Course Code: MED2109
Course title: Neuroantomy, Head and Neck
No. of Credits: 05

Detailed Objective Document

Topic/ Concept	Objectives	Time	T/L activity (hrs/per student)	Comments
Introduction to Nervous system and Head and Neck region	**Student should be able to,** 1. **list** the major divisions of the Nervous System (NS); the Central (CNS) and Peripheral (PNS) nervous systems. 2. **describe** that the CNS is composed of grey matter containing nerve cell bodies and the white matter containing axons. 3. **describe** how grey and white matter are distributed or arranged to form the complex structure of brain and spinal cord. 4. **describe** the arrangement of PNS consisting of spinal and cranial nerves and ganglia. 5. **describe** the anatomy of structure in the head and neck region	1 hr	Lecture	
Neurons, Nerve tissue and functions	1. **list** components of the nerve tissue 2. distinguish between neurons and neuroglial cells and state the types and functions of neurons and neuroglia 3. **describe** the general structure of a neuron and explain its the functions. 4. **classify** neurons on the basis of their structure and function 5. distinguish between myelinated and non-myelinated nerve fibers. 6. **name** the types of sensory receptors and state their functions. 7. **identify** and describe a ganglion 8. **describe** the motor end plate	1 hr 2hrs	Lecture Histology practical session	***Done in 3 sessions***

Osteology of head and neck region and the vertebral column	1. **identify**, orientate and articulate the bones of the skull and cervical vertebrae including hyoid bone and the structures passing through foramina. 2. **identify** important anatomical bony landmarks of the region 3. **identify** the cranial fossae 4. **describe** the changes that occur in the skull and the mandible with growth 5. **describe** and identify the bones that contribute to form the neck and thoracic inlet 6. **identify** the different regions of the vertebral column and relate them to the regions of the spinal cord 7. **describe** the structure and the function of the intervertebral disc	3hrs	Osteology practical	
Face and Scalp	1. **identify** and describe the surface anatomy of the face, parts of the eye, external nose and external ear 2. **describe** the arrangement of the tissues in the scalp and its clinical importance 3. **describe** the anatomy of muscles of the facial expression and mastication 4. **state** the blood supply and the lymphatic drainage of the face and scalp.	6hrs	Practical Demonstration and dissections	
Development of the face	1. **recall** development of pharyngeal arches and describe their fate. 2. **explain** the embryological basis of developmental anomalies of the face	1hr	lecture	

Brain, Spinal Cord and Nerves	**Structure of the brain**	1. **describe** the development. 2. **identify** and list the major parts of the brain and describe their locations and surface topography. 3. **describe** the arrangement of gray & white matter in the brain; surface and deep gray matter (i.e. diencephalic structures, corpus striatum basal ganglia etc), white matter fiber bundles and their distribution. 4. **describe** the functional areas of the brain. 5. **describe** and identify the ventricular system of the brain and their relations and revise the CSF circulation. 6. **describe** the external & internal morphology of the brain stem 7. **describe** briefly the structure & function of the cerebellum and its major connections. 8. **describe** the coverings of the brain, dural venous sinuses, choroid plexuses and CSF circulation. 9. **describe** the microscopic structure of the cerebral cortex.	5hrs 9 hrs	Lectures Practical Demonstration and dissections	
		10. **identify** major structures in cross sections of the brain	3 hrs	Practical Demonstration and dissections	Practical demonstration of cross sectioning using a brain specimen combined with a museum class
	Cranial Nerves	1. **name** the cranial nerves 2. **state** the location of cranial nerve nuclei in the brain stem 3. **describe** the course, distribution and functional components of the cranial nerves 4. **explain** the anatomical basis of cranial nerve lesions	3hrs 3 hrs	lectures Practical using prosections and dissections	***Done in 3 sessions***

Brain, Spinal Cord and Nerves	**Spinal cord and Peripheral nerves**	1. **state** the extent of the spinal cord in a neonate and an adult 2. **describe** the structure of the spinal cord 3. **describe** the nerve plexus and locate the major plexuses of the spinal nerves 4. **state** the relationship between vertebral segments and spinal segments.	2hrs	Lecture	
		5. **describe** the arrangement of main ascending and descending nerve tracts of the spinal cord. 6. **explain** the anatomical basis of the clinical manifestation of spinal cord and nerve lesions	2 hrs 2 hr	Lectures SGD	
	Blood supply of the brain and spinal cord & intra cranial hemorrhages	1. **name** the major arteries and their important branches that supply the brain and spinal cord 2. **describe** the venous drainage of the brain and spinal cord 3. **list** the types of intra cranial hemorrhages (ICHs) 4. **explain** the anatomical basis of ICHs and their consequences	2hrs 3hrs	Lectures demonstration with brain practicle Practical Demonstration and dissections	
	Autonomic nervous system	1. **describe** the central and peripheral components of the autonomic nervous system 2. **describe** the sympathetic and parasympathetic nerve outflow and their connections	2hrs 3 hrs	Lectures Practical Demonstration using prosections	Done with brain practical demonstration

Orbit & Eye and Ear	1. **describe** the arrangement of bones of the orbit 2. **describe** the structure, movements blood supply and nerve supply of the eye lids 3. **describe** the lacrimal apparatus 4. **describe** the attachments and nerve supply of the muscles of the orbit and the movements of the eye 5. **describe** the course and relations of nerves and blood vessels of the orbit 6. **describ**e the component parts of the eye 7. **describe** the microscopic and macroscopic structure of the eye 8. **describe** the development of the eye 9. **identify** the component parts of the visual pathway	2 hrs 3 hrs	Lecture practical demonstration and dissections	*practical on histology & models combined with Ear practical*
	10.discuss the clinical anatomy of the eye and the orbit	1hr	lecture by Eye Surgeon	
	11. **describe** the component parts of the ear 12. **describe** the microscopic and macroscopic structure of the ear 13. **describe** the development of the ear 14. **describe** the course of the facial nerve and the relations in the ear 15. **discuss** the clinical anatomy of the ear	1 hrs	lecture by ENT surgeon *histology practical and practical using models combined with eye practical above*	
Suboccipital region	**identify** and describe the anatomy of suboccipital triangle i.e. boundaries, composition and contents.	3 hrs	practical demonstration and dissections	

Neck	**Fascial structure and contents**	1. **describ**e the osteology, surface marking and structure of the neck 2. **describe** the arrangement of fasciae, soft tissue and spaces in the neck 3. **describe** the boundaries, contents, relations and muscles of the triangles of the neck 4. **describe** the anatomy of neck viscera: Salivary glands Thyroid and parathyroid Trachea Esophagus. Great vessels and their branches Cervical sympathetic trunk	2 hrs 6 hrs	Lectures practical demonstration and dissections	
	Root of the neck	1. **describe** the boundaries and the muscles of the root of the neck 2. **describe** the relations of the structures in the root of the neck	3 hrs	practical demonstration and dissections	
	Clinical correlations of the neck	1. **discuss** the clinical correlations of the neck that includes fascia, soft tissues and viscera	1 hr	Lecture	
Temporal fossa and Parotid region		1. **identify** the anatomical land marks and define the boundaries of the temporal fossa 2. **describe** the arrangement of structures in the temporalfossa 3. **identify** the anatomical landmarks and define the parotid region 4. **describe** the anatomy explain the clinical correlation of parotid gland and parotid bed	6 hrs	practical demonstration and dissections & body side tutorials (SGD)	
Infra temporal region and Pterygopalatine fossa		1. **identify** the bony land marks and define the boundaries of the infra temporal fossa 2. **describe** the contents and their relations including the muscles, maxillary artery, mandibular nerve otic ganglion, carotid sheath and its contents and the cranial nerves related to carotid sheath and styloid	3 hrs	3hrs Practical using prosections and dissections & body side	

	apparatus 3. **define** the boundaries of the Pterygopalatine fossa 4. **describe** the contents and the irrelations(including the maxillary nerve and pterygopalatine ganglion,)		tutorials (SGD)	
	5. Clinical anatomy/correlation of oral/maxillary/facial region	1 hr	Lecture	
Pharynx & Larynx	1. **describe** the structure of the pharynx including the arrangement of the muscles, fascia and relations of the pharynx 2. **describe** the blood supply lymph drainage and nerve supply of the pharynx 3. **describe** the muscles involved in swallowing 4. **describe** the anatomy of the larynx including muscles, nerve supply and their actions 5.**explain** how the structure is adapted to perform the functions of the larynx	2 hrs 6 hrs	Lectures Practical using prosecutions and models of Pharynx/ larynx	
Nose and Para nasal sinuses	1. **describe** the parts of the nose, their structure, relations blood supply and lymph drainage and nerve supply 2. **describe** the bony boundaries of paranasal sinuses 3. **describe** the structure, relations and the locations of para nasal sinuses and their blood supply lymphatic drainage and nerve supply 4. **discuss** the clinical importance of Para nasal sinuses and their relations	1 hr 6 hrs	Lecture Practical using prosections and dissections	
Oral Cavity, Soft palate and hard palate	1. **describe** the structure of soft palate and the hard palate 2. **describe** the nerve supply of the palate 3. **describe** the development of the palate, nose and para nasal sinuses 4. **define** the extent and describe the parts of the oralcavity 5. **describe** the anatomy of the tongue and its movements.	2 hrs 3 hrs	lectures Practical using prosections and models &	

	6. **describe** the anatomy of the submandibular and sublingual glands. 7. **discuss** the clinical correlation of the oral cavity		body side tutorials (SGD)	
Round up session - 1		4 hrs	mock spot and SGL	Round up session - 1
Lymph nodes and lymph drainage & Joints of H/N region	1. **describe** the arrangement of lymph nodes and lymph drainage of the head and neck including the clinical correlations. 2. **describe** the structure, movements, muscles involved and nerve supply of the TM joint and joints of the cervical spine	1 hr	Lecture	
Dermatomes	1. **identify** the dermatomes of the head and neck region 2. **describe** the sensory supply of the head and neckregion	1hr	SGL	
Round up session - 2		4 hrs	SGL	Round up session - 2
	discuss the neuroanatomical basis of a neurological case scenario	2 hrs	Tutorial /SGD	
Appearance of the brain and spinal cord on imaging	List the structures that could be identified in the brain spinal cord, CSF pathway, and the vasculature by radiological imaging.	1 hrs	lecture by the radiologist	

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