The program of the courses of Human Anatomy for 1-st year students.

Dentistry faculty

Osteology and syndesmology.

Course 1. – The axes, lines, planes and directions of the human body. Kinds of bones. Structure of the bone. Functions of bones. Articulations of bones. The skeleton and its division: the axial skeleton, bones of the skull, the bones of upper and lower extremities .
The axial skeleton. The vertebral column- description and division. The cervical vertebra. The thoracic vertebra. The lumbar vertebra. The sacrum and coccyx. Articulations (joints and synchondrosis) and ligaments of the vertebral column.
The axial skeleton: the ribs- the structure and division. The true, false and floating ribs. The sternum- the structure and division. The thorax cage- general description. Articulations of the thorax- costovertebral and sternocostal joints.

Course 2- The bones of the upper limb- bones of the shoulder girdle, arm, forearm and hand. Articulations of the upper limb. Detailed description of the shoulder and elbow joints.
The bones of the lower limb- bones of the pelvis, thigh, leg and foot. Articulations of the lower limb. Detailed description of the joints: hip, knee and ankle.

Course 3. –The skull- description. Bones of the brain-skull and face. Detailed description of the occipital and parietal bone.Detailed description of the frontal, ethmoidal and sphenoid bones.

Course 4. – The temporal bone- division (squama, tympanic, mastoid and petrosal parts) detailed structure, canals and its contents. The tympanic cavity.

Course 5. – Bones of the face. Description of the maxilla, palatine, zigomatic, lacrimal, nasal bones, inferior nasal conchae and vomer .

Course 6. – The structure of the mandible and temporo-mandibular joint. Fossas of the skull temporal, infratemporal, pterygopalatine, retromandibular, their borders, connections and contents.The base and roof of the skull. The anterior, middle and posterior cranial fossa-borders and connections. The orbit. The nasal cavity. The paranasal sinuses.

Course 7. Practical and written test.

Upper limb.

Course1. Regions of the upper limb. Superficial veins. Muscles of the shoulder girdle (origin, insertion, innervation and blood supply). The axillary cavity. The delto-pectoral sulcus and trigone. The subclavicular artery and its branches. The origin of the spinal nerve. The cutaneus nerves. The brachial plexus- origin, relations, short and long branches. The axillary artery and its branches. The axillary vein and its tributaries. The fascies and muscles of the arm (origin, insertion, innervation and blood supply). The medial and lateral biceptal groove.

Course 2. Muscles of the forearm (innervation). The cubital fossa- limits and contents. The brachial artery and its branches.The radial and ulnar arteries- course and branches on the forearm. Long branches of the brachial plexus on the forearm. The anatomical snuff-box.

Course 3 Muscles of the hand (innervation). Retinaculum of flexors- the carpal tunnel, borders and contents. Retinaculum of extensors- compartments and contents. Arterial arches of the hand- origin, relations, branches. The arterial nets of the wrist (carpal and dorsal). Long branches of the brachial plexus on the hand. Repetition. Topography of the upper limb. Injuries of the nerves. Pulse detection. Mobility of the upper limb.

Course 4. Practical and written test.

Lower limb

Course 1. Regions of the lower limb. Superficial veins and nerves. The fascia lata. Muscles of the pelvic girdle (division, origin, insertion, function, innervation and blood supply). The greater and lesser ischiac foramina. The inguinal ligament. Lacuna communis (lacuna vasorum and musculorum). The greater femoral triangle. The lesser femoral triangle- iliopectineal fossa. The common iliac artery. The internal iliac artery- parietal branches, external iliac artery.

Course 2. The ilio-sacral plexus- short and long branches. Muscles of the thigh (groups, origin, insertion, function, innervation and blood supply). The femoral canal. The adductors' canal. The obturatory canal. (walls, connection, contents). The femoral artery and its branches. Branches of the iliosacral plexus on the thigh(femoral, obturatory, sciatic nerves).

Course 3. Muscles of the leg (groups, innervation, function). The popliteal fossa- limits and contents. The popliteal artery – course and branches. The tibial nerve. The common peroneal nerve (superficial and deep peroneal nerves). The sural nerve.
Muscles of the foot (division, innervation, function). Medial malleolar canal – borders and contents. Retinaculi of flexors and extensors. Vessels of the foot (arterial arches, veins). Innervation of the foot.
Repetition. Topography of the lower limb. Injuries of the nerves. Pulse detection. Mobility of the lower limb. Congenitive and required anomalies.

Course 4. Practical and written test.

Neck

Course 1. General description and topography of the neck (the processus spinosus C7, the hyoid bone, the jugular notch , the pharyngeal eminenece, pulse detection) . Muscles of the neck.(superficial, infra-and suprahyoid, deep). Fascies and spacies of the neck. Superficial veins and cutaneus nerves.
The subclavian artery and its branches (thyro-cervical trunk, costo-cervical trunk, vertebral, internal thoracic arteries).

Course 2. Cervical plexus and its branches. The cervical loop (ansa cervicalis)- origin, relations, innervation. The phrenic nerve- cervical part. Jugular (carotid) sheath .The common carotid artery and its division- the internal and external carotid artery.
The external carotid artery and its branches (sup. thyroid, lingual, facial, pharyngeal asc, occipital, auricular post, maxillar and temporal superficial). The internal carotid artery – cervical part. The jugular vein and its tributaries.

Course 3. The larynx (cartilages, articulations, ligaments). The quadrangular membrane and elastic cone. Muscles- anatomical and functional division.. Cavities of the larynx. Innervation and blood supply of the larynx.

Course 4. The pharynx- laryngeal part. Inferior sphincter of the pharynx- attachments and innervation. Parapharyngeal space and its contents. The thyroid and parathyroid glands Trachea, the esophageus, the cervical part. Lymph nodes of the neck.

Course 5. Cervical part of the sympathetic trunk. Cranial nerves- IX, X, XI, XII- their course in the neck .

Course 6. Practical and written test.

Thorax and back

Course 1 Topographic lines and regions of thorax. Palpation of bony structures- clavicle, sternal angle, ribs. Muscles: superficial, deep and diaphragm.
The back. Regions, fasciae, muscles of the back. Suboccipital trigone- limits and contents. Lumbar trigone. Lumbar tendinous space. Dorsal rami of the spinal nerves.
Lymph nodes: superficial, deep. Thoracic duct. Azygos vein system-, azygos, hemiazygos and accessory hemiazygos vein. Thoracic aorta- ascending, arch of the aorta, descending its branches. Intercostal vessels and nerves. Internal thoracic artery.Brachiocephalic veins, superior and inferior vena cava.

Course 2. Mediastinum: boundaries, division, cavities. The thymus gland- structure, relations. Mediastinal lymph nodes: groups, division. The heart- detailed structure- size, shape and external features; cardiac chambers and internal features; fibrous skeleton of the heart. Epicardium, myocardium, endocrdium. Vessels of the heart (coronary arteries and veins). Conduction system. Nerve supply to the heart. Pericardium: parietal and visceral, ligaments, innervation, sinuses. Projection of valves and the heart on chest wall.

Course 3. The trachea and bronchi- division, topography, structure. Lung: structure position, relations, surface features, fissures and lobes, hila and roots. Nerves and of the lungs. Blood supply- functional and systemic (nutrient).
Oesophagus: relations, topography. Sympathetic trunk and its branches. The phrenic nerve- thoracic part. Vagus nerve- thoracic part.

Course 4
Test: practical and written

Abdomen

Course 1. Walls of the abdomen, topographic points and lines, muscles of the abdomen, fascias, sheath of rectus, inguinal canal and its content.
Anterior abdominal wall: internal view. Umbilical ligaments. Transversalis fascia and ligaments. Hernias. Iliac arteries, terminal branches of internal thoracic. Intercostal nerves and lumbar plexus- repetition. Retroperitoneal cavity. Symphatetic trunk.

Course 2. Peritoneum- development, omental bursa, mesenteries, peritoneal recesses, inter- and extraperitoneal localisation.
Abdominal aorta and its branches. Inferior vena cava- tributaries. Hepatic portal system, anastomoses between portal and systemic circulation.

Course 3. The esophageus. Stomach, small and large intestine, ileocaecal valve, vermiform appendix- topographic, internal and surface anatomy, nerves, vessels, function.

Course 3. Liver, biliary ducts and gallbladder- topographic, internal and surface anatomy, nerves, vessels, function. Pancreas, spleen- topographic, internal and surface anatomy, nerves, vessels, function. Lymphatic drainage of abdomen.

Course 4.
Practical and theoretical test.

Lesser pelvis and reproductive system

Course 1. Bones of the pelvis- repetition. Muscles and fasciae of the pelvis and perineum. Anal triangle and urogenital triangle, superficial and deep perineal space. Ischiorectal fossa- borders, content. Pelvic and urogenital diaphragmas.
Peritoneum in the lesser pelvis; recto-uterine, vesico-uterine and rectovesical pouch. Rectum, anal canal. Internal and external iliac arteries and their branches.
Urinary system. Kidneys, suprarenal glands- topographic, internal and surface anatomy, nerves, vessels, function. Kidneys- topography, capsules, external and internal structure. Vessels and nerves of the kidneys.

Course 2. Ureter- topography, parts, vessels and nerves. Urinary bladder- shape, localisation, interior and ligaments of the bladder, vessels and nerves. Male and female urethra- parts, sphincters, vessels and nerves.
Male reproductive organs. Testes and epididymes, deferent and ejaculatory ducts, spermatic cords - topography, components, anatomy, vessels and nerves.

Penis and scrotum, accessory glandular structures - topography, components, anatomy, vessels and nerves.

Course 3. Female reproductive organs. Ovaries, uterine tubes and uterus- topography, components, anatomy, ligaments, vessels and nerves.
Female reproductive organs.Vagina, female external genital organs- topography, components, anatomy, vessels and nerves. Menstruation cycle. Anatomy of pregnancy and parturition. Scrotal nerve. Sacral part of the parasympathetic system. Repetition.

Course 4.
Practical and written test.

Head

Course 1. Bones of the skull- repetition. Muscles of the head – division, function, innervation. External carotid artery- course, branches. Facial artery- course and branches. Dura matter- venous sinuses of the head.
Facial nerve- nucleus, course, branches, parotid plexus. Intermidiate nerve.

Course 2. Orbital fossa. Lacrimal gland. Ophtalmic artery. Muscles of the eyeball and their innervation- oculomotor (III), trochlear (IV), abducens (VI) nerves. Trigeminal nerve- division, ganglia. Superficial temporal, occipital, posterior auricular artery- course and branches. Ophtalmic nerve (V1)- course, branches. Ciliary ganglion

Course 3. Maxillary (V2) and mandibular (V3) nerves- course and branches. Maxillary artery segments, course and branches. Messenteric muscle-attachments, innervation, function.
Internal carotid artery- course. Internal jugular vein- tributaries. Veins of the head. Connections between extra- and intracranial veins. Parotid gland- description, function.

Course 4. Oral cavity- vestibulum, proper oral cavity (walls). Palatine (hard, soft)- muscles. Kinds of teeth. Alveolar arches. The tongue- description, muscles and functions. Submandibular and sublingual glands. Lingual artery- course and branches.

Course 5. External nose. Nasal cavity (vestibulum, meatuses, paranasal sinuses). Innervation and blood supply. Olfactory nerve.

Course 6. Pharynx- division, description. Muscles of the pharynx- attachments and function. Innervation and blood supply. Pharyngeal plexus. Ascending pharyngeal artery. Cranial nerve: glossopharyngeal (IX), vagus (X), hypoglossal (XII)- course and branches.

Course 7. Temporomandibular joint. Fossas: retromandibular, infratemporal, temporal, pterygopalatine- borders and contents. Topographic spaces, their contents and connections (sublingual, parapharyngeal, retropharyngeal, submandibular, submental).

Course 8. Practical and written test

Brain and senses

Course1. General description of the brain- lateral, medial and inferior surface. Meninges of the brain. Intermeningeal spaces (subdural, subarachnoid). Division of the central nervous system (anatomical and clinical). Lateral telencephalon- hemispheares and lateral ventricles. Medial telencephalon. Rhinoencephalon. The limbic system. The basal nuclei. The extrapiramidal system.

Course 2. Diencephalon- thalamus, hypothalamus (pituary gland and its function)- division, internal and external structure, function. The third ventricle. Mesencephalon division, internal and external structure, function.

Course 3. The hind-brain. Internal and external structure of the pons, medulla oblongata and cerebellum and their function. Nuclei of the cerebellum. The 4-th ventricle- borders and connections.

Course 4. External and internal structure of the spinal cord. Meninges of the spinal cord. Intermeningeal spaces (supradural, subdural, subarachnoid). Cerebral arterial circle of the brain (Willis's circle). Arteries of the spine medulla. Veins of the brain and spine medulla. Cerebro-spinal fluid – origin, function and circulation.

Course 5. External, medial and internal ear- structure, contents, function. Vestibulocochlear nerve.
Eye. Eyeball – structure (layers), innervation, blood supply. Optic nerve. External and internal muscle of the eye. Protective organs of the eye.

Course 6. Practical and written test.