# Republic of Yemen

## Ministry of Higher Education & Scientific Research

21 SEPTEMBER UNIVERSITY of 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: | 3rd Level / 2nd 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,

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|---|
| 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 |

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|---|---|---|---|---|
| | | | | 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** | | | | |

| (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 | ▪ Interactive lectures<br>▪ Discussion<br>▪ Office hours<br>▪ Self-learning | ▪ Quizzes<br>▪ Final written exam |
| a2 | Explain infectious diseases of the central nervous system such as bacteria, viral, fungi, and parasites causing meningitis. | ▪ Interactive lectures<br>▪ Discussion<br>▪ PBL 10%<br>▪ Office hours<br>▪ Self learning | ▪ Quizzes<br>▪ Final written exam<br>▪ 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. | ▪ Interactive lectures<br>▪ Seminars<br>▪ Discussion<br>▪ PBL 10% | ▪ Final written exam<br>▪ Final practical exam |
| b2 | Integrate the clinical features with para-clinical investigations for differential diagnosis of the common central nervous system disorders | ▪ Interactive lectures<br>▪ Seminars<br>▪ Discussion<br>▪ PBL 10% | ▪ Final written exam<br>▪ 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 | ▪ Lab experiments<br>▪ PBL 10% | ▪ Final practical exam<br>▪ OSPE |

| | | | |
|---|---|---|---|
| | investigations for the diagnosis of central nervous system diseases | | |
| c2 | Demonstrate the common pathogens causing meningitis. | ▪ Lab experiments<br>▪ Case studies<br>▪ PBL 10% | ▪ Final practical exam<br>▪ 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. | ▪ Seminars<br>▪ Discussion<br>▪ Case studies<br>▪ Self-learning<br>▪ PBL 10% | ▪ Oral discussion<br>▪ Homework<br>▪ Teamwork |
| d2 | Act independently or collaboratively as a member of teamwork and communicate effectively with others. | ▪ Seminars<br>▪ Discussion<br>▪ Case studies<br>▪ Self-learning<br>▪ PBL 10% | ▪ Oral discussion<br>▪ Homework<br>▪ 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<br>Medulla oblongata & its blood supply<br>Pons & its blood supply | 4 | 7th | a1, d2 |
| | | Midbrain & its blood supply<br>Cerebellum & its blood supply | 4 | | |

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

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

| 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<br>Encephalitis (Herpes simplex virus, mumps, arenavirus, togavirus)<br>Rabies,<br>Prion diseases | 4 | | |
| | | CNS disease due to helminth parasites<br>Toxoplasmosis, Cererbral malaria, Toxocara<br>Hydatid disease, Cysticercosis | 2 | | |
| 6 | **Pharmacology** | Sedatives & Hypnotic drugs<br>Antiepileptic drugs | 2 | 7th | b2, ,d2 |
| | | Antipsychotic drugs<br>Antidepressant drugs<br>Antiparkinsonean drugs | 4 | | |
| | | General anesthetics<br>Opioid analgesics<br>CNS stimulantsCongenital Toxoplasmosis | 4 | | |
| 7 | **Community Medicine** | Epidemiology of:<br>Tetanus<br>Rabies<br>Meningitis<br>Hydatid cyst | 4 | 7th | a2,d2 |
| 8 | **Medicine** | **Clinical picture, diagnosis, treatment & prognosis of:**<br>Epilepsy<br>Cerebral Stroke<br>Headache & brain tumours | 4 | 7th | b1,b2,d2 |

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

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**B. Case Studies and Practical Aspect:**

| No. | Tasks/ Experiments | Week Due | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|
| 1 | **Anatomy:**<br>Skull and Cranial cavity<br>Meninges, sinuses and dura mater folds<br>Brain topography<br>Spinal cord<br>Brainstem , Cerebellum, and Cranial nerves | 7th | 14 | c1, ,d1,d2 |
| 2 | **Physiology:**<br>Somatic Sensation<br>Cranial nerve examination<br>Reflexes | 7th | 6 | c2,d1,d2 |
| 3 | **Histology:**<br>Spinal cord at different levels<br>Cortex of cerebrum and cerebellum | 7th | 4 | b2,c1, ,d1,d2 |
| 4 | **Pathology:**<br>**Central nervous system pathology** | 7th | 10 | b1,c1,c2, ,d1,d2 |
| 5 | **Microbiology:**<br>**Viral detection and diagnosis**<br>**Bacterial identification and diagnosis** | 7th | 8 | a2,b2,c2,d1,d2 |
| 6 | **Final practical exam** | 8th | 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 |
|---|---|---|---|---|---|
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- 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** | 3rd | 10 | 10% | a1,a2 |
| 2 | **Oral desiccation** | 7th | 10 | 10% | d1,d2 |
| 3 | **Final Practical Exam & OSPE** | 8th | 30 | 30% | a2,b1,b2,c1,c2 |
| 4 | **Final Theoretical Exam** | 9th | 50 | 50% | a1,a2,b1,b2 |
| **Total** | | | **100** | **100%** | |

## IX. Learning Resources:

### 1- Required Textbook(s):

1- S Standring, 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 |
|---|---|---|---|---|---|
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| | |
|---|---|
| 1 | **Class Attendance:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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. |

# 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 |
|---|---|---|---|---|---|
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## 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** | **Clinical** |
| | | 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.

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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**

## IV. Course Contents:

### A. Theoretical Aspect:

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

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

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| 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<br>Encephalitis (Herpes simplex virus, mumps, arenavirus, togavirus)<br>Rabies,<br>Prion diseases | 4 | |
| | | CNS disease due to helminth parasites<br>Toxoplasmosis, Cererbral malaria, Toxocara<br>Hydatid disease, Cysticercosis | 2 | |
| 6 | **Pharmacology** | Sedatives & Hypnotic drugs<br>Antiepileptic drugs | 2 | 7th |
| | | Antipsychotic drugs<br>Antidepressant drugs<br>Antiparkinsonean drugs | 4 | |
| | | General anesthetics<br>Opioid analgesics<br>CNS stimulantsCongenital Toxoplasmosis | 4 | |
| 7 | **Community Medicine** | Epidemiology of:<br>Tetanus<br>Rabies<br>Meningitis<br>Hydatid cyst | 4 | 7th |
| 8 | **Medicine** | **Clinical picture, diagnosis, treatment & prognosis of:**<br>Epilepsy<br>Cerebral Stroke<br>Headache & brain tumours | 4 | 7th |

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

**B. Case Studies and Practical Aspect:**

| No. | Tasks/ Experiments | Week Due | Contact Hours |
|---|---|---|---|
| 1 | **Anatomy:**<br>Skull and Cranial cavity<br>Meninges, sinuses and dura mater folds<br>Brain topography<br>Spinal cord<br>Brainstem , Cerebellum, and Cranial nerves | 7th | 14 |
| 2 | **Physiology:**<br>Somatic Sensation<br>Cranial nerve examination<br>Reflexes | 7th | 6 |
| 3 | **Histology:**<br>Spinal cord at different levels<br>Cortex of cerebrum and cerebellum | 7th | 4 |
| 4 | **Pathology:**<br>**Central nervous system pathology** | 7th | 10 |
| 5 | **Microbiology:**<br>**Viral detection and diagnosis**<br>**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** | 3rd | 10 | 10% |
| 2 | **Oral desiccation** | 5th | 10 | 10% |
| 3 | **Final Practical Exam & OSPE** | 6th | 30 | 30% |
| 4 | **Final Theoretical Exam** | 7th | 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 Standring, 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:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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:**<br>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. |