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**RYK MEDICAL COLLEGE**

Department of Medical Education

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**Study Guide for M.B.B.S (Second Professional)**

**Block 5 Modules 9 HEAD & NECK, SPECIAL SENSES**

**(6 weeks)**

**Academic Year 2025/26**

**Integrated and Modular**

|  |  |
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**LIST OF ABBREVIATIONS**

|  |  |  |  |
| --- | --- | --- | --- |
| A | Anatomy | **HCL** | Hydrochloric acid |
| ABG | Arterial blood gas | **H&E** | Hematoxylin and eosin |
| Ag | Aging | **HL** | Hematopoietic and lymphatic |
| AKI | Acute kidney injury | **HMP** | Hexose monophosphate |
| ALT | Alanine transaminase | **HNSS** | Head & neck special senses |
| AMP | Adenosine Monophosphate | **ICF** | Intra cellular fluid |
| ANS | Autonomic nervous system | **IL** | Interleukin |
| AST | Aspartate transaminase | **IN** | Inflammation |
| AV | Atrioventricular | **INR** | International normalized ratio |
| B | Biochemistry | **IUD** | Intrauterine device |
| Bhs | Behavioral sciences | **IUGR** | Intra uterine growth restriction |
| C | Civics | **JVP** | Jugular venous pressure |
| CBC | Complete blood count | **LDH** | Lactate dehydrogenase |
| C-FRC | Clinical-Foundation Rotation Clerkship | **M** | Medicine |
| CK | Creatine kinase | **MALT** | Mucosa associated lymphoid tissue |
| CM | Community medicine | **MCH** | Mean corpuscular hematocrit |
| CNS | Central nervous system | **MCV** | Mean corpuscular volume |
| CO | Carbon monoxide | **MRI** | Magnetic resonance imaging |
| CO2 | Carbon dioxide | **MS** | Musculoskeletal |
| COPD | Chronic obstructive pulmonary disease | **MSD** | Musculoskeletal disorders |
| COX | Cyclooxygenase | **NEAA** | Non essential amino acids |
| CPR | Cardio pulmonary resuscitation | **NMJ** | Neuromuscular junction |
| CT | Computed tomography | **NS** | neurosciences |
| CV | Cardiovascular | **O** | Ophthalmology |
| CVA | Cerebral vascular accident | **Or** | Orientation |
| DALY | Disability adjusted life year | **P** | Physiology |
| DCMLS | Dorsal column medial lemniscus system | **Pa** | Pathology |
| DLC | Differential leukocyte count | **PAF** | Platelet activating factor |
| DNA | Deoxy ribonucleic acid | **PBL** | Problem based learning |
| ECF | Extra cellular fluid | **PCR** | Polymerase chain reaction |
| ECG | Electrocardiography | **PDGF** | Platelet derived growth factor |
| ECP | Emergency contraceptive pill | **Pe** | Pediatrics |
| EEG | Electroencephalogram | **PEM** | Protein energy malnutrition |
| EnR | Endocrinology and reproduction | **PERLs** | Professio Ethics Research Leadership |
| ENT | Ear Nose Throat | **PH** | Pharmacology |
| ER | Emergency room | **PNS** | Peripheral nervous system |
| F | Foundation | **Psy** | Psychiatry |
| FEV1 | Forced expiratory volume 1 | **PVC** | Premature ventricular contraction |
| FM | Forensic medicine | **QALY** | Quality adjusted life years |
| FVC | Forced vital capacity | **QI** | Quran & Islamiat |
| GFR | Glomerular filtration rate | **R** | Renal |
| GIT | Gastrointestinal tract | **Ra** | Radiology |
| GMP | Guanosine monophosphate | **RBCs** | Red blood cells |
| GO | Gynecology and obstetrics | **SA** | Sinoatrial |
| RDA | Recommended dietary allowance | **TCA** | Tricarboxylic acid cycle |
| Re | Respiratory | **TNA** | Tumor necrosis factor |
| RFLP | Restriction fragment length polymorphism | **USG** | Ultrasonography |
| RMP | Resting membrane potential | **UTI** | Urinary tract infection |
| RNA | Ribonucleic acid | **WBCs** | White blood cells |
| S | Surgery |  |  |
| GTO | Golgi tendon organ |  |  |

**CURRICULUM FRAMEWORK**

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| --- |
| **Curriculum framework** |
| **Year 01** | **Modules** | **Block 1** | **Block 2** | **Block 3** |
| * Foundation -1
* Hematopoietic & Lymphatic
 | * Musculoskeletal and locomotion - 1
 | * Cardiovascular -1
* Respiratory - 1
 |
| PERLS-1, Quran-1, Islamiat, Civics, Pakistan Studies, English |
| C-FRC -1(Clinical-Foundation, Rotation, Clerkship) |
|  |
| **Year 02** | **Modules** | **Block 4** | **Block 5** | **Block 6** |
| * GIT & Nutrition –1
* Renal – 1
 | * Endocrinology & Reproduction – 1
* Head & Neck, Special senses
 | * Neurosciences – 1
* Inflammation - 1
 |
| PERLS-2, Quran Pak-2, Islamiat, Civics, Pakistan Studies, English |
| C-FRC -2(Clinical-Foundation, Rotation, Clerkship) |
|  |
| **Year 03** | **Modules** | **Block 7** | **Block 8** | **Block 9** |
| * Foundation – 2
* Infectious Diseases
* Neoplasia
* Musculoskeletal & Locomotion - 2
 | * Hematopoietic, Immunity & Transplant
* Cardiovascular - 2
 | * Respiratory – 2
* Forensic Medicine
* Community Medicine & Family Health - 1
 |
| PERLS - 3, Quran Pak – 3 |
| C-FRC -3 (Clinical-Foundation, Rotation, Clerkship) |
|  |  |  |
| **Year 04** | **Modules** | **Block 10** | **Block 11** | **Block 12** |
| * Renal – 2
* Endocrinology & Reproduction – 2
* GIT & Nutrition –2
* Neurosciences - 2
 | * Maternal & Child Health
* Ophthalmology
* Otorhinolaryngology
 | * Community Medicine & Family Health - 2
* Psychiatry & Behavioral Sciences
 |
| PERLS – 4, Quran Pak – 4, Electives & BLS Workshops |
| C-FRC - 4 (Clinical-Foundation, Rotation, Clerkship) |
|  |
| **Year 05** | **Modules** | * Gynecology & Obstetrics
* Pediatrics
* Medicine & Allied
* Surgery & Allied
 |
| C-FRC -5 (Clinical-Foundation, Rotation, Clerkship) |

**INTRODUCTION TO STUDY GUIDE**

**What is study guide?**

The study guide is an important academic tool that aids students for different educational activities they are engaged in. It provides pertinent details on the module’s structure, assisting students in planning their academic activities accordingly. Another purpose of study guide is to guide students about different rules and regulations as well as teaching and assessment techniques.

**Purpose of study guide:**

* Conveys details about the organization and management of the module.
* Helps the learners about departmental representatives who can be contacted in case of difficulty.
* Define the learning objectives that should be accomplished by the end of the module.
* Identifies learning methodologies such as lectures, small group discussion, practical that will be implemented during the module.
* Provide a list of learning resource to maximize their learning
* Includes information on the assessment methods and examination related rules and regulations

**INTRODUCTION TO MODULE**

**Module/ course Name:** Module 9. Block 5, Head & Neck, special senses - 1

**Block duration:** 13 weeks (Endocrinology & Reproduction 1 = 7 weeks + Head & Neck, special senses -1 = 6 weeks)

**Module duration**: 06 weeks

**Year:** 2nd Year MBBS

**Start Date:** ---/---/2026

**End Date:** ---/---/2026

**Departments** = Anatomy, Physiology, Biochemistry, pharmacology, pathology, community medicine, clinical skill foundation (hospital), medicine, surgery, gynecology & obstetrics, pediatrics, behavioral sciences, Quran/Islamiat & Pakistan studies and English.

**Daily timings:** 8:00 AM to 4:00 PM

**No. of hours:** 8 hours per day (20 min tea break & 40 min prayer/lunch break)

**Teaching hours:** 07 hours per day/35 hours per week

**Test dates: ---/---/2026, ---/---/2026, ---/---/2026**

**End module MCQ exam:**  ---/---/2026 (Theory), ---/---/2026 (OSPE, OSCE, OSVE etc)

**Interactive/ active learning session details**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subjects** | **TBL** | **PBL** | **CBL** | **SGD** | **Tutorial** | **Demo/Diss** |
| **Anatomy** | **×** | **×** | **×** | **×** | **4** | **6+1** |
| **Physiology** | **×** | **1** | **×** | **2** | **×** | **×** |
| **Biochemistry** | **×** | **×** | **×** | **2** | **×** | **×** |
| **Surgery** | **×** | **×** | **1** | **×** | **×** | **×** |
| **Pathology** | **×** | **3** | **×** | **×** | **×** | **×** |
| **Medicine** | **1** | **×** | **1** | **×** | **×** | **×** |
| **Ear Nose & Throat** | **×** | **1** | **×** | **×** | **×** | **×** |
| **Ophthalmology** | **1** | **×** | **×** | **×** | **×** | **×** |
| **Surgery** | **1** | **×** | **×** | **×** | **×** | **×** |

**Module themes**

 Oral cavity & Esophagus (O &E)

 Walls of Abdomen & Peritoneum

 Stomach

 Small intestine

 Large intestine (Cecum, Appendix, Colon, Rectum & Anal Canal)

 Liver & Biliary tree

 Pancreas & Spleen

 Nutrition

**Clinical relevance**

 Diseases of oral cavity, esophagus and stomach

 Diseases of small and large intestine

 Diseases of hepatobiliary system

 Diseases related to malnutrition

**YEAR 2 & MODULE COMMITTEES**

**Year 2 committee**

* Prof Dr Tariq M Rehan (HOD DME) (Principal)
* Prof Dr Tehseen Iqbal (HOD Physiology) (Vice. Principal)
* Prof Dr Ghaffar Ansari (HOD Anatomy), Prof Dr Zia ur Rehman Alvi
* Prof Dr Dr Shafqat Nazeer (HOD Biochemistry)
* Prof Dr Abdul Hakeem (HOD Pathology)
* Prof Dr M Amir Rafique (HOD Pharmacology)
* Prof Dr Javed Akhter (HOD Community Medicine)
* Prof Dr M saleem (HOD Forensic medicine)

**Module committee**

* Dr Raja Faisal Zulfiqar (Anatomy)
* Dr Rahil Adil (Physiology)
* Dr khalida anwar (Biochemistry)
* Dr Naqeeb (Pathology)
* Dr Ali Hussain (community medicine)

**PBL, TBL & CBL Committee**

* Prof Dr Tariq M Rehan (HOD DME) (Principal)
* Prof Dr Tehseen Iqbal (HOD Physiology) (Vice. Principal)
* Prof Dr Ghaffar Ansari (HOD Anatomy), Prof Dr Zia ur Rehman Alvi
* Prof Dr Dr Shafqat Nazeer (HOD Biochemistry

**Mentoring committee**

* Prof Dr Abdul Hakeem (HOD Pathology)
* Prof Dr Abdul Ghaffar Ansari (HOD Anatomy)
* Prof Dr M Amir Rafique (HOD Pharmacology)
* Prof Dr Javed Akhter (HOD Community Medicine)
* Prof Dr M saleem (HOD Forensic medicine)

**Module coordinator:**

* Anatomy: Prof Dr Zia Ur Rehman Alvi
* Biochemistry: Dr Dost M kalhoro
* Physiology: Dr Sadia Javiad
* Pharmacology: Dr Tesneem Yasmin
* Pathology: Dr Syed Naqeeb
* Community medicine: Dr Ali Hussain
* Medicine: Dr Abdul Waheed
* Surgery: Dr Jahangeer
* Pediatrics: Dr Masood
* Gynecology & obstetrics: Dr Farhat Yasmeen
* Behavioral sciences: Dr Mehwish Adnan

**Planning committee:** Department of medical education.

**TEACHING FACULTY**

* Anatomy: Prof Dr Ghaffar Ansari, Prof Dr Zia ur Rehman Alvi, Dr Raja Faisal
* Biochemistry: Dr Khalida Anwar, Dr Dost M kalhoro
* Physiology: Prof Dr Tehseen Iqbal, Dr Rahila Adil, Dr Sadia
* Pharmacology: Dr M Amir Rafique
* Pathology: Prof Dr Abdul Hakeem, Dr Syed Naqeeb Ali
* Community Medicine: Dr Ali Hussain,
* Medicine: Dr Abdul waheed
* Surgery: Dr Jahangeer
* Pediatrics: Dr Masood
* Gynecology & Obstetrics: Dr Farhat Yasmeen
* Behavioral Sciences: Dr Mahwish Adnan
* Holy Quran & Islamiyat: Mr Jaffar
* Pakistan studies: Mr Jaffar
* Civics: Dr Majid

**TEACHING METHODOLOGIES/STRATEGIES**

* Large group interactive sessions
* Tutorials
* Demonstrations
* Lab practical
* Simulations
* Team based learning
* Case based learning
* Problem based learning
* Small group discussions
* Clinical skills foundation

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| **VENUE: Head & Neck, Special senses Module** |
| **GROUPING** | **LECTURES** | **PBL/CBL** | **SMALL GROUP DISCUSSION** |
| **Group A** (1-33)**Group B** (34-66)**Group C** 67-100) | Anatomy → LH - 05Physiology → LH - 02Biochemistry → LH - 01Pathology → LH 04Pharmacology → LH 03Com medicine → LH 03Rest of all → LH 02 | Anatomy → DR - 05Physio → DR - 02Biochem → DR - 01Patho → DR 04Pharma → DR 03Com med → DR 06 | SGD room2nd floor |
| **TEAM BASED LEARNING** |
| * Multi - purpose hall
* Skill lab
* Corresponding lab
 |
| **(PRACTICALS)** |
| Corresponding labs |

**TIME TABLES**

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| **(Week 1) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-035a | **Physiology**Dr Tehseen.IHNSS-P-001a | **Tea break** | **Group A** Anatomy Demo1a &B**Group B** Anatomy Tuto 43-44a**Group C** Biochem SGD 1a &b | **Anatomy(G)**Dr ZR.AlviHNSS-A-001c | **Prayer & Lunch break** | **Practical 1**Group A **Anatomy (P-1)**Group B **Physiology (P-1)**Group C **Biochemistry (P-1)** |
| **Tuesday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-035b | **Physiology**Dr Raheela.AHNSS-P-001b | **Group A** Anatomy Tuto 43-44a**Group B** Biochem SGD 1a &b**Group C** Anatomy Demo1a &B | **Anatomy(G)**Dr Imran.A HNSS-A-001d | **Practical 1**Group A **Physiology (P-1)**Group B **Biochemistry (P-1)**Group C **Anatomy (P-1)** |
| **Wednesday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-036a | **Physiology**Dr Sadia.JHNSS-P-001c | **Anatomy(G)**Dr ZR.AlviHNSS-A-001e | **Pathology**Dr HakeemHNSS-Pa-001a | **Anatomy(G)**Dr Faisal.RHNSS-A-002a | **Practical 1**Group A **Biochemistry (P-1)**Group B **Anatomy (P-1)**Group C **Physiology (P-1)** |
| **Thursday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-036b | **Physiology**Dr M Irfan SRHNSS-P-002 | **Anatomy(G)**Dr Imran.AHNSS-A-002b | **Group A** Anatomy Demo1a &B**Group B** Anatomy Tuto 43-44a**Group C** Anatomy Tuto 43-44a | **Anatomy(G)**Dr ZR.Alvi HNSS-A-002c | **PERLs**2-13Dr M Tariq K |
| **Friday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-037a | **Physiology**Dr Tehseen.IHNSS-P-003 | **Anatomy(G)**Dr Faisal.R HNSS-A-002d | **Community Medicine**Dr Ali HHNS-CM-001b | **Anatomy(G)**Dr Imran.AHNSS-A-002e | **Group A** Anatomy demo**Group B & C** Self directed learning |

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| **(Week 2) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-037b | **Physiology**Dr Raheela.AHNSS-P-004 | **Tea break** | **Group A** Ana Tuto-A-003 a & B**Group B** Ana Demo-A-3c & 4a**Group C** Phy SGD 05 a & b | **Anatomy (H)**Dr Faisal.RHNSS-A-044b | **Prayer & Lunch break** | **Practical/Skill Lab 2**Group A **Anatomy (P-2)**Group B **Physiology (P-2)**Group C **Skill lab - 1** |
| **Tuesday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-038a | **Anatomy(G)**Dr ZR.AlviHNSS-A-004b | **Group A** Ana Demo-A-3c & 4a**Group B** Phy SGD 05 a & b**Group C** Ana Tuto-A-003 a & B | **Anatomy (H)** Dr Faisal.RHNSS-A-045a | **Practical/Skill Lab 2**Group A **Physiology (P-2)**Group B **Skill lab - 1**Group C **Anatomy (P-2)** |
| **Wednesday** | **Anatomy (E&PND)** Dr G.AnsariHNSS-A-038b | **Pathology**Dr Naqeeb HNSS-Pa-001b | **Group A** Phy SGD 05 a & b**Group B** Ana Tuto-A-003 a & B**Group C** Ana Demo-A-3c & 4a | **Anatomy(G)**Dr Faisal.RHNSS-A-004c | **Practical/Skill Lab 2**Group A **Skill lab - 1**Group B **Anatomy (P-2)**Group C **Physiology (P-2)** |
| **Thursday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-039 | **Physiology**Dr Tehseen.IHNSS-P-006 | **Anatomy(G)**Dr Imran.A HNSS-A-004d | **Biochemistry**Dr Khalida.AHNSS-B-001c | **Anatomy(G)**Dr ZR.AlviHNSS-A-005a | **English 9-1**Miss Anum | **PERLs**2-14Dr M Tariq K |
| **Friday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-040a | **Physiology**Dr Raheela.AHNSS-P-007 | **Anatomy(G)**Dr Faisal.RHNSS-A-005b | **Pathology**Dr HakeemHNSS-Pa-001c | **Anatomy(G)**Dr Imran.AHNSS-A-005c | **Group B** Anatomy demo**Group A & C** Self directed learning |

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| **(Week 3) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-040b | **Physiology**Dr Sadia.JHNSS-P-008 | **Tea break** | **Group A** Ana Demo A 6a& b**Group B** Ana Tuto A-007 & 8 a**Group C** Patho PBL Pa-004a | **Anatomy (H)** Dr Faisal.RHNSS-A-045b | **Prayer & Lunch break** | **Practical 3**Group A **Anatomy (P-3)**Group B **Physiology (P-3)**Group C **Biochem (P-2)** |
| **Tuesday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-041a | **Physiology**Dr M Irfan SRHNSS-P-009 | **Group A** Ana Tuto A-007 & 8 a**Group B** Patho PBL Pa-004a**Group C** Ana Demo A 6a& b | **Anatomy(G)**Dr Imran.AHNSS-A-008b | **Practical 3**Group A **Physiology (P-3)**Group B **Biochem (P-2)**Group C **Anatomy (P-3)** |
| **Wednesday** | **Anatomy (E&PND)**Dr G.Ansari HNSS-A-041b | **Physiology**Dr Tehseen.IHNSS-P-010 | **Group A** Patho PBL Pa-004a**Group B** Ana Demo A 6a& b**Group C** Ana Tuto A-007 & 8 a | **Anatomy(G)**Dr ZR.AlviHNSS-A-08c | **Practical 3**Group A **Biochem (P-2)**Group B **Anatomy (P-3)**Group C **Physiology (P-3)** |
| **Thursday** | **Anatomy (E&PND)**Dr G.AnsariHNSS-A-042a | **Physiology**Dr Raheela.AHNSS-P-011 | **Anatomy(G)**Dr Faisal.RHNSS-A-009 | **Biochemistry**Dr Dost.MKHNSS-B-001d | **Anatomy(G)**Dr Imran.A HNSS-A-010 | **Clinical Skills Foundation 1**(Please refer to clinical skill manual for wards & groups distribution) |
| **Friday** | **Anatomy (E&PND)** Dr G.AnsariHNSS-A-042b | **Physiology**Dr Sadia.JHNSS-P-012 | **Anatomy(G)**Dr ZR.AlviHNSS-A-011a | **Pathology**Dr NaqeebHNSS-Pa-004c | **Community Medicine**Ali HussainHNSS-CM-001 | **Group C** Anatomy demo**Group A & B** Self directed learning |

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| **(Week 4) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Anatomy(G)**Dr Faisal.RHNSS-A-011b | **Physiology**Dr M Irfan SRHNSS-P-013 | **Tea break** | **Behavioral sciences**BhS-001Dr Mehwish A | **Physiology**Dr Tehseen.IHNSS-P-014a | **Anatomy (H)** Dr Imran.A HNSS-A-046 | **Prayer & Lunch break** | **Practical/Skill Lab 4**Group A **Anatomy (P-4)**Group B **Physiology (P-4)**Group C **Skill lab - 2** |
| **Tuesday** | **Anatomy(G)**Dr ZR.AlviHNSS-A-012 | **Physiology**Dr Raheela.AHNSS-P-014b | **Civics**FamilyDr A Majid | **Group A** Phy SGD P-15&16**Group B** Ana Demo A -13 & 14**Group C** Ana Tuto A-15 & 16 | **Practical/Skill Lab 4**Group A **Physiology (P-4)**Group B **Skill lab - 2**Group C **Anatomy (P-4)** |
| **Wednesday** | **Group A** Ana Demo A -13 & 14**Group B** Ana Tuto A-15 & 16**Group C** Phy SGD P-15&16 | **Community Medicine**Dr Ali hHNSS-CM-002 | **Physiology**Dr Tehseen.IHNSS-P-017 | **Biochemistry**Dr Shafqat.NHNSS-B-002 | **Practical/Skill Lab 4**Group A **Skill lab - 2**Group B **Anatomy (P-4)**Group C **Physiology (P-4)** |
| **Thursday** | **Group A** Ana Tuto A-15 & 16**Group B** Ana Demo A -13 & 14**Group C** Ana Demo A -13 & 14 | **Anatomy(G)**Dr Imran.AHNSS-A-017a | **Physiology**Dr Raheela.AHNSS-P-018 | **Aging**Dr A Yar MHNS-Ag-001 | **English 9-2** Miss Anum  | **Holy Quran**Bay-o-Tijarat-1Dr A Majid |
| **Friday** | **Anatomy(G)**Dr ZR.AlviHNSS-A-017b | **Physiology**Dr M Irfan SRHNSS-P-020 | **Physiology**Dr Sadia.JHNSS-P-019 | **Physiology**Dr Tehseen.IHNSS-P-021 | **Anatomy(G)**Dr Faisal.RHNSS-A-017c | **Group A** Anatomy Dissection**Group B & C** Self directed learning |

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| **(Week 5) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Group A** AnaDemoA-018&19**Group B** Patho PBL Pa 05 & 6a**Group C** Biochem SGD B-003 | **Tea break** | **Group A** Patho PBL Pa 05 & 6a**Group B** Biochem SGD B-003**Group C** AnaDemoA-018&19 | **Anatomy(G)**Dr Faisal.RHNSS-A-020 | **Prayer & Lunch break** | **Practical 5**Group A **Anatomy (P-5)**Group B **Physiology (P-5)**Group C **Biochemistry (P-3)** |
| **Tuesday** | **Anatomy(G)**Dr Imran.AHNSS-A-021 | **Physiology**Dr Raheela.AHNSS-P-022 | **Anatomy(G)**Dr ZR.AlviHNSS-A-022 | **Group A** Biochem SGD B-003**Group B** AnaDemoA-018&19**Group C** Patho PBL Pa 05 & 6a | **Practical 5**Group A **Physiology (P-5)**Group B **Biochemistry (P-3)**Group C **Anatomy (P-5)** |
| **Wednesday** | **Anatomy(G)**Dr Faisal.RHNSS-A-023 | **Physiology**Dr Sadia.JHNSS-P-023 | **Anatomy(G)**Dr Imran.AHNSS-A-024 | **Physiology**Dr M Irfan SRHNSS-P-024 | **Anatomy(G)**Dr ZR.Alvi HNSS-A-025 | **Practical 5**Group A **Biochemistry (P-3)**Group B **Anatomy (P-5)**Group C **Physiology (P-5)** |
| **Thursday** | **Anatomy(G)**Dr Faisal.RHNSS-A-026 | **Pharmacology**Dr Zameer AS | **Anatomy(G)**Dr Imran.AHNSS-A-027 | **Physiology**Dr Tehseen.IHNSS-P-025 | **Anatomy(G)**Dr ZR.AlviHNSS-A-028 | **Pak studies**Cultural distributionMr Jaffar | **Islamiat**Rights of women & childrenMiss Kanwal |
| **Friday** | **Anatomy(G)**Dr Faisal.RHNSS-A-029a | **Physiology**Dr Raheela.AHNSS-P-026 | **Anatomy(G)**Dr Imran.AHNSS-A-029b | **Aging**Dr A Yar MHNSS-Ag-002 | **Anatomy(G)**Dr ZR.AlviHNSS-A-030 | **Group B** Anatomy Dissection**Group A & C** Self directed learning |

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| **(Week 6) Block 5 , Module 9: Head & Neck, Special senses: / /2025-26 to / /2025-26** |
| **Days** | **8:00 am****9:00 am** | **9:00 am****10:00 am** | **10:00****10:20 am** | **10:20 am****11:20 am** | **11:20 am****12:20 pm** | **12:20 pm****01:20 pm** | **01:20****02:00 pm** | **02:00 pm - 4:00 pm** |
| **Monday** | **Anatomy(G)**Dr Faisal.RHNSS-A-031 | **Islamiat**Islamic scholarsMiss Kanwal | **Tea break** | **Anatomy (H)** Dr Imran.A HNSS-A-047 | **PERLs**2-15Dr M Tariq K | **Anatomy(G)**Dr ZR.AlviHNSS-A-032 | **Prayer & Lunch break** | **Practical/CSF 6**Group A **Anatomy (P-6)**Group B **Physiology (P-6)**Group C **CSF – 2** |
| **Tuesday** | **Anatomy(G)**Dr Faisal.RHNSS-A-033 | **Civics**CommunityDr A Majid | **Anatomy (H)**Dr Imran.A HNSS-A-048 | **Aging**Dr A Yar MHNS-Ag-003 | **Anatomy(G)**Dr ZR.AlviHNSS-A-034 | **Practical/CSF 6**Group A **Physiology (P-6)**Group B **CSF - 2**Group C **Anatomy (P-6)** |
| **Wednesday** | **Practical/CSF 6**Group A **CSF - 2**Group B **Anatomy (P-6)**Group C **Physiology (P-6)** | **Class Test (All Subjects)****(MCQs Only)** | **TBL**Group A **Ophthalmology** Group B **Surgery** Group C **Med/Neuro** |
| **Thursday** | **TBL**Group A **Surgery**Group B **Med/Neuro** Group C **Ophthalmology**  | **TBL**Group A **Med/Neuro** Group B **Ophthalmology** Group C **Surgery**  | **Holy Quran**Bay-o-Tijarat-2Dr A Majid | **PBL**Group A **Physiology** Group B **Ear Nose Throat** Group C **Pathology**  |
| **Friday** | **PBL**Group A **Ear Nose Throat**Group B **Pathology**Group C **Physiology** | **PBL**Group A **Pathology**Group B **Physiology** Group C **Ear Nose Throat** | **Pak studies**Provinces & resourcesMr Jaffar | **Group C** Anatomy Dissection**Group A & C** Self directed learning |

**SUBJECT WISE TIME ALLOCATION**

|  |
| --- |
| Block 5, Module 9: Head & Neck, Special senses (06 weeks) |
| Subject | **Hours theory** | **Hours****practical** | **SGD/TBL/Diss****PBL/CBL/Demo** | **Total hours** |
| Anatomy | 38( GA)+15 E&PND+ 08 Histology= 61 | 6 practicals=12 hours | 1 Diss = 2 hours6 Demo = 12 hours4 Tuto = 8 Hours | **95** |
| Physiology | 26 | 6 practicals=12 hours | 1 PBL=2 Hours2 SGD = 4 Hours | **44** |
| Biochemistry | 03 | 3 practicals =6 hours | 2 SGD = 4 Hours | **13** |
| Pharmacology | 01 | X | X | **1** |
| Pathology | 04 | X | 3 PBL=6 Hours | **10** |
| Community Medicine | 03 | X | X | **3** |
| Surgery | X | X | 1 TBL=2 Hours | **2** |
| Ear Nose Throat (E.N.T) | X | X | 1 PBL = 2 Hours | **2** |
| Medicine/Neurology | X | X | 1 TBL=2 Hours | **2** |
| Ophthalmology | X | X | 1 TBL=2 Hours | **2** |
| Aging | 03 | X | X | **3** |
| Behavioral Sciences | 01 | X | X | **1** |
| PERLs | 03 | X | X | **3** |
| Clinical skill Foundation (CSF) | X | 02= 4 hours | X | **4** |
| Skill lab | X | 02 = 4 hours | X | **4** |
| Holy Quran | 02 | X | X | **2** |
| Islamiat | 02 | X | X | **2** |
| Pakistan studies | 02 | X | X | **2** |
| Civics | 02 | X | X | **2** |
| English 1 | 02 | X | X | **2** |
| Self directed learning | 08 | X | X | **8** |
| Class test | 03 | X | X | **3** |
| Total | **126** | **38** | **48** | **210** |
| 7 hours/day = 35 hours/week × 6 = 210 hours |

**LEARNING OUTCOMES**

* Integrate anatomical & path-physiological aspects of Head & Neck, eye, ear, nose, tongue, vestibular system & neural pathways, receptors involved in their function & clinical aspects.
* Develop ability to identify and diagnose common pathologies such as cataracts, glaucoma, age-related degeneration, hearing loss, impacted wax, otitis media and olfactory disorders.
* Demonstrate the clinical examination (simulation) skills necessary for the assessment of special senses, such as ophthalmoscopy, otoscopy, rhinoscopy, and vestibular testing.
* Differentiate the differential diagnosis and options available for special senses conditions, including medical, surgical, and rehabilitative approaches.
* Illustrate awareness of the impact on overall health and well-being, the importance of preventing and early detection of related disorders.
* Develop the ability to communicate effectively with patients and their families, including
* Lahore medical & Dental college 2nd year MBBS Head & Neck, special senses Module
* explaining diagnosis and treatment options, and providing emotional support.
* Practice the attitude to work in a multidisciplinary team, collaborating with other professionals to provide comprehensive care for patients.
* Equip themselves with the ability to appreciate the significance of lifelong learning and professional development to keep up with latest advances in the clinical field.

**AIMS**

The Head and Neck and Special Senses Module aim to:

1. **Anatomy and Physiology:** Understand structure & function of head, neck & sensory organs.
2. **Pathology:** Recognize common diseases affecting these regions & their underlying mechanisms.
3. **Clinical Skills:** Develop skills in examining the head, neck, and special senses, and using diagnostic tools.
4. **Diagnosis and Management:** Interpret clinical findings and understand treatment principles.
5. **Integration:** Apply interdisciplinary knowledge for accurate diagnosis and management.
6. **Communication and Ethics:** Communicate effectively with patients and understand ethical considerations.

**MODULE RATIONAL**

1. Foundation for Clinical Practice: Provide essential knowledge of the head, neck, and sensory organs, which are critical for diagnosing and managing common medical conditions.

2. Complex Anatomy and Function: Help students understand the intricate anatomy and physiology, forming the basis for surgical and clinical procedures.

3. Early Detection of Disorders: Equip students to recognize early signs of diseases like head and neck cancers, sensory impairments, and neurological disorders.

4. Interdisciplinary Relevance: Integrate knowledge from ENT, ophthalmology, neurology, and pathology to promote holistic patient care.

5. Skill Development: Enhance clinical examination skills, use of diagnostic tools, and interpretation of findings related to sensory functions.

6. Patient Communication and Ethics: Prepare students to handle conditions affecting communication, appearance, and quality of life with empathy and ethical understanding.

**LEARNING OBJECTIVES**

| GROSS ANATOMY |
| --- |
| CODE | SPECIFIC LEARNING OUTCOMES | DISCIPLINE | TOPIC |
| HNSS-A 001 | Define the boundaries and openings of orbital cavity. List orbital contents and structures traversing these openings. | Anatomy | Vision |
| In a tabulated manner, list the extraocular and intraocular muscles of eyeball giving their nerve supply and actions. |
| List and define the movements of eyeball with |
| special reference to orbital and visual axis |
| Describe the functional modalities, course, distribution, brnaches of oculomotor, trochlear and abducent nerve. Describe the location, roots and distribution of ciliary ganglion. |
| Describe the course and distribution of optic nerve in reference to visual pathway. Give the effects of its lesions |
| Give the clinical correlates of nerves supplying the |
| eyeball and its muscles. Give anatomical justification for Horner‟s syndrome |
| Describe the course and branches of ophthalmic artery mentioning its origin and termination. |
| Describe the structure of eyelids, conjunctiva and tarsal glands with their neurovascular supply |
|  | List the parts of Lacrimal apparatus giving their location and anatomical features. Describe the nerve supply of lacrimal gland |  Anatomy |

|  | Describe the location, roots and distribution of pterygopalatine ganglia. | Anatomy | Vision |
| --- | --- | --- | --- |
| Give the anatomical structure of eyeball emphasizing on its three coats and their neurovascular supply | Anatomy |
| HNSS-A002 | Describe the boundaries of nasal cavity: nasal septum, lateral wall of nose, roof and floor. Give their anatomical features and neurovascular supply. | Anatomy | Olfaction |
| Describe anatomical features & neurovascular supply of external nose | Anatomy |
| List the paranasal sinuses giving their locations, openings, neurovascular supply and clinical significance. | HumanAnatomy |
| Describe the course and distribution of olfactory nerve in reference to olfactory pathway. Give the effects of its lesions. | HumanAnatomy |
| Describe the anatomical features and neurovascular supply of external ear | HumanAnatomy |
| HNSS-A003 | Describe the boundaries, contents, neurovascular supply and communications of middle ear cavity. | HumanAnatomy | Hearing |
| Describe the parts, anatomical features and neurovascular supply of internal ear. | HumanAnatomy |
| Describe the course and distribution of vestibulocochlear neve mentioning the effects of its lesion.Describe auditory pathway. | HumanAnatomy |

| HNSS-A004 | Describe the anatomical features of tongue with emphasis on its mucosa, attachments, musculature, vasculature and lymphatic drainage. | HumanAnatomy | Taste |
| --- | --- | --- | --- |
| Describe the nerve supply of tongue (general sensory, special sensory and motor) with reference to their lesions and embryological basis.List taste buds mentioning their structure, location and nerve supply.Describe the taste pathway. | HumanAnatomy |
| Discuss lesions of motor and sensory nerve supplying the tongue. Discuss the anatomical correlates of lingual carcinoma in reference to lymphatic drainage of tongue | HumanAnatomy |
| HNSS-A005 | Describe the features of Norma Frontalis, Norma Verticalis, Norma Parietalis, Norma occipitalis and Norma Basalis | HumanAnatomy | Skull |
| Describe the features of Norma lateralis: temporal, infratemporal & pterygopalatine fossae giving their boundaries, contents and communications. | HumanAnatomy |
| Discuss the sutures and fontanelles of skull, their age changes and clinical significance. | HumanAnatomy |
|  | List the layers of scalp and describe the anatomical features with neurovascular supply and lymphatic drainage of scalp. | HumanAnatomy |  |
| HNSS-A006 | Give anatomical justification of spread of scalp infections, profuse bleeding in superficial scalp lacerations, gaping of scalp wounds and black eye. | HumanAnatomy | Scalp |
| HNSS-A007 | Enlist in tabulated manner the muscles of facial expression and mastication, giving their nerve supply and actions.Define modiolus. | HumanAnatomy | Muscles of facial expression |
| HNSS-A008 | Describe the functional modalities, course, branches, and distribution o0f cranial nerves innervating the face (sensory & motor) trigeminal and facial nerves | HumanAnatomy | Neurovascular supply of face |
| Describe the vascular supply and lymphatic drainage of face. | Anatomy |
| Draw a diagram to illustrate cutaneous innervation of face. | Anatomy |
| Discuss anastomoses of facial artery with contralateral vessels and branches of internal carotid artery with theisignificance. | Anatomy |
| HNSSA009 | Describe the danger area of face with it its clinical significance. Define the routes of spread of infection from face and scalp to intracranially. | HumanAnatomy | Danger area |
|  | Describe the bony features and muscle attachment of mandible. | Anatomy |  |
| HNSS-A010 | Classify temporomandibular joint mentioning its ligaments, relations, nerve supply and movements (with their mechanics and muscles producing them). | HumanAnatomy | Mandible |
| HNSS-A011 | Describe anatomical features, relations and neurovascular supply of parotid gland and its duct, mentioning the structures entering and exiting the gland | HumanAnatomy | Parotid gland |
| Discuss the clinical correlates of parotid gland: parotiditis, Mumps, Frey‟s syndrome, parotid duct stones and parotid tumor surgery with its complications | HumanAnatomy |
| HNSS-A012 | Describe the parts and boundaries of oral cavity and give its relation to the Waldeyers‟ ring. | HumanAnatomy | Waldeyers‟ ring |
| HNSS-A013 | Describe the anatomical features of hard and soft palate with their neurovascular supply. | HumanAnatomy | Hard and soft palate |
| HNSS-A014 | Describe anatomical features, relations and neurovascular supply of submandibular and sublingual glands with their ducts. | HumanAnatomy | Sublingualglands |
| HNSS-A015 | Describe the location, roots and distribution of otic and submandibular ganglia. | HumanAnatomy | ganglia |
| HNSS-A016 | Describe the anatomical features of Hyoid bone and give attachments on the bone. | HumanAnatomy | Hyoid bone |
|  | Enumerate the types of cervical vertebrae and list the differences between them. | HumanAnatomy |  |
| HNSS-A017 | Describe the anatomical features and attachments on cervical vertebrae | Anatomy | Cervicalvertebrae |
| Classify the joints of cervical vertebrae mentioning their ligaments, movements with muscle producing them and neurovascular supply. | HumanAnatomy |
| HNSS-A018 | List the prevertebral muscles of cervical region. Describe their attachments, actions and innervation. | HumanAnatomy | Prevertebrmuscles |
| HNSS-A019 | Enumerate parts of deep cervical fascia with their respective extents, attachments, relations and contents. | HumanAnatomy | cervical fascia |
| HNSS-A020 | Describe the facial spaces in head and neck mentioning their communications and their relation to spread of infection. | HumanAnatomy | Facialspaces |
| HNSS-A021 | Describe the attachments, actions and nerve supply of infrahyoid and suprahyoid muscles of neck. | HumanAnatomy | muscles |
| HNSS-A022 | Describe the location, formation and distribution of ansa cervicalis. | Anatomy | Ansa cervi |
| HNSS-A023 | Describe the attachments, actions and nerve supply of sternocleidomastoid and trapezius. | HumanAnatomy | trapezius |
| HNSS-A024 | Describe the boundaries and contents of suboccipital, anterior and posterior triangles of neck. | HumanAnatomy | Triangles  |
| HNSS-A025 | Describe the cervical part of trachea and esophagus with their neurovascular supply. | HumanAnatomy | Trachea esophagus |
| HNSS-A026 | Describe the location, anatomical features and vascular supply of thyroid and parathyroid glands. List the variations in location of parathyroid glands. | HumanAnatomy | Thyroid,Parathyroiglands |
| HNSS-A027 | Describe the carotid arteries mentioning their origin, course, branches, distribution and termination. | HumanAnatomy | Carotid arteries |
| HNSS-A28 | Describe carotid body and carotid sinus and give their clinical significance. | HumanAnatomy | Carotid body |
| HNSS-A029 | Give the venous drainage of Head and neck region. Describe the formation, tributaries and area of drainage of vessels constituting jugular venous system. | HumanAnatomy | Venous supply |
| HNSS-A030 | Name the superficial and deep cervical lymph nodes and give their location and drainage areas | HumanAnatomy | Lymphatic |
| HNSS-A031 | Describe the location, formation, branches, distribution and lesions of cervical plexus | HumanAnatomy | Cervical plexus |
| HNSS-A032 | Name the parts of pharynx giving their extent, anatomical features, structure and neurovascular supply. | HumanAnatomy | Pharynx |
| Name the pharyngeal constrictor muscles defining their attachments, innervation and structure traversing the gaps between adjacent muscles. | HumanAnatomy |
| HNSS-A033 | Name the parts of larynx giving their extent, anatomical features, musculoskeletal framework and neurovascular supply. | HumanAnatomy | Larynx |
| HNSS-A034 | Discuss the location, anatomical features, relations and vascular supply of tonsils: nasopharyngeal, palatine and lingual. | HumanAnatomy | Tonsils |
| CODE | EMBRYOLOGY & POST-NATAL DEVELOPMENT | DISCIPLINE | TOPIC |
| HNSS-A035 | List the components of pharyngeal apparatus. Describe the development of pharyngeal arches, grooves, pouches and membrane and give derivatives and fate of each of them. | Embryology | Pharyngeal |
| HNSS-A036 | Describe the development and histogenesis of auditory tube, tympanic cavity, tonsils, thymus and parathyroid | Embryology | Auditory tube,  |
| HNSS-A037 | Discuss the embryological basis of congenital anomalies related to the development of pharyngeal arches, pharyngeal clefts and pharyngeal pouches: cervical sinus/fistula/cyst, 1st arch syndrome, DiGeorge syndrome, congenital malformations of thymus and parathyroid glands | Embryology | Congenitalanomalies |
| HNSS-A038 | Describe the development of tongue and thyroid gland. | Embryology | Tongue  |

|  | List and provide embryological basis of congenital anomalies of tongue and thyroid gland. | Embryology |  |
| --- | --- | --- | --- |
| HNSS-A039 | Describe the development of face and nasolacrimal duct and their respective congenital anomalies. | Embryology | Face andnasolacrimal |
| HNSS-A040 | Describe the development of nasal cavity and paranasal sinuses. Give the associated congenital anomalies. | Embryology | Nose |
| HNSS-A041 | Describe the development of lip and palate and their associated congenital malformations. | Embryology | Lips and palate |
| Explain the types and embryologic basis of cleft lip and cleft palate. | Embryology |
| HNSS-A042 | Describe the development of optical vesicle and retina | Embryology | Eye & ear |
| Describe the development of cornea, sclera, choroid, iris, ciliary body and lens and relate it to their respective congenital anomalies. | Embryology |
| Describe the development of internal ear and give the embryological basis of associated congenital anomalies. | Embryology |
| CODE | MICROSCOPIC ANATOMY (HISTOLOGY & PATHOLOGY) | DISCIPLINE | TOPIC |
| HNSS-A043 | Describe the light and electron microscopic structure of tongue mentioning the histological structure of lingual papillae and taste buds. | Histology | Tongue |
| HNSS-A044 | Describe the histological structure of parotid, submandibular and sublingual glands. | Histology | Glands |
| Compare and contrast the histological structures of parotid, submandibular and sublingual glands. | Histology |
| HNSS-A045 | Differentiate between serous and mucous acini. Describe the structure and location of serous demilunes.Describe the serous and mucous acini and give histological differences between the two. | Histology | Head & Neck |
| HNSS-A046 | Describe the histological structure of thyroid gland and parathyroid gland. | Histology | glands |
| HNSS-A047 | Describe the histological structure of layers of eyeball, eyelid and retina. | Histology | Eye |
| Describe the light and electron microscopic structure of cornea. | Histology |
| HNSS-A048 | Describe the histological and ultramicroscopic structure of internal ear with special reference to Organ of Corti. | Histology | Ear |
| **PRACTICAL** |
| CODE | HISTOLOGY |
| SPECIFIC LEARNING OBJECTIVES | DISCIPLINE | TOPIC |

| HNSS-A049 | Identify, draw and label diagrams to show histological structure of tongue, lingual papillae and taste buds. | Histology | tongue |
| --- | --- | --- | --- |
| HNSS-A050 | Identify, draw and label a diagram to show histological structure of parotid, submandibular and sublingual glands. | Histology | Glands |
| HNSS-A051 | Draw and label diagrams to show histological structure of serous demilunes, serous and mucous acini. | Histology | Head & Neck |
| HNSS-A052 | Draw and label a diagram to show histological structure of thyroid and parathyroid gland. | Histology | Thyroid,Parathyroid |
| HNSS-A053 | Draw and label diagrams to show histological structure of eyelid and cornea. | Histology | Eye |
| Draw and label a diagram to show histological structure of retina. List its histological layers and their respective components | Histology |
| HNSS-A054 | Draw and label a diagram to show histological structure of internal ear. | Histology | Ear |
| CODE | MEDICAL PHYSIOLOGY SPECIFIC LEARNING OBJECTIVES | DISCIPLINE | TOPIC |
|  | Define and describe the visual acuity | Physiology |  |
| HNSS-P001 | Define Emmetropia | Physiology | Visual acquity |
| Enlist the errors of refraction | Physiology |
| Explain the cause, features, physiological basis, and correction of Hyperopia | Physiology |
| Explain the cause, features, physiological basis, and correction of myopia | Physiology |
| Explain the cause, features, physiological basis, and correction of astigmatism | Physiology |
| Describe the pathophysiology and treatment of cataract | Integrate with Ophthalmology |
| HNSS-P002 | Interpret common treatment modalities for Refractive errors | Physiology | RefractiveErrors |
| HNSS-P003 | Describe the mechanism of formation and outflow of aqueous humor | Physiology | Fluid systems of the Eye |
| Describe normal value of intraocular pressure and its regulation | Physiology |
| Describe the method for measuring the intraocular pressure | Integrate with Ophthalmology |
| Describe the causes and features and pathophysiology of glaucoma | Physiology |
| HNSS-P004 | Discuss the clinical features of Open Angle and Angle Closure Glaucoma | Physiology | Glaucoma |
| HNSS-P005 | Describe the physiological anatomy and function of structural elements of retina | Physiology | Retina |
| Enlist different layers of retina | Physiology |
|  | Explain the significance of melanin pigment in retina | Physiology |  |
| Describe macula and foveal region of retina and their significance | Physiology |
| Describe the structure of rods and cones | Physiology |
| Comment on the location of optic disc and its significance | Physiology |
| Describe the cause, features, and treatment of retinal detachment | Physiology |
| Enlist the current investigations for Retinal Diseases | Integrate with Ophthalmology |
| HNSS-P006 | Describe the rhodopsin-retinal visual cycle | Physiology | Photochemistry of vision |
| Describe the mechanism of excitation of rods/ rods receptor potential | Physiology |
| Describe the causes and treatment of night blindness | Physiology |
| HNSS-P007 | Define and describe different mechanisms of light adaptation | Physiology | Adaptation |
| Define and describe different mechanisms of dark adaptation | Physiology |
| Enumerate the diseases leading to Night Blindness and retinal detachment | Integrate with Ophthalmology |
| HNSS-P008 | Explain the tri color mechanism of color determination | Physiology | Color vision |
| Define term protanopes, deuteranopes, tritanopes | Physiology |
|  | Enlist the types of color blindness and their causes | Physiology |  |
| Enlist clinical features of Color vision deficiencies | Integrate withOphthalmology |
| HNSS-P009 | Trace the visual pathway | Physiology | Visual Pathways |
| Enlist and describe the abnormalities of visual pathway & visual field |
| Explain the effect of removal of primary visual cortex |
| HNSS-P010 | Define the physiological blind spot and describe its location | Physiology | Field of vision |
| Define scotoma/ pathological blind spot and enlist causes | Physiology |
| HNSS-P011 | Illustrate the abnormalities of field of vision | Integrate withOphthalmology | Visual fields |
| HNSS-P012 | Describe the muscular and neural control of eye movements | Physiology | Eye movements |
| HNSS-P013 | Define and enlist the types of Strabismus | Integrate withOphthalmology | Strabismus |
| HNSS-P014 | Explain the mechanism of accommodation | Physiology | Accommodation |
| Enlist the components of near response in accommodation | Physiology |
| Describe the neural pathway for accommodation reflex | Physiology |
| Describe the regulation of accommodation | Physiology |
| Enlist the clinical features of Presbyopia | Integrate with Ophthalmo |
| HNSS-P015 | Trace the neural pathway for pupillary light reflex | Physiology | Pupillary lightreflex |
| Explain the pupillary light reflexes or reactions in CNS diseases | Physiology |
| Describe the cause and features of Horner syndrome | Physiology |
| Illustrate the differential diagnosis of Anisocoria | Integrate with Ophthalmolo |
| HNSS-P016 | Describe the physiological anatomy of outer and middle ear | Physiology | Sense of hearing |
| Enlist the functions of middle ear | Physiology |
| Discuss clinical features and treatment of impacted wax | Integrate ENT |
| Define causes and clinical features of Otomycosis | Integrate ENT |
| Describe the mechanism of impedance matching and its significance | Physiology |
| Describe the mechanism of attenuation reflex and its significance | Physiology |
| HNSS-P017 | Describe the physiological anatomy of inner ear | Physiology | Inner Ear/ Cochlea |
| Describe the mechanism of transmission of sound waves in cochlea | Physiology |
| HNSS-P018 | Describe the physiological anatomy and function of organ of Corti | Physiology | Organ of Corti |
| Describe the mechanism of generation of endo cochlear potential and its significance | Physiology |
| HNSS-P019 | Write down the normal range of frequency for hearing | Physiology | Determination of sound frequency |
| Describe the role of place principle in determination of sound frequency | Physiology |
| Describe the role of volleys principle in determination of sound frequency | Physiology |
| HNSS-P020 | Trace the normal auditory nervous pathway | Physiology | Auditory pathway |
| Describe the types of deafness | Physiology |
| Discuss the clinical features and investigations of Congenital and Acquired hearing loss | Integrate with Otorhinolaryng ology |
| HNSS-P021 | Enlist the primary taste sensations | Physiology | Sense of Taste |
| Define and explain the term taste blindness | Physiology |
| Describe the physiological anatomy and location of taste buds | Physiology |
| HNSS-P022 | Describe mechanism of stimulation of taste buds/ receptor potential | Physiology | Excitation of Taste buds |
| Trace the pathway of taste sensation | Physiology |
| HNSS-P023 | Define and explain the terms: Ageusia, Hypergeusia, Hypogeusia and dysgeusia | Physiology | Abnormalities of Taste sensations |
| Describe the senile changes in taste buds |  |
| HNSS-P024 | Explain the terms: Taste preference and taste aversion | Physiology | Taste preference and aversion |
| HNSS-P025 | Enlist the primary sensations of smell. Describe the physiological anatomy and location of olfactory membrane | Physiology | Sense of smell |
| HNSS-P026 | Enlist the causes and clinical features of Rhinitis | Integrate ENT | Rhinitis |
| Differentiate between viral and allergic Rhinitis | Integrate ENT |
| CODE | MEDICAL BIOCHEMISTRY LEARNING OBJECTIVES | DISCIPLINE | TOPIC |
| HNSS-B001 | Discuss the metabolism of mono and Disaccharides | Biochemistry | Metabolism ofmono anddisaccharides |
| Interpret Hereditary fructose intolerance, fructosuria, galactosemia and lactose intolerance, in relevance to the clinical findings | Biochemistry |
| Explain the Polyol pathway and effect of hyperglycemia on sorbitol pathway | Biochemistry |
| Discuss the sources, metabolically active forms, biochemical role and clinical correlation of Vit-A with vision | Biochemistry |
| HNSS-B002 | Discuss biochemical basis and clinical aspects of Riboflavin | Biochemistry | Vitamins |
| HNSS-B003 | Discuss the sources, absorption, regulation, biomedical functions and clinical aspect of Zn, Fl | Biochemistry | Eye |

| **PRACTICAL** |
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| CODE | SPECIFIC LEARNING OBJECTIVES | DISCIPLINE | TOPIC |
| HNSS-P027 | Examine the Second, Third, Fourth & Sixth Cranial Nerves | Physiology | Cranial Nerves |
| HNSS-P028 | Examination of Light Reflex | Light reflex |
| HNSS-P029 | Determine the Visual Acuity for Far and Near vision | vision |
| HNSS-P030 | Perform Ophthalmoscopy | ophthalmoscopy |
| HNSS-P031 | Examine Field of Vision and interpretation of visual field plotted | Physiology | Visual field |
| HNSS-P032 | Examine Color Vision | Color vision |
| HNSS-P033 | Perform Tuning fork test and audiometry, interpret the report | Ear |
| HNSS-B004 | Perform estimation of uric acid level in blood | Biochemistry | Uric acid level in blood |
| HNSS-B005 | Perform HbA1C by chromatographic method | HbA1C |
| HNSS-B006 | Detect abnormal constituents in urine by chemical methods | Abnormalconstituents in urine |
| HNSS-Pa 01 | Enlist the common causative agents of Eye, EarInfection | Pathology(Microbiology | Eye/Earinfections |
| Discuss the pathogenesis and clinical features of common pathogens | Pathology(Microbiology |
| HNSS-B004 | Correlate proto-oncogene and oncogene concept with relevance of tumors | Biochemistry | Oncogenes |
| HNSS-B005 | Discuss tumor markers and their significance | Tumor markers |
| HNSS-B006 | Discuss the concept of xenobiotics | Genetics |
| Explain and interpret pedigree of multifactorial mitochondrial disorder i.e. Libers hereditary optic europathy |
| HNSS-B007 | Explain the role of antioxidants (selenium (Se), Vit E & C, Glutathione) in preventing oxidative stress | Biochemistry | Anti-oxidants |
| CODE | COMMUNITY MEDICINE / BEHAVIORAL SCIENCES | DISCIPLINE | TOPICS |
| HNSS-CM001 | Identify factors leading to noise pollution | CM/ENT | Hearing loss |
| HNSS-CM 002 | Describe the common causes of blindness in community | Com.Med | Blindness |
| Describe risk factors and preventive strategies for blindness at community level | Behavioral |

| HNSS-BhS 001 | At end of module the students will learn the psychosocial aspects of pain which will help in understanding the complex and multidimensional nature of pain. | Sciences | Pain |
| --- | --- | --- | --- |
| CODE | AGING SPECIFIC LEARNING OBJECTIVES | DISCIPLINE | TOPIC |
| HNSS-Ag 001 | Identify the role of oxidative radicals and the process of lipid peroxidation that leads to aging |  | Biochemistry Lipid oxidation |
| HNSS-Ag 002 | Familiarize with the age-related hearing loss | ENT | Deafness |
| HNSS-Ag 003 | Discuss the age changes of mandible | Anatomy | Head & Neck |

**OPERATIONAL DEFINITIONS**

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| **Large group interactive session (LGIS)** |
| Lecture format is the most widely used approach to teaching especially in a large class size with average attention span of 20-30 mins. Interactive lecturing involves a two-way interaction between the presenter and the participants. Interactive methods like brain storming buzz group, simulation, role play, and clinical cases can be used.**Significance of its usage**Relaxed environment, diverse opinions, Increase attention & motivation. Independence & group skills. Cost effective. Suitable for taking advantage of available  |
| **Team Based learning** |
| TBL is a uniquely powerful form of small group learning. It provides a complete coherent framework for building a flipped course experience. There are four essential elements of TBL which include:Teams must be properly formed and managed (5-7 students) Getting students readyApplying course concepts Making students accountable.**Significance of its usage**Students are more engaged. Increased excitement in TBL classroom Teams outperforms best members. Students perform better in final and standardized exams. |
| **Problem Based Learning (PBL)** |
| It is an instructional student-centered approach in which students work in small groups on a health problem, identifying their own educational needs and being responsible for the acquisition of the knowledge required to understand the scenario. **Significance of its usage**Teamwork, Critical evaluation of literature, Self-directed learning and use of resources Presentation skills Leadership |
| **Case Based Learning (CBL)** |
| It is an inquiry structured learning experience utilizing live or simulated patient cases to solve, or examine a clinical problem, with the guidance of a teacher and stated learning objectives.**Significance of its usage**Induce a deeper level of learning by inculcating critical thinking skills. Flexibility on use of caseStudents acquire insightful information. Stay abreast with novel advancements in healthcare. |
| **Tutorial** |
| Tutorial is a class or short series of classes, in which one or more instructors provides intensive instruction on some subject to a small group. Its purpose is to explore point of view and guide towards directed, reflective learning skills.**Significance of its usage**Develop and assess the extent of background knowledge of students, which enables them to properly understand concepts which may not have been understood in lectures.Develop problem-solving skills. Develop practice of self-learning. Reduced time to understand the topic. |
| **Skill lab** |
| It refers to specifically equipped practice rooms functioning as training facilities offering hands on training for the practice of clinical skills within non-threatening environment prior to their real-life application This applies to both basic clinical skills as well as complex surgical skills.**Significance of its usage**Controlled, anxiety-free, and risk-free learning environment to students. A platform for repeated practice for mastery in relevant clinical skills Increase the preparedness of student learners before transitioning to the real hospital setting.Build strong communication skills.Enable learners to make critical decisions. |
| **Lab practical** |
| Lab practical involve things like identifying a structure, a type of stain through a microscope, a problem with a preparation, reading biochemical test results and answering safety questions. These simulations allow students to attempt the experiments in the laboratory in a risk-free way that provides the opportunity to make mistakes and learn how to correct them using the immediate feedback generated. **Significance of its usage**Enhance mastery of subject matter. Develop scientific reasoning. Develop practical skills. Develop teamwork abilities. |
| **Demonstration** |
| The demonstration method in teaching can be defined as giving a demo or performing a specific activity or concept. It is a teaching-learning process carried out in a systematic manner.**Significance of its usage**Promotes learning and correlates theory with practice. Sharpens the observation skills.Sustain interests in learning environment. Helps teacher to evaluate students response |
| **Reflective writing** |
| It is a metacognitive process that occurs before, during and after the situation with the purpose of developing greater understanding of both the self and situation so that future encounters with the situation are informed from previous encounters.Significance of its usage Questioning attitude and new perspectives. Areas for change and improvement. Respond effectively to new challenges. Critical thinking and coping skills |
| **Bedside teaching** |
| Teaching and learning that occurs with actual patient as the focus. It occurs in wards, emergency departments, operating rooms, and high dependency units.Significance of its usage Stimulus of clinical contact Psychomotor skills Communication skills Language skills Interpersonal skills Professional attitudes and empathy Role modeling |
| **Simulation** |
| Person, device or set of conditions, which attempts to present education and evaluation of problems authentically. The student or trainee is required to respond to the problems as she/he would under natural circumstances.Significance of its usage Safety for patients Liberty to make mistakes. Manageable/variable complexity of tasks Opportunity to develop self-efficacy before real patient encounter. Repeatability of tasks Learning at different pace is permissible |
| **Clinical case based conference** |
| Clinical Case based conferences allow clinicians and medical students to present difficult case material and include discussions of diagnostic, clinical formulation, and/or treatment issues.Significance of its usage Provides detailed (rich qualitative) information. Provides insight for further research. Permitting investigation of otherwise impractical (or unethical) situations. |
| **Ward rounds** |
| It is a composite clinical practice to review inpatients’ management and progress, to make decisions about further investigations, treatment options and discharge from hospital. It is an opportunity for clinicians, students, and patients to participate in education and training at bedside.Significance of its usage Patient management skills History taking Physical examination Time management skills Communication skills |
| **Case presentations** |
| It is a teaching method which provides descriptive information about a clinical patient scenario and to share this educational experience with the general medical and scientific community. It prepares students for clinical practice, using authentic clinical cases by linking theory to practice with the help of inquiry-based learning methods.Significance of its usage Cultivate the capacity for critical analysis. Judgement and Decision making Facilitate creative problem solving. Allow students to develop realistic solutions to complex problems |

**ASSESSMENT POLICY**

1. A student must get pass marks in every discipline (i.e. obtain minimum 50%) in the aggregate theory marks. He/ She must also get minimum of 50% in the aggregate of the practical exams in order to pass. A student must get an aggregate of 50% marks in both theory and practical in order to be declared as pass or fail in that discipline.
2. **Attendance**
3. As per RYK Medical College, University of health sciences and Pakistan Medical & Dental Council guide lines, students are instructed to attend all the lectures, small group discussions, labs, clinical ward attachments and all other instructional activities.
4. **80% attendance is mandatory to sit in End of module examination and Annual examination. No student will be allowed to appear in examination, if the attendance is short.**

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| **Block 4 – Table of Specifications** |
| **Theme** | **Subject** | **Written Exam** | **Oral/Practical/Clinical Exam** |
| **MCQ****(1 Mark each)** | **SEQ****(5 Mark each)** | **Total** **Marks** | **OSPE****(8 marks each observed)** | **OSCE****(8 marks each observed** | **OSVE****(16 marks each observed)** | **Marks** |
| **Normal structure** | Anatomy applied/clinical | 23 | 03 | 38 | 03 | - | 01 | 40 |
| **Normal function** | Physiology applied/clinical | 16 | 02 | 26 | 02 | - | 01 | 32 |
| Biochemistry applied/clinical | 20 | 02 | 30 | 02 | - | 01 | 32 |
| **Disease burden & prevention** | Community medicine & public health | 07 | - | 07 | - | - | - | - |
| Behavioral sciences | 06 | - | 06 | - | - | - | - |
| **Pathophysiology & pharmacotherapeutic** | Pathology  | 09 | - | 09 | - | - | - | - |
| Pharmacology | 04 | - | 04 | - | - | - | - |
| **CFRC** | CF-2-1 | - | - | - | - | 01 | - | 08 |
| **PERLs** | PERL-2-1 | - | - | - | - | 01 | - | 08 |
| **Total** |  | **85** | **7×5=35** | **120** | **07 stations ×08=56** | **02 stations×8=16** | **03 stations ×16=48** | **120** |

**OSPE/OSCE/OSVE assessment scheme**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Station # 5OSPEObservedAnatomy | → | Station # 6Rest Station | → | Station # 7OSCEObservedPERLs | → | Station # 8StructuredOSVEBiochemistry |
| ↑ | Head and neck, special senses OSPE/OSCE/OSVE Scheme Map | ↓ |
| Station # 4StructuredOSVEAnatomy |

|  |  |  |
| --- | --- | --- |
| Subject | Total Stations  | Station # |
| Anatomy OSPE Stations | 4 | 1-5-10-11 |
| Anatomy OSVE Station | 1 | 4 |
| Physiology OSPE stations | 2 | 2-9 |
| Physiology OSVE station | 1 | 13 |
| Biochemistry OSPE stations | 1 | 3 |
| Biochemistry OSVE station | 1 | 8 |
| C-FRC OSCE station | 1 | 12 |
| PERLS OSCE station | 1 | 7 |
| Rest stations | 2 | 6-14 |
| Total stations | 14 |  |

 | Station # 9OSPEObservedPhysiology |
| ↑ | ↓ |
| Station # 3OSPEObservedBiochemistry | Station # 10OSPEObservedAnatomy |
| ↑ | ↓ |
| Station # 2OSPEObservedPhysiology | Station # 11OSPEObservedAnatomy |
| ↑ | ↓ |
| Station # 1 OSPEObservedAnatomy | START&END | Station # 14Rest Station | ← | Station # 13StructuredOSVEPhysiology | ← | Station # 12OSCEObservedC-FRC |

**ASSESSMENT TOOLS & SAMPLE QUESTIONS**

**ASSESSMENT TOOLS:**

**Single best type** also known as MCQs (Multiple Choice Questions)

**MCQ:**

 A BCQ has a statement or clinical scenario of five options (likely answers).

**Correct answer carries one mark, and incorrect ‘zero mark’. There is NO negative marking.**

Students mark their responses on specified computer-based sheet designed for RYKMC.

**Sample BCQs:**

A 25 year old male patient presented with complains of productive cough, breathlessness and wheezing. He has been diagnosed with chronic obstructive pulmonary disease.

The most common risk factor for the disease is:

a) Air pollution

b) Coal mining

c) Glass industries

d) Pharmaceutical industries

 e) Tobacco smoke

**OSPE, OSVE, OSCE & Practical:** Please consult the proposed plan

* It may comprise between 12- 25 stations.
* The content may assess application of knowledge, or practical skills.
* Student will complete task in defined time at one given station.
* All the students are assessed on the same content by the same examiner in the same allocated time.
* A structured examination will have observed, unobserved, interactive and rest stations.

**Observed and interactive stations:**

They will be assessed by internal or external examiners through the task or viva.

**Unobserved station (Static):**

It will be static station in which students will have to answer the questions related to the given pictures, models or specimens on the provided response sheet.

**Rest station**: It is a station where no task is given, and during this time student can organize his/her thoughts.

**BOOKS AND RECOMMENDED READINGS**

**Anatomy**

* Gray’s anatomy.
* Langman’s medical embryology.
* Snell’s clinical anatomy.
* Snell’s clinical neuroanatomy. Walter kluwer.
* Laiq H.S Medical histology. Paramount books.
* Laiq H.S general anatomy. Paramount books.
* Wheater’s functional histology.

**Physiology**

* Guyton AC and Hall text book of medical physiology, W,B sunders & co.
* Essentials of medical physiology by Mushtaq Ahmad.

Ganong Physiology.

**Biochemistry**

* Harper’s biochemistry by Robert k murray, daryl k, granner McGraw-hill.
* Lippincott’s illustrated reviews biochemistry Champe, P.C & Harvey.
* ABC of clinical genetics by H.M Kingston.

**Pathology**

* Pathologic basis of disease by Vinay kumar, abul K, Abbas WB saunders.
* Pocket companion to pathologic basis of diseases,Richard Mitchall, vinay.
* General pathology by walter. Churchil livingstone.

**Pharmacology**

* Basic and clinical pharmacology by katzung, MCGraw-hill
* Pharmacology by champe and Harvey, Lippincott Williams & wilkins.

**Behavioral sciences**

* Hand book of behavioral sciences by prof Mowadat H Rana 3rd edition
* Medical and psychosocial aspects of chronic illness and disability Donna R.

**Community medicine**

* Parks textbook of preventive and social medicine, K park
* Public health and community medicine Ilyas, Ansari

**Surgery**

* Bailey & love short practice of surgery

**Medicine**

* Davidson’s principles and practice of medicine

**Islamiyat/Pakistan studies**

* Standard islamiyat (compulsory) for B.A, B.sc, M.A, M.sc by professor M. sharif islahi
* Pakistan studies (compulsory) for B.A, B.sc,B.com, Medical/Engineering by prof Shah Jahan

**End of Module/ Block examination will be conducted on ---/---/ 2025/26**