a multiage, drug and interactive anatomical Pirogov table in 3D format (available). **The student should be able to do:** - determination of the wall of the oral cavity, the location of the salivary glands and their projection of the paths, opening holes; - mutual differentiation of teeth with the help of dental signs, correct fixation of parts of the teeth; -Be able to show the anatomical structures that form the Pirogov-Valldey lymphoepithelial ring, as well as the projection of the xalogum and esophagus; - to be able to find the topographic characteristics of the stomach (golotopia, skeleton and synthopia), the main anatomical elements; - determination of the difference of the small intestine from the large intestine, topographic features; - showing the topographic characteristics of the liver (golotopia, skeleton and synthopia), the main anatomical elements; - to be able to find the main anatomical elements of the peritoneum (greater and lesser omentum, hepatic bursa,

	pregastric and omental bursa) ; - determination of lung excursion; - determination of the topography of the heart; - to be able to find a sleep artery pulse; - wrist artery pulse detection; - to be able to find subcutaneous veins; - to be able to find the projection of lymphatic nodes
Requirements for the skills and abilities of students by module	**The student must have the skills (training):** International anatomical terminology; VII the acute faceted tumor of the cervical spine; Find the calculation of the spine and ribs; Finding the yoke notch; To be able to show the places and parts where the tubular bones have stagnated; Skin-to-skin indication of a ligamentous tumor of the bones of the forearm and elbow; To be able to show the mastoid tumor of the temporal bone through the skin; Correct display of the projection of holes in the facial area of the skull; How to distinguish teeth from each other; Determination of the lower edge of the liver through the skin; Knowledge of internal organ golotopia and skeletopia; Determination of lung excursion; Determination of kidney topography; Show heart border; Determination of the projection of large blood vessels and nerves, directions of branching; Finding a sleeping artery in a sleeping triangle; Finding the femoral artery in the hip triangle; Determination of pulsating points of arteries; How to show subcutaneous veins; Determination of location projection of regionary lymph nodes; Determination of anatomical structures using X-ray, OTT, CT, MRT and MSKT images.
Teaching methods	lecture, practical classes.
Supply	a set of educational methodological developments (textbooks, manuals, educational and methodological recommendations, test questions and situational issues, etc.).q.), computer programs that teach and control multimedia, videos, presentations, exercises, wet preparations, interactive anatomical Pirogov table in 3D format (with availability).

Teaching results:
When completing the module, the student knows::
During the 1st semester:
– To be able to show the anatomical elements of the bones on an interactive anatomical Pirogov table (with existing ones) in the form of a compound, preparation and 3D;
– That the tubular bones belong to the right or left side;
– The forehead butt, the hump of the head, the hump of the top, the outer butt of the nape, the edges of the eye Cup, the cheek arch, the hump, the angle of the lower jaw, the projection of the paranasal spaces can be detected on the skin of a living person, the skull mulyaj and the interactive anatomical Pirogov table in 3D;
– To find and display the top, bottom, and engak holes of the eye cup on the skull mulyaji and the interactive anatomical Pirogov table in 3D format (as available)
– To be able to show holes, channels and cracks on the base of the skull;
– To be able to indicate the movement axis in each joint of the body;
– the fact that the back, chest, abdomen and arms and legs show their movements, which are formed as a result of muscle contraction, and the characteristic features of movement of the muscles in the head and neck area.

During the 2nd semester:
- To show the anatomical structures of the internal organs, their topographic features (golotopia, skeleton and synthopia) on an interactive anatomical Pirogov table (with existing ones;
- Know the classification, structure and location of the ECZO - and endocrine glands;
-The structure of the heart, topographic features, Valve apparatus, conduction system, blood supply of the heart and its changes with age using the interactive anatomical Pirogov table in mullage, preparation and 3D format;
- Projection, main branches, anastomoses and blood supply areas of large blood vessels in the body with the help of a multiage, drug and interactive anatomical Pirogov table in 3D format (in the case of existing ones;
-complete determination of blood supply to the head brain (Villizium ring structure) on the table of mulyaj drug and Pirogov in 3D format (with existing) ;
-Showing the upper and lower hollow veins, gate vein networks with the help of a multiage, preparation and interactive anatomical Pirogov table in 3D format (available at the same time;
- To find the projection of lymph flow, lymph pathways and main lymph nodes with the help of a multiage, a drug and an interactive anatomical Pirogov table in 3D format (in the case of an existing one).