

Republic of Yemen

Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY for MEDICALS & APPLIED
SCIENCES



Faculty of Medicine

Bachelor Program of Medicine and Surgery

Course Specification of

Central Nervous System

Course Code. (A21P322)

2023



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

I. General Information:

1.	Course Title:	Central Nervous System				
2.	Course Code:	A21P322				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial/ Seminar	Lab	Clinical
		10	8	--	4	--
4.	Level/ Semester at which this Course is offered:	3 rd Level / 2 nd Semester				
5.	Pre –Requisite (if any):	Physiology, Biochemistry, Anatomy Histology, Pathology and Pharmacology.				
6.	Co –Requisite (if any):	None				
7.	Program (s) in which the Course is Offered:	Bachelor of Medicine and surgery				
8.	Language of Teaching the Course:	English				
9.	Location of Teaching the Course:	Faculty of Medicine				
10.	Prepared by:	Dr. Ahmed Hudna				
11.	Date and Number of Approval by Council:	2023				

II. Course Description:

The aim of the central nervous system is to provide students with epidemiology, risk factors, pathophysiology, and drugs used in the treatment of common central nervous system disorders. Central nervous system course introduces information about many topics including normal structure and function of central nervous system as well as epidemiology, causes, and clinical features of central nervous system diseases. These topics will be covered by anatomy, histology, physiology,

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

pathology, pharmacology, and microbiology, , medicine, surgery, community medicine and pediatrics.

III. Course Intended Learning Outcomes (CILOs) : Upon successful completion of the course, students will be able to:		Referenced PILOs	
A. Knowledge and Understanding:		I, P or M/A	
a1	Describe the gross structural components of the central nervous system including spinal cord, brain stem, cerebellum, basal ganglia and cerebrum with sensory, motor and higher mental functions	I	A1 Describe the general and basic sciences related to human body structure and functions with emphasis on normal and abnormal conditions.
a2	Explain infectious diseases of the central nervous system such as bacteria, viral, fungi, and parasites causing meningitis.	A	A3 Explain the pathological and pathogenesis changes in various diseases, and their etiological triggers including genetic, developmental, infectious, metabolic, endocrinal, autoimmune, neoplastic, traumatic, degenerative and occupational factors.
B. Intellectual Skills:			
b1	Distinguish between physiological and pathological performance of body cells.	I	B1 Compare between normal and abnormal conditions and predict the appropriate treatment or intervention.
b2	Integrate the clinical features with para-clinical investigations for differential diagnosis of the common central nervous system disorders	P	B2 Analyze and interpret the finding from history, clinical examination and investigations to propose a diagnosis and develop a shared management plan for common

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

				acute, chronic and urgent physical and mental health presentations.
C. Professional and Practical Skills:				
c1	Practice medical history taking, physical/clinical examination and laboratory investigations for the diagnosis of central nervous system diseases	P	C1	Perform complete clinical examination and precise investigations to reach the final diagnosis.
c2	Demonstrate the common pathogens causing meningitis.	A	C3	Carry out routine medical procedure and demonstrate the ability of using common medical tools required for diagnosis and management with highly qualified competency.
D. Transferable Skills:				
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.	P	D1	Communicate with professionals, patients, their families and the community through verbal, written and other non-verbal means.
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.	A	D2	Work individually or in a team and develop lifelong learning using up to date technology that help in understanding the diseases and its control and prevention.
I= Introduced, P=Practiced or M/A= Mastered/Advanced				

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies	
a1	Describe the gross structural components of the central nervous system including spinal cord, brain stem, cerebellum, basal ganglia and cerebrum with sensory, motor and higher mental functions	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Discussion ▪ Office hours ▪ Self-learning 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Final written exam
a2	Explain infectious diseases of the central nervous system such as bacteria, viral, fungi, and parasites causing meningitis.	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Discussion ▪ PBL 10% ▪ Office hours ▪ Self learning 	<ul style="list-style-type: none"> ▪ Quizzes ▪ Final written exam ▪ Final Practical exam
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies	
b1	Distinguish between physiological and pathological performance of body cells.	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Seminars ▪ Discussion ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Final written exam ▪ Final practical exam
b2	Integrate the clinical features with para-clinical investigations for differential diagnosis of the common central nervous system disorders	<ul style="list-style-type: none"> ▪ Interactive lectures ▪ Seminars ▪ Discussion ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Final written exam ▪ Final practical exam
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies	
c1	Practice medical history taking, physical/clinical examination and laboratory	<ul style="list-style-type: none"> ▪ Lab experiments ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Final practical exam ▪ OSPE

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

	investigations for the diagnosis of central nervous system diseases		
c2	Demonstrate the common pathogens causing meningitis.	<ul style="list-style-type: none"> ▪ Lab experiments ▪ Case studies ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Final practical exam ▪ OSPE
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.	<ul style="list-style-type: none"> ▪ Seminars ▪ Discussion ▪ Case studies ▪ Self-learning ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Oral discussion ▪ Homework ▪ Teamwork
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.	<ul style="list-style-type: none"> ▪ Seminars ▪ Discussion ▪ Case studies ▪ Self-learning ▪ PBL 10% 	<ul style="list-style-type: none"> ▪ Oral discussion ▪ Homework ▪ Teamwork

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due	Learning Outcomes (CILOs)
1	Anatomy	Spinal cord & its blood supply Medulla oblongata & its blood supply Pons & its blood supply	4	7 th	a1, d2
		Midbrain & its blood supply Cerebellum & its blood supply	4		

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due	Learning Outcomes (CILOs)				
		Fourth ventricle Cerebral cortex Basal nuclei	6						
		Lateral ventricle White matter Corpus callosum Fornex Commissures Internal capsule	4						
		Third ventricle Thalamus Hypothalamus	4						
		Tracts & pathways of CNS	4						
		Autonomic nervous system	2						
		CSF & its circulation Blood supply of the brain Meninges, sinuses of brain & dural folds	4						
		Reticular formation Limbic system Development & Congenital anomalies Surface, radiological & clinical anatomy	4						
		2	Physiology			Introduction to the CNS Sensory receptors, pain pathway & pain control system	4	7 th	a1, d2
						Reflex arch & reflexes Ascending sensory & descending motor pathways & motor function.	4		

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due	Learning Outcomes (CILOs)
		Synaptic junction Functions of hypothalamus Thalamus, limbic system & basal ganglia	4		
		Function of the cerebellum Electrical activity of the brain, sleep and wakefulness	4		
		Brain areas	4		
3	Histology	Nervous & glial tissue Cerebrum, cerebellum & spinal cord Section through spinal cord & brain stem	4	7 th	a2, d2
4	Pathology	CNS infections: Meningitis & Encephalitis CNS tumours: Primary & metastatic	4		
		Cerebrovascular diseases of brain Demyelinating & Degenerative diseases Neurocutaneous syndromes	4	7 th	b1, d2
5	Microbiology	Definition, cause, pathogenesis, lab. Diagnosis of: Bacteria causing Meningitis: Neisseria meningitidis, Haemophilus influenza, Streptococcus pneumonia, E. coli, Listeria monocytogenes, Mycobacterium tuberculosis, Cryptococcus neoformans. Botulism (Clostridium botulinum), Tetanus (Clostridium tetani).	4	7 th	a2,b1, d2

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due	Learning Outcomes (CILOs)
		Viral meningitis enteroviruses (echoviruses, coxsackie group A and B viruses and the three polioviruses Encephalitis (Herpes simplex virus, mumps, arenavirus, togavirus) Rabies, Prion diseases	4		
		CNS disease due to helminth parasites Toxoplasmosis, Cerebral malaria, Toxocara Hydatid disease, Cysticercosis	2		
6	Pharmacology	Sedatives & Hypnotic drugs Antiepileptic drugs	2	7 th	b2, ,d2
		Antipsychotic drugs Antidepressant drugs Antiparkinsonian drugs	4		
		General anesthetics Opioid analgesics CNS stimulants Congenital Toxoplasmosis	4		
7	Community Medicine	Epidemiology of: Tetanus Rabies Meningitis Hydatid cyst	4	7 th	a2,d2
8	Medicine	Clinical picture, diagnosis, treatment & prognosis of: Epilepsy Cerebral Stroke Headache & brain tumours	4	7 th	b1,b2,d2

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due	Learning Outcomes (CILOs)
		Movement disorders & Parkinsonism Spinal cord diseases Demyelinating diseases	4		
		Degenerative diseases Peripheral neuropathy Muscle diseases	4		
9	Pediatrics	Clinical picture, diagnosis, treatment & prognosis of: Cerebral palsy Meningitis (Viral, Bacterial & tuberculous)	2	7 th	a2,b1, b2,d2
		Encephalitis Hydrocephalus	2		
		Microcephaly & Craniostenosis Brain tumours in childhood	2		
10	Surgery	Clinical picture, diagnosis, treatment & prognosis of: Brain abscess Head injuries	4	7 th	b1,b2,d2
		Scalp injuries Traumatic IC hematoma Spinal cord trauma	4		
11	Final Theoretical Exam	-MCQs and essay questions	2	9 th	a1,a2, b1,b2
Number of Weeks /and Units Per Semester			120	9	

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours	Learning Outcomes (CILOs)
1	Anatomy: Skull and Cranial cavity Meninges, sinuses and dura mater folds Brain topography Spinal cord Brainstem , Cerebellum, and Cranial nerves	7 th	14	c1, ,d1,d2
2	Physiology: Somatic Sensation Cranial nerve examination Reflexes	7 th	6	c2,d1,d2
3	Histology: Spinal cord at different levels Cortex of cerebrum and cerebellum	7 th	4	b2,c1, ,d1,d2
4	Pathology: Central nervous system pathology	7 th	10	b1,c1,c2, ,d1,d2
5	Microbiology: Viral detection and diagnosis Bacterial identification and diagnosis	7 th	8	a2,b2,c2,d1,d2
6	Final practical exam	8 th	2	a2,b1,b2,c1,c2
Number of Weeks /and Units Per Semester		8	44	

V. Teaching Strategies of the Course:

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

- Interactive lectures
- Discussion
- Case studies
- Seminars
- PBL
- Office hours
- Self-learning
- Lab experiments

VI. Assessment Methods of the Course:

- Quizzes
- Final written exam
- Final practical exam
- OSPE
- Oral discussion
- Homework

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Quizzes	3 rd	10	10%	a1,a2
2	Oral desiccation	7 th	10	10%	d1,d2
3	Final Practical Exam & OSPE	8 th	30	30%	a2,b1,b2,c1,c2
4	Final Theoretical Exam	9 th	50	50%	a1,a2,b1,b2
Total			100	100%	

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

IX. Learning Resources:

1- Required Textbook(s):

- 1- S Standing, 2016, Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41st Edition, Elsevier.
- 2- K E Barrett, S M Barman, S Boitano, H L Brooks, 2015, Ganong's Review of Medical Physiology, 25th Edition, New York, McGraw-Hill Medical Education.
- 3- L Junqueira, J Carneiro, 2005, Basic Histology. Text and Atlas, 11th Edition, New York, McGraw-Hill Medical.
- 4- R Goering, H Dockrell, M Zuckerman, P Chiodini, 2019, Mims' Medical Microbiology and Immunology, 6th Edition, Edinburgh, Elsevier.
- 5- V Kumar, A Abas, J Aster, 2017, Robbins Basic Pathology, 10th Edition, Elsevier.
- 6- M A Clark, R Finkel, J A Rey, K Whalen, 2011, Lippincott's Illustrated Reviews: Pharmacology, 5th Edition, Philadelphia, Lippincott Williams & Wilkins.

2- Essential References:

- 7- R S Snell, 2000, Clinical Anatomy for Medical Students, 6th Edition, Washington, Little, Brown and Company.
- 8- J E Hall, 2013, Guyton and Hall Textbook of Medical Physiology, 13th Edition, Philadelphia, Saunders.
- 9- V Kumar, A Abas, J Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, 9th Edition, Philadelphia, Saunders.
- 10- C Ray, K J Ryan, 2003, Sherris Medical Microbiology: An Introduction to Infectious Diseases, 4th Edition, New York, McGraw-Hill Medical Education.
- 11- B Katzung, 2017, Basic and Clinical Pharmacology, 14th Edition, New York, McGraw-Hill Medical Education.

3- Electronic Materials and Web Sites etc.:

Websites:

- 1- The Visible Body Learn Site
<https://www.visiblebody.com/learn/nervous>
- 2- Medical news today
<https://www.medicalnewstoday.com/articles/307076>

X. Course Policies: (Based on the Uniform Students' By law (2007))

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

Faculty of Medicine

Bachelor Program of Medicine and Surgery

Course Plan (Syllabus) of

Central Nervous System

Course Code. (A21P322)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:		Office Hours					
Location & Telephone No.:	----						
E-mail:	--@--.--	SAT	SUN	MON	TUE	WED	THU

2023

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

II. General Information:

Course Title:	Central Nervous System				
Course Code:	A21P322				
Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
		Lecture	Tutorial/Seminar	Lab	
	10	8	--	4	-
Level/ Semester at which this Course is offered:	3rd Level / 2nd Semester				
Pre –Requisite (if any):	Physiology, Biochemistry, Anatomy Histology, Pathology and Pharmacology.				
Co –Requisite (if any):	None				
Program (s) in which the Course is Offered:	Bachelor of Medicine and surgery				
Language of Teaching the Course:	English				
Location of Teaching the Course:	Faculty of Medicine				
Prepared by:	Dr. Ahmed Hudna				
11 Date and Number of Approval by Council:	2023				

III. Course Description:

The aim of the central nervous system is to provide students with epidemiology, risk factors, pathophysiology, and drugs used in the treatment of common central nervous system disorders.

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

Central nervous system course introduces information about many topics including normal structure and function of central nervous system as well as epidemiology, causes, and clinical features of central nervous system diseases. These topics will be covered by anatomy, histology, physiology, pathology, pharmacology, and microbiology, , medicine, surgery, community medicine and pediatrics.

IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

	A. Knowledge and Understanding:
a1	Describe the gross structural components of the central nervous system including spinal cord, brain stem, cerebellum, basal ganglia and cerebrum with sensory, motor and higher mental functions
a2	Explain infectious diseases of the central nervous system such as bacteria, viral, fungi, and parasites causing meningitis.
	B. Intellectual Skills:
b1	Distinguish between physiological and pathological performance of body cells.
b2	Integrate the clinical features with para-clinical investigations for differential diagnosis of the common central nervous system disorders
	C. Professional and Practical Skills:
c1	Practice medical history taking, physical/clinical examination and laboratory investigations for the diagnosis of central nervous system diseases
c2	Demonstrate the common pathogens causing meningitis.
	D. Transferable Skills:
d1	Use the information technology and internet resources efficiently for self-learning and gaining up-to-date information in the areas of interest.
d2	Act independently or collaboratively as a member of teamwork and communicate effectively with others.
I= Introduced, P=Practiced or M/A= Mastered/Advanced	

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

IV. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due
1	Anatomy	Spinal cord & its blood supply Medulla oblongata & its blood supply Pons & its blood supply	4	7 th
		Midbrain & its blood supply Cerebellum & its blood supply	4	
		Fourth ventricle Cerebral cortex Basal nuclei	6	
		Lateral ventricle White matter Corpus callosum Fornex Commissures Internal capsule	4	
		Third ventricle Thalamus Hypothalamus	4	
		Tracts & pathways of CNS	4	
		Autonomic nervous system	2	
		CSF & its circulation Blood supply of the brain Meninges, sinuses of brain & dural folds	4	
		Reticular formation Limbic system Development & Congenital anomalies Surface, radiological & clinical anatomy	4	

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due
2	Physiology	Introduction to the CNS Sensory receptors, pain pathway & pain control system	4	7 th
		Reflex arch & reflexes Ascending sensory & descending motor pathways & motor function.	4	
		Synaptic junction Functions of hypothalamus Thalamus, limbic system & basal ganglia	4	
		Function of the cerebellum Electrical activity of the brain, sleep and wakefulness	4	
		Brain areas	4	
3	Histology	Nervous & glial tissue Cerebrum, cerebellum & spinal cord Section through spinal cord & brain stem	4	7 th
4	Pathology	CNS infections: Meningitis & Encephalitis CNS tumours: Primary & metastatic	4	7 th
		Cerebrovascular diseases of brain Demyelinating & Degenerative diseases Neurocutaneous syndromes	4	
5	Microbiology	Definition, cause, pathogenesis, lab. Diagnosis of: Bacteria causing Meningitis: Neisseria meningitidis, Haemophilus influenza, Streptococcus pneumonia, E. coli, Listeria monocytogenes, Mycobacterium tuberculosis, Cryptococcus neoformans. Botulism (Clostridium botulinum), Tetanus (Clostridium tetani).	4	7 th

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due
		Viral meningitis enteroviruses (echoviruses, coxsackie group A and B viruses and the three polioviruses Encephalitis (Herpes simplex virus, mumps, arenavirus, togavirus) Rabies, Prion diseases	4	
		CNS disease due to helminth parasites Toxoplasmosis, Cerebral malaria, Toxocara Hydatid disease, Cysticercosis	2	
6	Pharmacology	Sedatives & Hypnotic drugs Antiepileptic drugs	2	7 th
		Antipsychotic drugs Antidepressant drugs Antiparkinsonian drugs	4	
		General anesthetics Opioid analgesics CNS stimulants Congenital Toxoplasmosis	4	
7	Community Medicine	Epidemiology of: Tetanus Rabies Meningitis Hydatid cyst	4	7 th
8	Medicine	Clinical picture, diagnosis, treatment & prognosis of: Epilepsy Cerebral Stroke Headache & brain tumours	4	7 th

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

No.	Units/Topics List	Sub Topics List	Contact Hours	Week due
		Movement disorders & Parkinsonism Spinal cord diseases Demylinating diseases	4	
		Degenerative diseases Peripheral neuropathy Muscle diseases	4	
9	Pediatrics	Clinical picture, diagnosis, treatment & prognosis of: Cerebral palsy Meningitis (Viral, Bacterial & tuberculous)	2	7 th
		Encephalitis Hydrocephalus	2	
		Microcephaly & Craniostenosis Brain tumours in childhood	2	
10	Surgery	Clinical picture, diagnosis, treatment & prognosis of: Brain abscess Head injuries	4	7 th
		Scalp injuries Traumatic IC hematoma Spinal cord trauma	4	
11	Final Theoretical Exam	-MCQs and essay questions	2	9 th
Number of Weeks /and Units Per Semester			120	8

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Week Due	Contact Hours
1	Anatomy: Skull and Cranial cavity Meninges, sinuses and dura mater folds Brain topography Spinal cord Brainstem , Cerebellum, and Cranial nerves	7th	14
2	Physiology: Somatic Sensation Cranial nerve examination Reflexes	7th	6
3	Histology: Spinal cord at different levels Cortex of cerebrum and cerebellum	7th	4
4	Pathology: Central nervous system pathology	7th	10
5	Microbiology: Viral detection and diagnosis Bacterial identification and diagnosis	7th	8
6	Final practical exam	8th	2
Number of Weeks /and Units Per Semester		8	44

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

V. Teaching Strategies of the Course:

- Interactive lectures
- Discussion
- Case studies
- Seminars
- PBL
- Office hours
- Self-learning
- Lab experiments

VI. Assessment Methods of the Course:

- Quizzes
- Final written exam
- Final practical exam
- OSPE
- Oral discussion
- Homework

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quizzes	3 rd	10	10%
2	Oral desiccation	5 th	10	10%
3	Final Practical Exam & OSPE	6 th	30	30%
4	Final Theoretical Exam	7 th	50	50%
Total			100	100%

IX. Learning Resources:

1- Required Textbook(s):

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

- 12- S Standing, 2016, Gray's Anatomy: The Anatomical Basis of Clinical Practice, 41st Edition, Elsevier.
- 13- K E Barrett, S M Barman, S Boitano, H L Brooks, 2015, Ganong's Review of Medical Physiology, 25th Edition, New York, McGraw-Hill Medical Education.
- 14- L Junqueira, J Carneiro, 2005, Basic Histology. Text and Atlas, 11th Edition, New York, McGraw-Hill Medical.
- 15- R Goering, H Dockrell, M Zuckerman, P Chiodini, 2019, Mims' Medical Microbiology and Immunology, 6th Edition, Edinburgh, Elsevier.
- 16- V Kumar, A Abas, J Aster, 2017, Robbins Basic Pathology, 10th Edition, Elsevier.
- 17- M A Clark, R Finkel, J A Rey, K Whalen, 2011, Lippincott's Illustrated Reviews: Pharmacology, 5th Edition, Philadelphia, Lippincott Williams & Wilkins.

2- Essential References:

- 18- R S Snell, 2000, Clinical Anatomy for Medical Students, 6th Edition, Washington, Little, Brown and Company.
- 19- J E Hall, 2013, Guyton and Hall Textbook of Medical Physiology, 13th Edition, Philadelphia, Saunders.
- 20- V Kumar, A Abas, J Aster, 2020, Robbins & Cotran Pathologic Basis of Disease, 9th Edition, Philadelphia, Saunders.
- 21- C Ray, K J Ryan, 2003, Sherris Medical Microbiology: An Introduction to Infectious Diseases, 4th Edition, New York, McGraw-Hill Medical Education.
- 22- B Katzung, 2017, Basic and Clinical Pharmacology, 14th Edition, New York, McGraw-Hill Medical Education.

3- Electronic Materials and Web Sites etc.:

Websites:

- 3- The Visible Body Learn Site
<https://www.visiblebody.com/learn/nervous>
- 4- Medical news today
<https://www.medicalnewstoday.com/articles/307076>

خطأ! لم يتم العثور على مصدر المرجع. خطأ! لم يتم العثور على مصدر المرجع.

XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Prepared by:	Reviewed by:	Head of department	Quality Unit:	Dean of Medicine Faculty	Center of Development and Quality Assurance Dean
Dr. Ahmed Hudna	Dr. Mohammed Sham-aldeen	Dr. Mohammed Sham-aldeen	Dr. Fadhl Shujaa Al-deen	Dr. Salwa Al-Ghomeri	