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| **Course title** | **Code** | **Semester** | **Type of course** | **Course volume (Contact hours)** | **ECTS** |
| **Nervous System** | **MED**  **1006** | **II** | **Mandatory** | **54** | **6** |
| **Faculty, the educational program and level of education** | * School of Medicine and Health Sciences * Higher Medical Educational Program “Medicine” * One cycle 6-year | | | | |

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| **Learning Course Content** |
| * **Embryology** Development of central nervous system. Birth defect of brain. embryonic development of nervous system, spinal cord and formation of spinal nerves. * **Histology** Microscopic organization of peripheral nerves and ganglions * **Anatomy** Introduction to nervous system; Spinal cord, formation of spinal nerves. Phlexuses (Cervical, Brachial, Lumbar and Sacral). * **Physiology** General organisation of nervous system, Sensory receptors and receptor potentials.CSF production and flow * **Biochemistry** Blood-brain barrier. Transport through blood brain barrier. * **Medical Biology/Medical Genetics** genetic changeability and modifications. * **Biophysics** Electrical and Chemical Synapses and Snaptic transmission and Neurotransmitters; Synaptic Transmission and Integration of Post-synaptic Potentials; Biophysical principles of electroencephalogram (EEG); Information in Biological systems;Action Potential of Neurons * **PBL** * **Anatomy** Brain Stem (Medulla oblongata, pons and midbrain); Cerebellum. Dienceohalon (thalamus, subthalamus, epithalamus, hypothalamus). Cerbrum: lobes, sulci and gyri. Cerebral cortex and cerebral associating areas. * Cadaver LAB Nervous system * **Radiologic Anatomy** * **Physiology** Somatic Sensations, sense of Touch, Preprioception. Sensation of Pain, Thermoreceptiuon. Ascending pathways, Organization of Cerebral Cortex; Lab: Sense of Touch, two point discrimination test. * **Biophysics** Ion channels and voltage-clamp method. Brain connectivity and activity visualization. * **Med. Microbiology** Microbial Genetics and Genetic Engineering. * **Histology** Histology Lab * **Anatomy** Meninges of the brain; vessels and nerves; dural venous sinuses; ventricular system of the brain( 2 lateral, 3rd and 4th) * **Cadaver LAB** Nervous system * **Radiologic Anatomy** * **Biochemistry** Fuels of brain,glucose trasnport in brain * **Clinical Visits** Collection of clinical cases * **Embryology** Development of peripheral nervous system, clinically oriented problems * **Anatomy** Ascending tracts of central nervous system Descending tracts of cenral nervous system, extrapyramidal system. * **Cadaver LAB** Nervous system * **Physiology** Functions of cerebellum, Basal nuclei, Control of body movements, Balance and gait. Sleep, What is Consciousness? Neurobiology of Consciousness, Limbic system, Autonomic Nervous System and Central Organization of Visceral Functions * **Clinical Visits** Collection of clinical cases * **Histology** Histology of the nervous system * **Anatomy** Introduction to autonomic nervous system and divisions of sympathetic nervous system. Parasympathetic nervous system and its parts. * **Cadaver LAB** Nervous system * **Physiology High** cognitive functions (attention, memory, language), Electroencephalography; Lab: Electroencephalography, recording alphs waves, observe "alpha blockage", * **Biochemistry** Neurotransmitters,general Features of Neurotransmitter Metabolism |
| **Textbooks and Materials** |
| * Anatomy * Human Anatomy, author: Elaine N. Marieb; Patricia Brady Wilhelm;Jon B. Mallatt * 8th ed 2017; * Sobotta Atlas of Human Anatomy.Tables of Muscles, Joints,and NervesEd: F.Paulsen;J.Waschke. Urban & Fischer. 16st. edition; 2018. * Rad. Anatomy * Learning Radiology: Recognizing the Basics (With Student Consult Online Access), William Herring. Saunders; 2nd ed. 2011; * Biochemistry * Lehninger Principles of Biochemistry- David L. Nelson and Michael M. Cox (sevenths edition 2017) * Lippincott illustrated reviews:Biochemistry- Ferrier, Denise R. 7th ed.2017 * Cytology * Abraham L.Kierszenbaum, Laura L.Tres - Histology and Cell Biology, Elsevier Saunders, 2012; * Embryology * The Developing Human Clinically Oriented Embryology - Keith Moore L; Persaud T.V.N;Mark G Torchia.. Elsevier Saunders. 11th ed. 2020; * Microbiology * 1.Lippincott’s Illustrated Reviews. Richard A.Harvey. “Microbiology”. 4 th.ed. 2020 * 2.Review of Medical Microbiology and Immunology-Levinson, Warren; 17th ed. 2022; * Biophysics * Tamar Sanikidze. Biological and Medical Physics V-1/ V-2. 2016 * Molecular Biology/Genetics * Molecular Biology of the Cell - Bruce Alberts, Alexander Johnson, Julian Levis, Martin Raff Keith. Roberts Peter Walter -, Garland Science Taylor & Francis Group,7th ed. 2022; * Evidence Based Medicine-EBM * The Philosophy of Evidence-Based Medicine- Jeremy, Howick. 2011 * Histology * Junqueira's Basic Histology : Text and Atlas- Anthony L. Mescher .16th Ed. 2021; * Physiology * guyton and hall textbook of medical physiology-. John E.Hall, 14th.ed. 2021; * Neurology * Adams and Victor's principles of Neurology. Allan H. Ropper;MArtin A.Samuels;Joshua P. Klein * Lehninger principles of biochemistry, David L.Nelson;Michael M.Cox, Freeman, 2013, MacMillan. Higher education, International edition, VI Edition. * Mark's basic medical biochemistry: a clinical approach (2012) * Biochemistry, Lippincott's illustrated Reviews: (2013) * Medical Microbiology , “Jawetz, Melnick, Adelberg’s”. Geo F. Brooks, Karen C. Carrol, Janet S. Butel, Stephen A. Morse, Timothy A. Mietzner. 26th edition. 2010. * Physics in Biology and Medicine, Pual Davidovits. Academic Press. Elsevier, 2013 * Problem-Based Physiology 1st Edition Robert G. Carroll (2009) |