

COURSE CURRICULUM

MD, RADIOLOGY & IMAGING, RESIDENCY PROGRAMME



**BANGLADESH MEDICAL UNIVERSITY
Shahbag, Dhaka-1000, BANGLADESH**

Preface

This edition of MD, Residency Course Curriculum for Radiology & Imaging is a product of contribution from Faculty, Resident, Employer & Alumni of Radiology & Imaging Discipline of Bangladesh Medical University (BMU). Suggestion from Medical Education experts (Faculty from Public Health Department, BMU) has enriched it.

Under guidance of Faculty of Surgery, BMU this Outcome Based curriculum was prepared using the template provided by University Grants Commission of Bangladesh (UGC).

With changing community need to produce a competent Radiology graduate this curriculum (including Annexure) has been prepared with an intension to guide residents every hour. Balance between the three components of Medical education i.e. Knowledge, Skill, Attitude was tried to maintain preciously so that the graduate will be a self directed life long Learner, Researcher, Leader and Health Advocate.

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Part A

1. Title of the Academic Program:

Residency program for MD Radiology and Imaging

2. Name of the University:

Bangladesh Medical University

3. Vision of the University:

To make Bangladesh Medical University- a "Centre of Excellence" in the South East Asia Region.

4. Mission of the University:

1. BMU shall be an innovative global centre of excellence in learning and research, supporting a community of scholars and professionals committed to serving society, promoting the development of students to reach their true potential in becoming competent, ethical, caring and inquiring citizens and visionary leaders.

2. BMU is committed to academic freedom and the principles of equal opportunity in the pursuit and application of knowledge, the highest standards of intellectual, educational and research productivity; and the establishment of a learning organisation that respects the individual.

5. Name of the Program Offering Entity:

Department of Radiology and Imaging under Faculty of Surgery, Bangladesh Medical University

6. Vision of the Department of Radiology and Imaging:

To become a nationally & globally recognised leading Radiology residency program that produces committed and capable graduates who provide high quality radiology services using basic to advanced education in any corner of the world, conduct research, create quality radiologist and lead the Medical Field.

7. Mission of the Department of Radiology and Imaging:

M1:

To provide an outcome based ambitious curriculum which will include courses for generic skill, medical knowledge and skill, and research.

M2:

Ensure proper maintenance of curriculum by close supervision in an appropriate learning environment with freedom, equality, accessibility and participation.

M3:

To do Continuous, staged assessment with feedbacks well as cumulative assessment in an unbiased, transparent environment, publish result in time.

8. Objectives of The Department of Radiology and Imaging:

1. To provide graduates with strong foundational knowledge and a clear understanding of basic radiology principles and imaging techniques.
2. To develop advanced expertise in anatomy and radioanatomy for accurate image interpretation.
3. To ensure a clear understanding of pathophysiology and clinical features of diseases relevant to radiological practice.
4. To train graduates to effectively correlate radiological findings with clinical features and disease mechanisms.
5. To enhance graduates' research skills and foster a sustained interest in scientific inquiry and academic contribution.
6. To develop strong teaching abilities and leadership qualities for producing competent graduates and leading healthcare teams.
7. To promote critical thinking, self-directed learning, and effective problem-solving skills.
8. To cultivate professionalism and excellent communication skills with patients, families, and healthcare professionals.
9. To install a lifelong commitment to continuous medical education and professional development.

9. Name of the Degree:

MD (Radiology and Imaging)

10. Description of the Program:

Radiology and Imaging is the discipline of medical science which visualises internal structures and processes of human body to give diagnosis as well as treatment. Thus Radiologist is like a leader with a light in hand guiding a team in dark (Darkness inside human body).

Bangladesh Medical University (former Bangabandhu Sheikh Mujib Medical University) has been running Post graduation course of Radiology & Imaging since its establishment in 1998. MD residency Programme of Radiology and Imaging has been started from 2010. This Programme is composed of two phases, Phase A(2 years) & Phase B(3 years).

Phase A includes detail Radiophysics, Radioanatomy, Basic Clinical Training, Biostatistics & Medical Education.

Phase B includes extensive training on Radiology and Imaging.

This Residency programme is going in well established Radiology & Imaging Departments of Bangladesh i.e. Armed Forces Medical College (3 seats), Bangladesh Medical University (14 seats), BIRDEM (6 seats), Burn & Plastic Institute (3 seats), Dhaka Medical College (7 seats), Mymensingh Medical College (2 seats), Rajshahi Medical College (3 seats), Sir Solimullah Medical College (4 seats) and Sylhet Medical College (6 seats).

X-ray, USG, CT, MRI, Mammography and Interventional procedures are regularly done in these departments in a quantity sufficient enough for proper training of the residents and research.

11. Graduate Attributes:

Generic Skill:

- 1. Communicator**
- 2. Collaborator**
- 3. Manager**
- 4. Professional**
- 5. Health Advocate**
- 6. Leader**
- 7. Entrepreneur**
- 8. Scholar**

Medical Skill:

- 1. Clinical Expert**
- 2. Teacher**
- 3. Researcher**

12. Program Educational Objectives (PEOs):

1. Successfully give quality service through out their professional carrier to meet and respond to the changing healthcare needs and expectations of the wide range of population of the society.
2. Lifelong continuous pursue learning and professional development to ensure safety and quality management of the patient.
3. Have the capability of building team by communicating and collaborating as individuals and in team that include doctors and colleagues from other disciplines.
4. Building and maintaining the trust among the patient of the community through maintaining professionalism with ethical standard, problem solving, advocating, managing and communicating the health problem at level of the patient and the community.
5. Able to do research & teach future generation to produce quality radiologist.

13. Program Learning Outcomes (PLOs):

Graduates will be :

1. Clinical Expert
2. Teacher
3. Researcher
4. Communicator
5. Collaborator
6. Manager
7. Professional
8. Health Advocate
9. Leader
10. Entrepreneur
11. Scholar

14. Mapping mission of university with PEOs:

Table-14.1					
	PEO1	PEO2	PEO3	PEO4	PEO5
M1	3	3	3	3	3
M2	3	3	2	3	3

3= STRONG ALIGNMENT, 2= INTERMEDIATE ALIGNMENT, 1=MINIMAL ALIGNMENT

15. Mapping of PLOs with PEOs:

Table 15.1											
PLO	PLO1 Clinic al Expert	PLO2 Teach er	PLO3 Resear cher	PLO4 Comm unicat or	PLO5 Collab orator	PLO6 Mana ger	PLO7 Profes sional	PLO8 Health Advoc ate	PLO9 Leade r	PLO10 Entrep reneur e	PLO11 Schola r
PEO1	3	3	2	3	3	3	3	3	3	1	3
PEO2	3	2	2	2	2	2	3	3	1	1	3
PEO3	1	3	2	3	3	3	3	2	3	2	2
PEO4	3	3	3	3	3	3	3	3	3	3	3
PEO5	2	3	3	2	2	3	3	3	3	1	3

3= STRONG ALIGNMENT, 2= INTERMEDIATE ALIGNMENT, 1=MINIMAL ALIGNMENT

16.1. Mapping courses with the PLOs (Phase A):

Table 16.1								
PLOs	Course/ Block 1	Course/ Block 2	Course/ Block 3	Course/ Block 4	Course/ Block 5	Course/ Block 6	Course/ Block 7	Course/ Block 8
PLO1 Clinical Expert	1	1	1	1	1	1	1	1
PLO2 Teacher	1	1	1	1	1	1	1	1
PLO3 Researcher	1	1	1	1	1	1	1	1
PLO4 Communicator	2	2	2	2	2	2	2	2
PLO5 Collaborator	1	1	1	1	1	1	1	1
PLO6 Manager	2	2	2	2	2	2	2	2
PLO7 Professional	2	2	2	2	2	2	2	2
PLO8 Health Advocate	2	2	2	2	2	2	2	2
PLO9 Leader	2	2	2	2	2	2	2	2
PLO10 Entrepreneure	1	1	1	1	1	3	1	1
PLO11 Scholar	2	2	2	2	2	2	2	2

16.2. Mapping courses with the PLOs (Phase B)

Table 16.2						
PLOs	Course/ Block 1	Course/ Block 2	Course/ Block 3	Course/ Block 4	Course/ Block 5	Course/ Block 6
PLO1 Clinical Exper	3	3	3	3	3	3

PLO2 Teacher	3	3	3	3	3	3
PLO3 Researcher	3	3	3	3	3	1
PLO4 Communicator	3	3	3	3	2	1
PLO5 Collaborator	3	3	3	3	2	1
PLO6 Manager	3	3	3	3	1	1
PLO7 Professional	3	3	3	3	3	3
PLO8 Health Advocate	3	3	3	3	3	3
PLO9 Leader	3	3	3	3	3	3
PLO10 Entrepreneure	1	1	1	1	1	3
PLO11 Scholar	3	3	3	3	3	3

Part-B

17. Structure of the Curriculum:

17.a. Duration:

Duration of MD Radiology & Imaging Course: Total 5 Academic years, two phases, Phase-A 2 years & Phase-B 3 years.

17.B. Admission Requirements:

- Admission is open to government, private and overseas candidates.
- Medical Graduate with successful completion of internship and with full registration of BMDC / equivalent are eligible for competitive admission test.

Prerequisite for admission in Phase A:

1. MBBS or Equivalent degree as recognised by BMDC
2. One year of Internship / in-service training
3. Completion of 1 year after internship / in-service training
4. BMDC registration
5. The applicant should not be above 45 years of age on enrolment

Pre-requisite for admission in Phase B:

1. Successful completion of phase A examination
2. Completion of FCPS (Radiology and Imaging) or any other equivalent degree recognised by BMDC

Selection Procedure:

- Admission test will be conducted by BMU for the selection of candidate (both from home and overseas).
- Written examination will be taken on MCQ type questions set on basic medical science and surgical science.
- A committee of BMU will select foreign student.

17.C. Total Minimum Credit Requirement to Complete Program

Total minimum credit requirement for Phase-A is 107 credit and for Phase-B 183 credit, total 290 credit.

For Phase A:

This phase has a total of 107 credit hours of classes and supervised activities which add up to about 5,468 scheduled hours over 2 academic years. This includes about 1,776 hours of knowledge based learning through morning session, lecture / clinicopathological teaching, case presentation, seminar, journal club, conference and symposium. It also includes around 3,872 hours of skill based training such as machine demonstration, scanning, history taking and doing physical examination, drafting report, attending outdoor session and indoor round in clinical rotation.

For Phase B:

This phase has a total of 183 credit hours of classes and supervised activities which includes up to about 8,552 scheduled hours over 3 academic years. This includes about 2,744 hours of knowledge based learning through morning session, lecture / clinicopathological teaching, case presentation, seminar, journal club, conference and symposium. It also includes around 7,008 hours of skill based training by drafting reports, scanning, doing procedures, attending medical boards, teaching junior fellows etc.

About 1200 hours for thesis work.

17.D. Total Class weeks in a year:

Total class weeks in a year is 44 weeks. 17.E. Minimum CGPA requirements for graduation:

17.E. Minimum CGPA requirements for graduation:

Table 17.E.1		
Marks Obtained	Grade Point Letter	Grade Point Average
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	B+	3.5
65% to less than 70%	B	3.25
60% to less than 65%	C	3.0
Less than 60%	F	0.00

17.F. Maximum Academic Year of Completion:

Maximum Academic Year of Completion years.

17.G. Category of Courses:

A. General Education Courses:

-
- Phase A
 - i) Biostatistics
 - ii) Medical Education
 - iii) Typing & Computer Graphics
-

- Phase B
 - iv) Typing & Computer Graphics
 - v) Medical Ethics
 - vi) Entrepreneurship

B. Core courses:

Phase A

- i) Departmental Orientation
- ii) Radiophysics
- iii) Radioanatomy
- iv) Clinical Rotation

1. Medicine & Allied

- A. Pathology
- B. Cardiology
- C. Respiratory Medicine
- D. Gastroenterology
- E. Hepatology
- F. Endocrinology
- G. Rheumatology
- H. Nephrology
- I. Neuromedicine
- J. Clinical Oncology

2. Surgery & Allied

K. General +Breast+Hepatobiliary+Colorectal

L. Orthopedic Surgery

M. Neurosurgery

N. Vascular Surgery

O. Oral & Maxillofacial Surgery

P. Otolaryngology

Q. Ophthalmology

R. Urology

S. Obstetrics, Gynaecology & Gynaecology

T. Paediatrics

v) Anatomy

vi) Nuclear Medicine

Phase B

vii) Respiratory

viii) Cardiovascular

ix) Abdomen & Gastrointestinal (GI)

x) Genitourinary + Women's Imaging

xi) Head and Neck + Neuroimaging

xii) Skeletal System and Soft Tissues + Interventional Radiology

xiii) Nuclear Imaging

C. Elective Courses (Courses for specialisation within the discipline):

Not Applicable

D. Thesis:

According to Self Interest

18. Year Wise Distribution of Courses:

Phase A:

In Phase A every year is divided into four (4) Blocks, so there are eight (8) blocks in Phase A (Table 18.a.1).

Table 18.a.1 Year wise Block Distribution											
March	April	May	June	July	August	September	October	November	December	January	February
Block-A1 Departmental orientation			Block-A2 Radiophysics+Radioanatomy + Medical Education		Block-A3 Radiophysics+Radioanatomy 1+ Biostatistics			Block-A4 Clinical Rotation-1			
Block-A5 Clinical Rotation-2			Block-A6 Anatomy		Block-A7 Nuclear Imaging			Block-A8 Exam (preparation+exam+Result)			

Courses of Phase A are distributed in Blocks (Table 18.a.2)

Table 18.a.2 Block Wise Course Distribution (Phase-A)			
Week	Block Name	Course Code	Course Name
Week:1	BLOCK-A1 Orientation & Basic Radiology	Course-0914:1111	1. Orientation & Basic Radiology
Week: 2-3		Course-0914:1122	
Week: 4-5		Course-0914:1132	
Week: 6-7		Course-0914:1142	
Week: 8-9		Course-0914:1152	
Week: 9-11		Course-0914:1162	
Week: 12		BlockFinal	
Week: 13-16	BLOCK-A2 Radiophysics +Radioanatomy + Medical Education	Course-0914:1214	Radiophysics + Radioanatomy + Medical Education
Week: 17-20		Course-0914:1224	
Week: 21-24		Course-0914:1234	
Week: 25-28	BLOCK-A3 Radiophysics +Radioanatomy + Biostatistics	Course-0914:1314	Radiophysics + Radioanatomy + Biostatistics
Week: 29-32		Course-0914:1344	
Week: 33-36		Course-0914:1344	
Week: 37	BLOCK-A4 Clinical Rotation- Medicine & Allied	Course-0914:1411	Pathology
Week: 38		Course-0914:1421	Cardiology
Week: 39		Course-0914:1431	Respiratory Medicine
Week: 40		Course-0914:1441	Gastroenterology

Week: 41		Course-0914:1451	Hepatology
Week: 42		Course-0914:1461	Endocrinology
Week: 43		Course-0914:1471	Rheumatology
Week: 44		Course-0914:1481	Nephrology
Week: 45		Course-0914:2491	Neuromedicine
Week: 46-47		Course-0914:24-10-2	Clinical Oncology
Week: 48-49	BLOCK-A5 Clinical Rotation- Surgery & Allied	Course-0914:2512	Surgery (General + Breast + Hepatobiliary + Colorectal)
Week: 50		Course-0914:2521	Orthopedic Surgery
Week: 51		Course-0914:2531	
Week: 52		Course-0914:2541	
Week: 53		Course-0914:2551	
Week: 54		Course-0914:2561	
Week: 55		Course-0914:2571	
Week: 56		Course-0914:2581	
Week: 57-58		Course-0914:2592	
Week: 59-60		Course-0914:25102	
Week: 61-72	BLOCK-A6 Anatomy	Course-0914:26113	
Week: 73-84	BLOCK-A7 Nuclear Imaging	Course-0914:27113	
Week: 85-96	BLOCK -A8 Exam(preparation+exam+ Result)	Preparatory Block Phase-A Exam Preparation + Exam + Result	

Block: A block is a defined period within a medical curriculum where a specific set of courses or topics are taught in a concentrated manner.

Course: Course in medical education is a structured unit of learning focused on a specific subject matter. Courses are designed to impart specific knowledge, skills and attitudes.

Course Code:

0914:5678

0914= Code for Diagnostic Radiology according to UNESCO course coding system

5=number of year e.g. 1 for 1st year, 2 for 2nd year, 3 for 3rd year....

6=number of block, e.g. 1 for PhaseA Block 1

7=Number of course in a block e.g. 10 for Paediatrics the 10th course of Phase A block 5.

8=Credit per course

Phase B

Table 18.b.2: Block wise Course Distribution

Week		Block Name	Course Code	
1-11 (11weeks)	Year 3	Block-B1 24 week (Cardiothoracic Block)	Course-0914:311 -12	Diagnostic Cardiothoracic (Chest) Radiology-1
12-24 (13 weeks)			Course-0914:312 -12	CVS Diagnostic Cardiothoracic (CVS) Radiology-2
25-45 (21 weeks)		Block-B2 (Abdomen & GI Block)	Course-0914:321 -22	Diagnostic Abdomen & Gastrointestinal Radiology
46-58 (13 weeks)	Year 4	Block-B3 (GU & WI Block)	Course-0914:431 -14	Diagnostic Genitourinary Radiology
59-73 (15 weeks)			Course-0914:432 -16	Women's Imaging
74-88 (15 weeks)		Block-B4 (MSK & IR Block)	Course-0914:441 -16	Musculoskeletal Imaging
89-95 (7 weeks)	Year 5		Course-0914:542 -6	Interventional Radiology & Nuclear Imaging
96-107 (12 week)		Block-B5 (Head Neck & Neuroradiology Block)	Course-0914:551 -13	Head Neck Radiology
108-114 (7 week)			Course-0914:552 -8	Neuroradiology
		Block-B6		Preparatory Block

For Phase B, course activities will rotate in every 2.6 years. At any point of time on-going course for all three batches of Phase B will be the same. So block wise course distribution will not be same for all 3 batches of Phase B. That's why colour has been used for the courses. Which will also bring convenience in maintaining the course documents in course office.

Colour Distributions are:

Course Name	Colour name
Diagnostic Cardiothoracic (Chest) Radiology-1	Aluminium

Time Allocation for Thesis Work:

Table 18.b.1												
Month	March	April	May	June	July	August	September	October	November	December	January	February
Year 1	Searching Research Interest	Literature Review & Research gap		Protocol Writing IRB Application	IRB clearance, Pretesting & finalisation of tool		Data Collection + Analysis					
Year 2	Data Collection + Analysis						Thesis Writing			Publication		
Year 3	Thesis Defence						Block -B6					

Block wise Credit Distribution (Phase B):

Distribution of Block	Block Code	Name of Block	Student Workload in hours		Total Hours	Distribution of credit		Total Credit
			Knowledge	Skill		Knowledge	Skill	
BLOCK -B1	0914:31	Cardiothoracic block	408	968	1376	10	16	26
BLOCK -B2	0914:32	Abdomen & GI Block	408	968	1376	10	16	26
BLOCK -B3	0914:41	GU & WI Block	408	968	1376	10	16	26
BLOCK -B4	0914:42	MSK & IR Block	408	968	1376	10	16	26
BLOCK -B5	0914:51	Head Neck & Neuroradiology Block	408	968	1376	10	16	26
BLOCK -B6	0914:52	Preparatory Block	408	968	1376	10	16	26

Part C: Description of all courses of the program:

Phase A

Course-Block A1, 0914:1111 Orientation

(Part A)

1. Course name / Course code :
 - (a) Course-0914:1111 Orientation
 - (b) Course-0914:1122 Basic X-ray
 - (c) Course-0914:1132 Basic USG
 - (d) Course-0914:1142 Basic CT
 - (e) Course-0914:1152 Basic MRI
 - (f) Course-0914:1162 Basic Intervention & Contrast
2. Course Title : Orientation & Basic Radiology
3. Course Type : Core Course
4. Year : 1st year (Week 1 - Week 12)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :13
9. Contact Hours :96 hours
10. Total Marks :200
11. Rationale of the Course :As the first block, affective domain has been given more importance so that the student can manage their rest of the course activities through self drive. Here they will achieve Level I outcome of all three domains of medical education.
12. Course Objectives :Will be able to:
 1. Explain the activities of the Radiology department
 2. Describe their 5 year course in broad heading
 3. Inform learning objective of their theory and practical classes.
 4. Describe their academic calendar & log book

5. Build a team with deciding a team leader (group captain).
6. Ensure the classes according to academic calendar communicating with tutor
7. Describe the journey of patient coming to take service in radiology department.
8. Take history of patients coming for radiology examinations.
9. Able to give pre-procedure instruction to the patients of contrast examination.
10. Show Parts of a machine grossly (e.g. X-ray, USG, CT, MRI)
11. Write short format of normal X-ray, USG, CT, MRI etc report.
12. Explain FNAC & Biopsy procedures of Intervention.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 1	1	1	1	1	2	1	2	1	2	1	2
Week 2-3	2	1	1	2	2	2	2	2	2	1	2
Week 4-5	2	1	1	2	2	2	2	2	2	1	2
Week 6-7	2	1	1	2	2	2	2	2	2	1	2
Week 8-9	2	1	1	2	2	2	2	2	2	1	2
Week 10-11	2	1	1	2	2	2	2	2	2	1	2

Week 12 exam	2	1	1	2	2	2	2	2	2	1	3
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(Part B)

14. Course Plan (Table)

Residents will achieve the level-I (i.e. remembering, perception and receiving) skill of cognitive, psychomotor and a affective domain in management of all modalities of Radiology.

Table A1-14.1 Class Schedule for A1-Week1					
Week	8:00-9:30 am	9:30-11:00	11:00-11:30	12:00-1:30	1:30-2:30
Day 1	Morning Session	Orientation of Department including Teachers, Fellow colleagues, Non doctor staff, working environment etc		Orientation of Department including Teachers, Fellow colleagues, Non doctor staff	
Week 1	MORNING SESSION	PRACTICAL CLASS/ PRACTICAL WORK/ HISTORY TAKING		REPORT WRITTING	LECTURE/ GROUP STUDY/ FORMATIVE ASSESSMENT
Day 1		Machine Orientation		Lecture on Normal Anatomy in respective modality by senior resident	Group study on Normal Radio anatomy
Day 2		History taking		Lecture on Normal Report formate by faculty	Assessment on Report formate

Table A1-14.1 Class Schedule for A1-Week1					
Week	8:00-9:30 am	9:30-11:00	11:00- 11:30	12:00-1:30	1:30-2:30
Day3		Patient Positioning		Report writing	Group study on Patient positioning
Day4		Scanning		Report writing	Group study on Scanning
Day 5		History taking/patient positioning/ scanning		Report writing	Report writing
Day 6		History		Report writing	Report writing

Table A1-14.2 Course Plan (Block-A1)				
Week	Topic	Teaching learning strategy	Assessme nt Strategy	Corresponding CLOs
Week 1	Orientation with Faculty, Colleague, Other Staff, Department from reception to procedure room, from Balcony to Chairman room, Log Book & Portfolio.	• Departmental orientation - practical • Portfolio orientation by lecture	During Practical work, Short oral interview, SCA, Cumulativ e exam	Will be able to explain: • Radiation Protection in medical exposure and occupational exposure

Week 2-3	Basic X-ray: Machine demonstration	Practical	Practical	Will be able to explain: • Basic Principles of Radiography and Digital Technology including • The radiographic image including image formation and density, contrast, magnification and distortion, image sharpness , image acquisition and display • Radiation Protection in medical exposure and occupational exposure
	History taking	Lecture + Practical	Portfolio	Will be able to organise: • Patient's journey in Radiology department from reception in through examination with radiation protection unto post examination and after care.
	Patient Positioning	Practical	Portfolio + Practical	Will be able to explain: • Terminology-anatomical terminology, positioning terminology and projection terminology Will be able to do: Positioning of ,Upper limb, shoulder, lower limb, Hips, pelvis and sacro-iliac joints, Vertebral column, Thorax and upper airway, Skull, facial bones and sinuses, Dental radiography

	Scanning	Practical class by Faculty	Portfolio+ Practical	Will be able to explain: • Image evaluation-10 point plan • Exposure Factors including milliamperere seconds, kilovoltage, focus-to-receptor distance, intensifying screens, secondary radiation grids, choice of exposure factors • Digital Imaging including image acquisition, factors affecting image quality, imaging informatics (e.g. PACS), image processing
	Radioanatomy	Lecture	Oral: Monthly Exam + Block Ending + Phase final OSPE: Monthly Exam + Block Ending + Phase final	Will be able to show: all the visible structures of normal X-ray film according to checklist.
	Report writing	Lecture + Practical	Portfolio+ Written : Monthly + Block ending	Will be able to Write detail report of normal x-rays of any part of the body
	Typing	Practical	Portfolio	Will be able to type report with good speed
Week 4&5	USG: Machine demonstration	Practical	Practical	Will be able to show: • Function of Different knobs of USG Machine

History taking	Lecture + Practical	Portfolio	Will be able to organise: • Journey of a patient in Radiology department who has come for USG Examination from reception in through examination including receiving patient, checking requisition, taking history, deciding the parts of body to be scanned by USG with deciding. Will be able to: • Explain the patient about pre-procedure preparation, privacy during procedure, procedural overview to ensure patient's cooperation. • Ensure post procedure care. • Explain about report delivery system.
Patient Positioning	Practical	Portfolio + Practical	Will be able to show and explain different positions of patient during USG of whole abdomen
Scanning	Practical	Portfolio+ Practical	Will be able to explain: • About USG waves • Attenuation • Transducers • Artifacts • Bioeffects • Quality Assurance • Patient Care and Radiologist Safety
Radioanatomy	Practical	OSCE: Monthly Exam + Block Ending + Phase final	Will be able to recognise: Different organs and structures of abdomen.

	Report writing	Lecture + Practical	Portfolio+ Written : Monthly + Block ending	Will be able to Write detail normal report of USG of whole abdomen.
Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 6 & 7	Physical and technical Fundamentals of CT including:	Lectures, Practical demonstration and work,	During Practical work, Short oral interview , SCA, Cumulative exam	Graduates will be able to explain: Physical and technical Fundamentals of CT including: - General Principles Of CT - Comparison Of Conventional CT With Spiral CT - Spatial Resolution, Pitch - Section Collimation: Resolution Along With Z-Axis - Effects of kV, mAs and Scan Time
	Basic Rules of Reading CT Examination	Lectures, Practical demonstration and work,	During Practical work, Short oral interview , SCA, Cumulative exam	Graduates will be able to explain: Basic Rules of Reading CT Examination including: - Anatomic Orientation - Partial Volume Effects - Distinguishing Nodular From Tubular Structures - Densitometry - Density Levels Of Different Tissues - Documentation Using Different Window Settings

	Preparing the patient	• Lectures, Practical demonstration and work,	• During Practical work, Short oral interview , SCA, Cumulative exam	Graduates will be able to explain: Preparation of the patient including: • Medical History - Renal Toxicity, Medication as Risk - Adverse CM- Reactions and their Prophylaxis • Oral Administration of Contrast Agents - Informing the Patient, Controlling the Respiration • Removal of All Metallic Objects
Week 8&9	Basic of MRI	• Through practical demonstration in MRI Reception, gantry room and consol room. • Through lectures on basics of MRI	• Continuous assessment • Course ending exam • Summative assessment	Graduates will be able to show: • The parts of MRI machine • Position of the patient • Take history of the patient and to decide which system is to be examined first • Graduate will be able to make others aware about cautions of MRI room Will be able to explain: • Basic Principles of longitudinal and transverse magnetisation, and signal localisation • T1, T2 relaxation and image weighting
Week 10	Contrast Xray	Basics of Contrast X-ray	Block ending exam	Will be able to explain • Name & use of different contrast material • Side effects of contrast material • Steps of IVU & Barium swallow and Ba. Meal

Week 11	Intervention	Basics of Intervention	Portfolio	Will be able to explain- • What is FNA, Biopsy. • Preprocedure preparation for FNA and Biopsy Will be able to • Arrange a FNA, Biopsy trolley • Prepare smear • Identify FNA and Biopsy instruments
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(PART C)

15. Assessment and Evaluation

1) Assessment Strategy:

A. Formative

A. Log Book

B. End Block Exam

B. Summative

2) Marks distribution: Written-50, OSPE - 50, VIVA-50, Portfolio-50

a) Continuous Assessment : Only by Portfolio

b) Summative : (End Block)

- Written- 50
- OSPE - 50
- VIVA- 50
- Portfolio-50

3) Make-up Procedures: Repeat End Block Exam

(PART D)

16. Learning Materials

1) Readings:

1. Clark's Positioning in Radiography, Thirteenth Edition,
2. Normal Findings in Radiology, Torsten B. Moeller, Theim, New York 2000
3. Normal Findings in CT and MRI, Torsten B. Moeller, Theim
4. Chapman & Nakielnny's Guide to radiological procedures, (7th edition)

- 2) Supplementary Readings:
- 3) Others:

Block-A2; Course-0914:1214 X-ray, Course-0914:1224USG, Course-0914:1234 CT

Part A

1. Course name / Course code :

- (a) Course-0914:1214 X-ray
- (b) Course-0914:1224 USG
- (c) Course-0914:1234 CT

2. Course Title : Radiophysics + Radioanatomy + Medical Education

3. Course Type : Core Course

4. Year : 1st (Week 13 - Week 24)

5. Academic Session :

6. Course Teacher/Instructor :

7. Pre-requisite (If any) :

8. Credit Value :13

9. Contact Hours :96 hours

10. Total Marks :200

11. Rationale of the Course. :In this Block (and also in block A3) all the Radiology residents of same entry takes training together. As a result training of affective domain (especially team building, leadership, communication and management) is strongest here.

Radiophysics classes start here.

And the topic of modality wise Knowledge and skill which they got in first block for 2 weeks repeat here for 1 month (e.g. X-ray 1month, CT 1month etc. Table followed by monthly exam. As a result by superimposition they get deep knowledge and skill.

Here they will achieve Level II outcome in all three domains of Radiology education.

12. Course Objectives :Will be able to:

- 1. Build a team with deciding a team leader (group captain).
- 2. Arrange the scheduled classes(Machine demonstration, scanning etc)communicating with tutor.
- 3. Take history of patients coming for radiology examinations.
- 4. Able to give different position of patient during contrast examination.

5. Demonstrate functions and maintenance of different parts of machines(e.g. X-ray, USG, CT, MRI)
6. Show any normal film according to detail checklist.
7. Write detail formate of normal X-ray, USG, CT, MRI etc report.
8. Type at a rate of 40WPM
9. Able to do easy FNAC.
10. Describe basics of radiophysics including radiation hazard, radiation protection.
11. Explain basics of Medical Education.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 13-16	2	3	1	3	3	3	2	2	3	1	2
Week 17-20	2	3	1	3	3	3	2	2	3	1	2
Week 21-24	2	3	1	3	3	3	2	2	3	1	2

Part B

14. Course Plan

Residents will achieve the level-I (i.e. remembering, perception and receiving) skill of cognitive, psychomotor and a affective domain in management of all modalities of Radiology.

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week: 13-14	Structure of Matter, Radioactivity and Radiation	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe structure of atom, types of radiation and the modes of radioactive decay. - Define isotope, isotone, isobar and isomers - Understand the concept of half-life - Explain electromagnetic spectrum, atomic excitation and ionization.
Week: 15-16	The electric current, magnetism, electromagnetism	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe electric current, potential, Ohms law, AC and DC currents - Explain electromagnetic induction, construction and principle of transformer - Identify series and parallel circuits, basic electronic components.
Week: 17-18	Production of X-rays and properties of X-rays	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe semiconductor and diodes - Explain rectification and rectifiers - Describe parts of X-ray tube - Understand the basic physics of the production of x-rays - Distinguish bremsstrahlung and characteristic x-rays - Identify factors affecting X-ray emission spectrum.
Week: 19-20	Interaction of radiation with matter and absorption of radiation	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe the major interaction of radiation with matter - Identify factors affecting interaction of radiation - Define attenuation coefficients - Understand HVL, scatter radiation and inverse square law. - Understand the use of contrast media in imaging

Week: 21	Detection and measurement of radiation and dose	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - State the radiation quantities and units: activity, exposure, absorbed dose, equivalent dose, effective dose and the relationship between these quantities. - Explain the principle of radiation detectors like gas filled detector, scintillation detectors, semiconductor detectors, TLD, Film badge
Week: 22	Biological hazards of radiation	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe the effects of radiation on tissue - Understand and give examples of stochastic and deterministic effects of radiation
Week: 23	Protection from radiation hazards	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe background radiation and its sources, dose limits - describe ALARA concept and protective shielding - Understand the requirements for the protection of staff and members of the public arising from their use of radiation and the extent to which they are responsible for safety within the overall radiation protection framework.
Week: 24	X-ray film, film holders and intensifying screens Assessment and Evaluation Strategy: A. Formative	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations (PART C)	The candidates should be able to - Describe composition of radiographic film and intensifying screen. - Understand the formation of latent image - Explain how intensifying screens can reduce patient dose.

A. Log Book

B. End Block Exam

B. Summative

2) Marks distribution: Written-50, OSPE - 50, VIVA-50, Portfolio-50

a) Continuous Assessment (monthly):

- Written- 50
- OSPE - 50

- VIVA- 50
- Portfolio-50

b) Summative : (End Block)

- Written- 50
- OSPE - 50
- VIVA- 50
- Portfolio-50

3) Make-up Procedures: Repeat End Block Exam

PART D

16. Learning Materials

1) Recommended Readings:

- A. 1. Clark's Positioning in Radiography, Thirteenth Edition,
- B. Normal Findings in Radiology, Torsten B. Moeller, Theim, New York 2000
- C. Normal Findings in CT and MRI, Torsten B. Moeller, Theim
- D. Chapman & Nakielny's Guide to radiological procedures, (7th edition)
- E. Christensen's Physics of Diagnostic Radiology, Authors: Thomas S. Curry, James E. Dowdey and Robert C. Murry (4th Edition), Publisher: Lea & Febiger
- F. The Fundamentals of X-Ray and Radium Physics, Author: Joseph Selman (8th Edition, Publisher: Charles C Thomas Pub Ltd
- G. The Physics of Radiology, Authors: Harold Elford Johns, John Robert Cunningham, (4th Edition), Publisher: Charles C Thomas Pub Ltd.

2) Supplementary Readings:

3) Others: Practical demonstration in X-ray room, Positioning patients,

Block-A3; Course-0914:1314MRI, Course-0914:1344Contrast, Course-0914:1344 Intervention + Exam

Part A

1. Course name / Course code :

- (a) Course-0914:1314MRI
- (b) Course-0914:1344Contrast
- (c) Course-0914:1344 Intervention + Exam

2. Course Title : Radiophysics + Radioanatomy + Biostatistics-1

3. Course Type : Core Course

4. Year : Phase A, Week 25-Week 36

5. Academic Session :

6. Course Teacher/Instructor :

7. Pre-requisite (If any) :

8. Credit Value :13

9. Contact Hours :96

10. Total Marks :200

11. Rationale of the Course : In this Block (like Block A2) all the Radiology residents of same entry takes training together. As a result training of affective domain (especially team building, leadership, communication and management) is strongest here.

Radiophysics classes continue here. And the topic of modality wise Knowledge and skill which they got in first block for 2 weeks repeat here for 1 month followed by monthly exam. As a result by superimposition they get deep knowledge and skill. Here they will achieve Level II outcome in all three domains of Radiology education.

12. Course Objectives :Will be able to:

- 1. Build a team with deciding a team leader (group captain).
- 2. Arrange the scheduled classes(Machine demonstration, scanning etc)communicating with tutor.
- 3. Take history of patients coming for radiology examinations.
- 4. Able to give different position of patient during contrast examination.

5. Demonstrate functions and maintenance of different parts of machines(e.g. X-ray, USG, CT, MRI)
6. Show any normal film according to detail checklist.
7. Write detail formate of normal X-ray, USG, CT, MRI etc report.
8. Type at a rate of 60WPM
9. Able to do easy FNAC.
10. Explain Radiographic physics, Basics physics of Mammography, USG, CT, MRI & PET.
- 11.Explain basics of Biostatistics

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 25-28	2	2	3	3	3	3	2	2	3	1	2
Week 29-32	2	2	3	3	3	3	2	2	3	1	2
Week 33-36	2	2	3	3	3	3	2	2	3	1	2

Part B

14. Course plan specifying content, CLOs, co-curricular activities (if any), teaching learning and assessment strategies mapped with CLOs.

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week: 25	Dark room and film processing	- Lecture classes - Group Discussion - Demonstration	Written, Oral and Practical Examinations	The candidates should be able to - Describe the design and characteristics of a dark room - Explain film processing steps: development, rinsing, fixing, washing, drying - Understand manual and automatic processing

Week: 26-27	Radiographic image and image quality	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Describe characteristic curve of a film and its different parts. • Define gamma, average gradient, speed of a film • Understand density, contrast, unsharpness, distortion, noise and factors affecting these.
Week: 28	Devices for improving radiographic quality	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Explain how scattered radiation can be reduced. • Describe types and function of grids • Describe the use of cone, collimator, diaphragm, filters etc. • Understand anode heel effect
Week: 29	Fluoroscopy	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Define phosphorescence, fluorescence • Describe fluoroscopic image intensifier
Week: 30	Computerized Radiography (CR) and Digital Radiography (DR)	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Understand the principle of CR and DR • Describe phosphor imaging plate, PIP reader, flat panel detectors • Advantages and disadvantages of CR and DR
Week: 31	Computed tomography (CT)	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Describe the mechanism of CT imaging in the light of physics. • Define CT number, pixel, voxel etc. • Understand the basic image reconstruction algorithms. • Explain the major CT artifacts.
Week: 32	Mammography and tomosynthesis	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Explain the need for low kVp in mammography in the light of physics • Describe tomosynthesis and its advantages
Week: 33	Ultrasonography and colour Doppler	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Define piezoelectricity • Identify parts of ultrasound transducers • Describe the interaction of ultrasound with tissues • Explain mechanism of ultrasound imaging • Describe principle of Doppler imaging

Week: 34-35	Magnetic Resonance Imaging (MRI)	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Understand the physics of nuclear magnetic resonance • Explain precision, Larmor frequency, Radiofrequency pulse, longitudinal and transverse magnetization • Describe relaxation mechanisms, T1 and T2 relaxations • Explain STIR, FLAIR, DWI sequences. • Understand Magnetic Resonance Spectroscopy (MRS)
Week: 36	Isotope scanning, positron emission tomography (PET)	• Lecture classes • Group Discussion • Demonstration	Written, Oral and Practical Examinations	The candidates should be able to • Describe the use of radioisotopes in medicine • Explain the principle of PET and its applications

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

A. Formative

A. Log Book

B. End Block Exam

B. Summative

2) Marks distribution: Written-50, OSPE - 50, VIVA-50, Portfolio-50

a) Continuous Assessment (monthly):

- Written- 50
- OSPE - 50
- VIVA- 50
- Portfolio-50

b) Summative : (End Block)

- Written- 50
- OSPE - 50
- VIVA- 50
- Portfolio-50

3) Make-up Procedures: Repeat End Block Exam

PART D

16. Learning Materials

1) Recommended Readings:

- Clark's Positioning in Radiography, Thirteenth Edition,
- Normal Findings in Radiology, Torsten B. Moeller, Theim, New York 2000
- Normal Findings in CT and MRI, Torsten B. Moeller, Theim

- D. Chapman & Nakielny's Guide to radiological procedures, (7th edition)
- E. Christensen's Physics of Diagnostic Radiology, Authors: Thomas S. Curry, James E. Dowdey and Robert C. Murry (4th Edition), Publisher: Lea & Febiger
- F. The Fundamentals of X-Ray and Radium Physics, Author: Joseph Selman (8th Edition, Publisher: Charles C Thomas Pub Ltd
- G. The Physics of Radiology, Authors: Harold Elford Johns, John Robert Cunningham, (4th Edition), Publisher: Charles C Thomas Pub Ltd.

2) Supplementary Readings:

3) Others: Practical demonstration in X-ray room, Positioning patients.

Block-A4, Course-0914:1411 Pathology

Part A

1. Course name / Course code : Course-0914:1411 Pathology
2. Course Title : Pathology
3. Course Type : Core Course
4. Year : Phase A, Week 37
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours. :8
10. Total Marks :15
11. Rationale of the Course : In this course Students will go to Pathology department-1.To see the pathological specimens and 2. To attend the gross examination sessions so that they will be able to correlate the imaging cross section findings with the pathology. They will study the course content with the help of faculties of pathology department. They will have a communication with there pathology colleagues which will help in future patient management.
12. Course Objectives :Will be able to:
 1. Explain Basic Pathology.
 2. They will be able to describe the gross pathological change of different types common tumors.
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 37	3	2	3	3	3	2	3	2	2	1	3

14. Block A4-Course (0914:1411 Pathology) plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
37	Basic Pathology	• Lecture • Individual and group study	• Demonstration or Presentation in class • Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the cellular adaptation to stress</i> • Physiological adaptation- Hypertrophy, Hyperplasia, Atrophy, Metaplasia. • Pathological adaptation-Dysplasia • Morphology of cell and tissue injury- Reversible injury-Cellular swelling and fatty change - Irreversible injury-Cell death and necrosis • Pattern of tissue necrosis- Coagulative necrosis, liquefactive necrosis, caseous necrosis, fat necrosis, fibrinoid necrosis and gangrenous necrosis • Cell injury-Ischemic and hypoxic injury, ischemic-reperfusion injury • Intracellular accumulation-Fatty change • Pathological calcification- Dystrophic calcification and metastatic calcification
	Inflammation & Repair	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the acute & chronic inflammation</i> • Acute inflammation-vascular changes, cellular events • Morphological pattern of acute inflammation-Serous inflammation, fibrinous inflammation & suppurative inflammation. • Outcome of acute inflammation • Chronic inflammation • Granulomatous inflammation • Role of regeneration in tissue repair • Scar formation • Angiogenesis • Remodeling of connective tissue • Fibrosis in parenchymal organ

Haemodynamic disorder, Thromboembolism and Shock	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Hyperemia & congestion • Edema • Hemorrhage, Hemostasis & thrombosis-Fate of the thrombus • Embolism-Pulmonary thromboembolism, systemic thromboembolism-Fat embolism, amniotic fluid embolism & air embolism. • Infarction-Morphology, Factors that influence infarct development • Shock-Pathogenesis of septic shock • Stages of shock
Diseases of immune system	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Systemic lupus erythematosus • Rejection of transplant-Morphology of hyperacute, acute and chronic rejection. • Amyloidosis-Morphology.
Neoplasia	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Nomenclature of tumors (P-164) • Characteristics of benign & malignant neoplasm-Rate of growth, local invasion & metastasis. • Acquire paraneoplastic lesions. • Clinical aspects of neoplasia • List of paraneoplastic syndrome (P-209) • Tumor marker

	General pathology of Infectious disease	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Human viral disease and their pathogens • Human bacterial disease and their pathogens • Spectrum of inflammatory responses to infection
	Blood vessels	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Hypertensive vascular disease-morphology • Arteriosclerosis & atherosclerosis- morphology • Aneurysm and dissection- Pathogenesis & morphology • Vasculitis-Vascular steps involved in the vasculitides and their presumptive aetiology (Page-349) • Giant cell arteritis-morphology • Takayasu arteritis-morphology • PAN-morphology • Kawasaki disease-morphology • Microscopic polyangitis-morphology • Wegner granulomatosis-morphology • Churg- Strauss syndrome-morphology • Burger disease-morphology • Vasculitis associated with other non-infectious disorder • Raynaud phenomenon • Myocardial vessel vasospasm • Benign tumors & tumor like condition-Vascular ectasias, hemangioma, lymphangioma, Bacillary angiomatosis • Morphology of Kaposi sarcoma

	Heart	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Heart failure-Myocardial structural changes including augmented muscle mass • Left sided heart failure-Morphology • Right sided heart failure-Morphology • Congenital heart disease-Clinical features • Left to right shunt • Atrial septal defect and patent foramen ovale- Morphology and clinical features • PDA-clinical features • Right to left shunt-TOF morphology & clinical features • TGA-Clinical features • Obstructive lesion-Aortic coarctation morphology and clinical feature • Ischemic heart disease-pathogenesis • Angina pectoris • Myocardial infarction-pathogenesis, morphology • Infarct modification by reperfusion • Chronic ischemic heart disease-morphology • Hypertensive heart disease-morphology
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	Hematopoietic and lymphoid system	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Hemolytic anemia- Hereditary spherocytosis morphology • Sickle cell anemia- morphology • Thalassemia-Pathogenesis of thalassemia major and morphology • Anemia of diminished erythropoiesis. • Summary • Vitamin B12 deficiency anemia • Aplastic anemia
	Lung	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Atelectasis • ARDS- morphology • Obstructive lung disease- Emphysema and chronic bronchitis morphology • Asthma- morphology • Bronchiectasis- morphology • IPF- morphology • Occupational lung disease- morphology • Granulomatous disease- morphology • Pulmonary disease of vascular origin • Pulmonary hypertension • Pulmonary infection • Lung abscess • Tuberculosis • Opportunistic fungal infection • Lung tumor-Carcinoma, carcinoid tumor • Pleural lesion-pleural effusion, pneumothorax, hemothorax & chylothorax • Lesions of upper respiratory tract

	Kidney and its collecting system	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Glomerular disease • Nephrotic syndrome • Nephritic syndrome • Malignant HTN • CKD- morphology • Cystic disease of kidney • Urinary outflow obstruction-Renal stone, Hydronephrosis & tumor
	Oral cavity & gastrointestinal tract	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Disease of oral cavity • Disease of salivary gland • Esophagus-Obstructive & vascular disease, Esophagitis and esophageal tumor • Stomach-Neoplastic disease of stomach morphology • GIST- morphology • Carcinoid tumor-morphology • Lymphoma- morphology • Small and Large intestine-Obstruction, Hirschsprung's Disease, Hernia, Ischemic bowel disease, Inflammatory bowel disease, Neoplastic disease & Acute appendicitis.

	Liver, Gallbladder & Biliary tract	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> Liver • Liver cirrhosis-pathogenesis • Portal HTN • Acute & chronic hepatitis • Fatty liver disease • Circulatory disorder • Tumors & hepatic nodules-Types& morphology • Hepatic adenoma • HCC Gallbladder • Cholelithiasis • Cholecystitis • Carcinoma of gallbladder Biliary tract • Choledocholithiasis • Cholangitis
	Pancreas	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Congenital anomalies • Pancreatitis- morphology • Cystic neoplasm-types& morphology
	Male genital system & lower urinary tract	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Cryptorchism • Testicular neoplasm-Summary of testicular neoplasm(Table17-1) • Prostate-BPH morphology, carcinoma of prostate • Neoplasm of urinary bladder.

	Female genital system and breast	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • SCC of vagina • Neoplasia of cervix-morphology • Uterus-Congenital anomaly, endometritis, endometrial carcinoma, adenomyosis, endometriosis & endometrial hyperplasia. • Leiomyoma • Ovaries-PCOS, tumors of ovary morphology, salient feature of ovarian germ cell & sex cord neoplasm • Ectopic pregnancy • Hydatidiform mole • Breast-Fibrocystic changes, inflammatory process, tumors: Fibroadenoma, carcinoma & phylloides tumor.
	Endocrine system	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Pituitary-Adenoma morphology • Grave's disease • Neoplasm of thyroid • Pancreatic neuroendocrine tumor • Adrenocortical neoplasm • Tumors of adrenal medulla
	Bones, Joints & soft tissue tumors	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Congenital disease of bone • Acquired disease of bone • Osteomyelitis • Tubercular osteomyelitis • Osteonecrosis • Bone tumor (Table 20-2) • Joints-Osteoarthritis, Rheumatoid arthritis, gout, pseudogout, ganglion cyst • Tumor of soft tissue • Skeletal muscle tumor • Synovial sarcoma

	Peripheral nerves & muscles	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Peripheral neuropathy • Myesthenia Gravis • Peripheral nerve sheath tumor- Schwannoma, Neurofibroma
	Central Nervous System	• Lecture • Individual and group study	• Short Oral Exams (Item) • Course final Exam • Phase A Exam	<i>Will be able to describe the</i> • Herniation • Cerebral edema • Cerebrovascular disease • Intra cranial hemorrhage • CNS trauma • Congenital malformation • Infection • Demyelinating disorder • Neurodegenerative disorder • Tumors-Glioma, embryonal Neoplasm, metastatic tumor

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) *Marks distribution:*

a) Continuous Assessment:

A. Log Book (10)

B. Course ending exam (MCQ) -20

C. Block ending exam - 12.5% of total A4 block ending exam

b) Summative : As part of Medicine

3) *Make-up Procedures:* Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Robbins & Cotran, Pathologic Basis of Disease, Latest Edition

2) Supplementary Readings:

3) Others:

Block-A4; Course-0914:1421 Cardiology

Part A

1. Course name / Course code : Course-0914:1421 Cardiology
2. Course Title : Cardiology
3. Course Type : Core Course
4. Year : 1st (Week 38)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15
11. Rationale of the Course :The students will visit Cardiology department for 1 week so that they can recognise any cardiac emergency (if happen) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms of cardiac patients. They will have a communication with there cardiology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with cardiac emergency.
2. Recognise ECG of Acute MI.
3. Describe sign-symptoms of patients with different cardiac diseases.
4. Explain Pathophysiology of diseases commonly come for radiological evaluation (e.g. cardiac failure, cardiomyopathy, pericardial effusion)
5. Describe names with gross interpretation of commonly used non radiological tests.
6. Mention the treatment of common cardiac disease in brief (e.g. Diuretics in cardiac failure)

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 38	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Wee k	Topic	Teaching learning strategy	Assessmen t Strategy	Corresponding CLOs
38	Congenital heart disease	• Lecture • Self and group study • Indoor and outdoor visit	• Course ending exam • Block ending exam • Portfolio • Phase final exam	Students will be able to: Describe the pathology of different congenital heart disease and their complications.
	Coronary artery disease			Pathophysiology of Coronary artery disease.
	Cardiomyopathy			Able to describe myocardial changes in different cardiomyopathy.
	Heart Failure			Pathophysiology and sign symptoms of heart failure.
	Other acquired heart disease			• Pathophysiology and sign symptoms of heart failure. • Indication of radiological investigation of different cardiac diseases.
	Cardiac devices			Describe the cardiac devices (used in situ) - name, position etc

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

- 2) Supplementary Readings:
- 3) Others:

Block-A4; Course-0914:1431 Respiratory Medicine

Part A

1. Course name / Course code. : Course-0914:1431 Respiratory Medicine
2. Course Title : Respiratory Medicine
3. Course Type : Core Course
- 4 .Year : 1st (Week 39)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course. :The students will visit Respiratory department for 1 week so that they can recognise any Respiratory emergency (if happen) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms of respiratory patients. They will have a communication with there Respiratory Medicine colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Respiratory emergency.
2. Describe sign-symptoms of patients with different respiratory diseases.
3. Explain Pathophysiology of respiratory diseases commonly come for radiological evaluation (e.g. pulmonary TB, DPLD)
4. Describe names with gross interpretation of commonly used non radiological tests.
5. Mention the treatment of respiratory disease in brief which radiologist needs to report frequently (e.g. Lobectomy in lobar bronchiectasis).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 39	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
39	• Pulmonary infection • Lung tumor • Diseases of airways • Diffuse lung disease	• Lecture • Self and group study • Indoor and outdoor visit	• Course ending exam • Block ending exam • Portfolio • Phase final exam	Students will be able to: • Describe the pathophysiology • Clinical feature • Commonly used non radiological investigations • Treatment • Complications of Common respiratory diseases. • Indication of radiological investigation of different respiratory diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Week 40	3	3	2	3	3	3	3	3	2	1	3
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PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
40	Common Gastrointestinal diseases	- Lecture - Self and group study - Indoor and outdoor visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Clinical feature - Commonly used non radiological investigations - Treatment - Complications of Common gastrointestinal diseases. - Indication of radiological investigation of different gastrointestinal diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Block-A4; Course-0914:1451 Hepatology

Part A

1. Course name / Course code : Course-0914:1451
2. Course Title : Hepatology
3. Course Type : Core Course
4. Year : 1st (Week 41)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course. :The students will visit Hepatology department for 1 week so that they can recognise any Hepatology emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Hepatology patients. They will have a communication with there Hepatology colleagues which will help in future patient management

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Hepatology emergency.
2. Describe sign-symptoms of patients with different liver and pancreatic diseases.
3. Explain Pathophysiology of Hepatology diseases commonly come for radiological evaluation (e.g. Hepatitis, Pancreatitis)
4. Describe names with gross interpretation of commonly used non radiological tests.
5. Mention the treatment of Hepatology disease in brief which radiologist needs to report (e.g.TACE in HCC) and treat.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 41	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Wee k	Topic	Teaching learning strategy	Assessmen t Strategy	Corresponding CLOs
41	Common liver, Gallbladder and Pancreatic diseases	- Lecture - Self and group study - Indoor and out door visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Clinical feature - Commonly used non radiological investigations - Treatment - Complications of Common liver, Gallbladder and Pancreatic diseases. - Indication of radiological investigation of different liver, Gallbladder and Pancreatic diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Block-A4; Course-0914:1461 Endocrinology

Part A

1. Course name / Course code :Course-0914:1461
2. Course Title : Endocrinology
3. Course Type : Core Course
- 4 .Year : 1st (Week 42)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course. :The students will visit Endocrinology department for 1 week so that they can recognise any Endocrinological emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of endocrine patients. They will have a communication with there Endocrinology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Endocrinological emergency.
2. Describe sign-symptoms of patients with different Endocrinological diseases.
3. Explain Pathophysiology of endocrine diseases commonly come for radiological evaluation (e.g. Cushing disease)
4. Describe indications of radiological investigation for Endocrinology patients.
5. Describe names with gross interpretation of commonly used non radiological tests.
6. Mention the treatment of endocrine disease in brief which radiologist needs to report (e.g.Pituitary micro adenoma).
7. Mention the indication of adrenal and petrous venous sampling

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 42	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Wee k	Topic	Teaching learning strategy	Assessmen t Strategy	Corresponding CLOs
42	Common Endocrine diseases	- Lecture - Self and group study - Indoor and outdoor visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Clinical feature - Commonly used non radiological investigations - Treatment - Complications of Common endocrine diseases. - Indication of radiological investigation of different endocrine diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Block-A4 Course-0914:1471 Rheumatology

Part A

1. Course name / Course code : Course-0914:1471
2. Course Title : Rheumatology
3. Course Type : Core Course
4. Year : 1st (Week 43)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15
11. Rationale of the Course :The students will visit Rheumatology department for 1 week so that they can recognise any Rheumatological emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Rheumatology patients. They will have a communication with there Endocrinology colleagues which will help in future patient management.
12. Course Objectives :Will be able to:
 1. Explain Clinical Feature of patients with Rheumatology emergency.
 2. Describe sign-symptoms of patients with different Rheumatology diseases.
 3. Explain Pathophysiology of Rheumatology diseases commonly come for radiological evaluation (e.g. Rheumatoid Arthritis)
 4. Describe indications of radiological investigation for Rheumatology patients.
 5. Describe names with gross interpretation of commonly used non radiological tests.
 6. Mention the treatment of Rheumatology disease in brief which radiologist needs to report (e.g. Vasculitis).
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 43	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Wee k	Topic	Teaching learning strategy	Assessmen t Strategy	Corresponding CLOs
43	Common Rheumatology diseases	- Lecture - Self and group study - Indoor and outdoor visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Clinical feature - Commonly used non radiological investigations - Treatment - Complications of Common Rheumatology diseases. - Indication of radiological investigation of different Rheumatology diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Block-A4 Course-0914:1481 Nephrology

Part A

1. Course name / Course code : Course-0914:1481
2. Course Title : Nephrology
3. Course Type : Core Course
4. Year : 1st (Week 44)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course. :The students will visit Nephrology department for 1 week so that they can recognise any Nephrology emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Nephrology patients. They will have a communication with there Nephrology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Nephrology emergency.
2. Describe sign-symptoms of patients with different kidney diseases.
3. Explain Pathophysiology of kidney diseases commonly come for radiological evaluation (e.g. CKD)
4. Describe indications of radiological investigation for Nephrology patients.
5. Describe names with gross interpretation of commonly used non radiological tests.
6. Mention the treatment of Nephrology disease in brief which radiologist needs to report (e.g. CKD, AKI).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 44	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
44	Common Nephrology diseases	- Lecture - Self and group study - Indoor and outdoor visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Clinical feature - Commonly used non radiological investigations - Treatment - Complications of Common Nephrology diseases. - Indication of radiological investigation of different Nephrology diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Block-A4; Course-0914:2491 Neuromedicine

Part A

1. Course name / Course code : Course-0914:2491
2. Course Title : Neuromedicine
3. Course Type : Core Course
4. Year : 1st (Week 45)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Neuromedicine department for 1 week so that they can recognise any Neurology emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Neurology patients. They will have a communication with there Neuromedicine colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Neuromedicine emergency.
2. Describe sign-symptoms of patients with different neurological diseases.
3. Perform relevant neurological examinations (e.g. cranial nerve examination, spinal nerve examination).
4. Explain Pathophysiology of Neurological diseases commonly come for radiological evaluation (e.g. Stroke, Infection)
5. Describe indications of radiological investigation for neurology patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Mention the treatment of Neurological diseases in brief which radiologist needs to report (e.g. Ischemic and Haemorrhagic stroke treatment).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 45	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
45	Common Neurology diseases	- Lecture - Self and group study - Indoor and outdoor visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant neurological examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Neurology diseases. - Indication of radiological investigation of different Neurology diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

- 1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).
- 2) Supplementary Readings:
- 3) Others:

Block-A4; Course-0914:24102 Clinical Oncology

Part A

1. Course name / Course code : Course-0914:24102
2. Course Title : Clinical Oncology
3. Course Type : Core Course
4. Year : 1st (Week 48-49)
5. Academic Session :
6. Course Teacher/Instructor. :
7. Pre-requisite (If any) :
8. Credit Value :4
9. Contact Hours :16 hours
10. Total Marks :30

11. Rationale of the Course. :Radiology is one of the most important part of oncological management. The students will visit Clinical Oncology department for 2 weeks so that they can have a gross idea on Oncological management. they can recognise any oncological emergency (if it happen or come) in radiology department. They will understand the role of radiologist in oncology department. They will have a communication with there oncology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Tumor Biology
2. Describe Principle of Chemotherapy
3. Describe Principle of Radiotherapy
4. Describe Post therapy response of tumor
5. Mention Oncological Emergency
6. Mention the role of a radiologist in clinical oncology department

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 46-47	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
46-47	Clinical Oncology	• Lecture • Self and group study • Indoor and outdoor visit	• Course ending exam • Block ending exam • Portfolio • Phase final exam	Students will be able to explain: • Tumor Biology • Principle of Chemotherapy • Principle of Radiotherapy • Post therapy response of tumor Students will be able to mention: • Oncological emergency • Role of Radiologist in clinical oncology department

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (10)

B. Course ending exam (MCQ) -20

C. Block ending exam - 16% of total A4 block ending exam

b) Summative : As part of Medicine

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Davidson's Principles and Practice of Medicine(Latest edition).

2) Supplementary Readings:

3) Others:

Assessment of Block A4

Block Ending Exam at the end of Week-48, Organised jointly by Respective Clinical departments & R&I Department.

15. Assessment and Evaluation

1) Assessment Strategy:

A. Formative

- i. Log Book
- ii. Block ending Exam : Block ending exam at the end of Week-48, Organised jointly by respective Clinical departments & R&I Department. Marks distribution in Table (Table: A4-Assessment-1).

Table: A4-Assessment-1; Course wise Block Ending Exam(A4) Mark distribution	
Pathology	10 or 10%
Cardiology	5 or 5%
Respiratory Medicine	5 or 5%
Gastroenterology	5 or 5%
Hepatology	5 or 5%
Endocrinology	5 or 5%
Rheumatology	5 or 5%
Nephrology	5 or 5%
Neuromedicine	5 or 5%
Clinical Oncology	10 or 10%
Total	60 or 60 X n (n=1,2,...)
*Though week distribution for pathology (i.e. 1 week) is same as most of the other discipline but mark allocation has been made double to bring a round figure in total mark as well as to give importance to pathology.	

B. Summative (With Phase-A Final)

Table: A4-Assessment-2 Mark allocation in Summative (Phase-A Final) Exam	
Written	12.5% (i.e. 25% of Paper I)
OSPE	12.5% (i.e. 25% of Paper I)
VIVA / Clinical	12.5% (i.e. 25% of Paper I)
Portfolio	6.25%

3) Make-up Procedures: Repeat Block ending exam.

1. Course name / Course code : Course-0914:2512
2. Course Title : Surgery (General + Breast + Hepatobiliary + Colorectal)
3. Course Type : Core Course
4. Year : 1st (Week 46-47)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :4
9. Contact Hours :16 hours
10. Total Marks :30
11. Rationale of the Course. :The students will visit General Surgery, Hepatobiliary Surgery & Colorectal Surgery department for 2 weeks so that they can recognise any Surgical emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of surgery patients. They will have a communication with there surgery colleagues which will help in future patient management.
12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with surgical emergency.
2. Describe sign-symptoms of patients with different surgical diseases.
3. Perform relevant physical examinations (e.g. Murphy's sign, MacBurney's point tenderness).
4. Explain Pathophysiology of Surgical diseases commonly come for radiological evaluation (e.g. GI malignancy)
5. Describe indications of radiological investigation for Surgical patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Mention the steps of different common surgical procedures with complications in brief which radiologist needs to report (e.g. Whipple's operation, Management of colorectal carcinoma).

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
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Week 48-49	3	3	2	3	3	3	3	3	2	1	3
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PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
48-49	Common Surgical diseases	- Lecture - Self and group study - Indoor and out door & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Surgical diseases. - Describe (briefly) steps, sequelae and complication of Common Surgical procedures. - Indication of radiological investigation of different surgical diseases.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (10)

B. Course ending exam (MCQ) -20

C. Block ending exam - 12.5% of total A5 block ending exam

b) Summative : As part of Surgery

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Oxford Hand Book of Clinical Surgery (Latest Edition)

- 2) Supplementary Readings:
- 3) Others:

Block-A5 Course-0914:2521 Orthopedic Surgery

Part A

1. Course name / Course code : Course-0914:2521
2. Course Title : Orthopedic Surgery
3. Course Type : Core Course
4. Year : 1st (Week 50)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15
11. Rationale of the Course :The students will visit Orthopedic Surgery department for 1 week so that they can recognise any Orthopedic emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Orthopedic patients. They will have a communication with there orthopaedic surgery colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Orthopedic emergency.
2. Describe sign-symptoms of patients with different Orthopedic diseases.
3. Perform relevant Orthopedic examination.
4. Explain Pathophysiology of Orthopedic diseases commonly come for radiological evaluation (e.g. Steps of Fracture healing, Steps of haematoma resolution)
5. Describe indications of radiological investigation for Orthopedic patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Mention the treatment of Orthopedic diseases in brief which radiologist needs to report (e.g. Iediopathic Scoliosis).
8. Mention the steps of different common surgical procedures with complications in brief which radiologist needs to report (e.g. ACL repair).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 50	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
50	Common Orthopedic diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common orthopaedic diseases (complication of different trauma). - Describe (briefly) steps, sequelae and complication of Common orthopaedic surgery. - Describe sequelae of prosthetic surgery. - Indication of radiological investigation of different orthopaedic diseases.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) Marks distribution:

a) Continuous Assessment:

- A. Log Book (5)
- B. Course ending exam (MCQ) -10
- C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) Make-up Procedures: Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

- 1) Recommended Reading: Oxford Hand Book of Clinical Surgery (Latest Edition)
- 2) Supplementary Readings:
- 3) Others:

Block-A5; Course-0914:2531 Neurosurgery

Part A

1. Course name / Course code : Course-0914:2531
2. Course Title : Neurosurgery
3. Course Type : Core Course
4. Year : 1st (Week 51)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15
11. Rationale of the Course :The students will visit Neurosurgery department for 1 week so that they can recognise any Neurosurgery emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Neurosurgery patients. They will have a communication with there Neurosurgery colleagues which will help in future patient management.
12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Neurosurgical emergency.
2. Describe sign-symptoms of patients with different Neurosurgery diseases.
3. Perform relevant Neurosurgery examination (e.g. Examination of Spinal nerves).
4. Explain Pathophysiology of Neurosurgical diseases commonly come for radiological evaluation (e.g. Pathophysiology of hydrocephalus)
5. Describe indications of radiological investigation for Neurosurgery patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Mention the treatment of Neurosurgery diseases in brief which radiologist needs to report (e.g. Subarachnoid haemorrhage).
8. Mention the ways of approach, steps of different common surgical procedures with complications in brief which radiologist needs to report (e.g. Pituitary macroadenoma).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 51	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
51	Common Neurosurgical Diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Neurosurgical diseases (e.g. complication of Subarachnoid Haemorrhage). - Describe (briefly) steps, sequelae and complication of Common neurosurgery procedures. - Indication of radiological investigation of different Neurosurgery diseases. - Mention scopes where Neurosurgeon and Radiologist can combinedly manage patient

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Neurology and Neurosurgery Illustrated, Kenneth W Lindsay (Latest Edition)

2) Supplementary Readings:

3) Others:

Block-A5; Course-0914:2541 Vascular Surgery

Part A

1. Course name / Course code : Course-0914:2541
2. Course Title : Vascular Surgery
3. Course Type : Core Course
4. Year : 1st (Week 52)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Vascular Surgery department for 1 week so that they can recognise any Vascular emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Vascular Surgery patients. They will have a communication with there vascular surgery colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Vascular emergency.
2. Describe sign-symptoms of patients with different Vascular diseases.
3. Perform relevant Vascular Surgery examination.
4. Explain Pathophysiology of Vascular diseases commonly come for radiological evaluation (e.g. Venous Thrombosis, Atherosclerosis)
5. Describe indications of radiological investigation for Vascular Surgery patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Mention the treatment of Vascular diseases in brief which radiologist needs to report (e.g. Venous ulcer).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 52	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
52	Common Vascular Surgery	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common vascular diseases (complication of acute arterial occlusion of lower extremity). - Describe (briefly) steps, sequelae and complication of Common vascular surgery. - Indication of radiological investigation of different vascular diseases.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) *Marks distribution:*

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

- 1) Recommended Reading: Oxford Hand Book of Clinical Surgery (Latest Edition)
- 2) Supplementary Readings:
- 3) Others:

Block-A5; Course-0914:2551 Oral & Maxilofacial Surgery

Part A

1. Course name / Course code : Course-0914:2551
2. Course Title : Oral and Maxilofacial Surgery
3. Course Type : Core Course
4. Year : 1st (Week 53)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Oral and Maxilofacial Surgery department for 1 week so that they can recognise any Oral and Maxilofacial emergency (if happen or come) in radiology department. They will attend outdoor and indoor which will help them to remember the sign symptoms treatment and complications of Oral and Maxilofacial Surgery patients. They will have a communication with there Oral and Maxilofacial Surgery colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Oral and Maxilofacial Emergency.
2. Describe sign-symptoms of patients with different Oral and Maxilofacial Surgery diseases.
3. Perform relevant Oral and Maxilofacial Surgery examination.
4. Explain Pathophysiology of Oral and Maxilofacial Surgery diseases commonly come for radiological evaluation (e.g. Lympho-vascular malformation)
5. Describe indications of radiological investigation for Oral and Maxilofacial Surgery patients.
6. Describe names with gross interpretation of commonly used non radiological tests.
7. Describe different common fractures of Maxilofacial regions.
8. Mention the treatment of Oral and Maxilofacial Surgery diseases (in brief) which radiologist needs to report (e.g. Tongue Cancer).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 53	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
53	Common Oral and Maxillofacial Surgery Diseases	- Lecture - Self and group study - Indoor and outdoor & operation theatre visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common oral and Maxillofacial diseases (complication of different trauma). - Describe (briefly) steps, sequelae and complication of Common oral and Maxillofacial surgery. - Indication of radiological investigation of different oral and Maxillofacial diseases.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) *Marks distribution:*

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Oxford Hand Book of Clinical Surgery (Latest Edition)

2) Supplementary Readings:

3) Others:

Block-A5; Course-0914:2561 Otolaryngology

Part A

1. Course name / Course code : Course-0914:2561
2. Course Title : Otolaryngology
3. Course Type : Core Course
4. Year : 1st (Week 54)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Otolaryngology (ENT) department for 1 week so that they can recognise any ENT emergency (if happen or come) in radiology department. They will attend outdoor, indoor and operation theatre which will help them to remember the sign symptoms treatment and complications of ENT patients. They will have a communication with there Otolaryngology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with ENT Emergency
2. Describe sign-symptoms of patients with different diseases of ENT.
3. Perform relevant ENT examination.
4. Explain Pathophysiology of ENT diseases commonly come for radiological evaluation (e.g. Otitis Media, cholesteatoma, Mucocele)
5. Describe indications of radiological investigation for ENT Surgery patients.
6. Describe names with gross interpretation of commonly used non radiological tests used in otolaryngology department.
7. Mention the basic rules of oncosurgery in ENT region (in brief) which radiologist needs to report (e.g. Carcinoma Thyroid).

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 54	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
54	Common ENT diseases	• Lecture • Self and group study • Indoor and outdoor & operation theater visit	• Course ending exam • Block ending exam • Portfolio • Phase final exam	Students will be able to: • Describe the pathophysiology • Describe Clinical feature • Perform Relevant physical examination • Explain Commonly used non radiological investigations • Describe Treatment • Mention Complications of Common ENT diseases (complication of cholesteatoma). • Describe (briefly) steps, sequelae and complication of Common ENT surgery. • Indication of radiological investigation of different ENT diseases.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading:

2) Supplementary Readings:

3) Others:

Block-A5; Course-0914:2571 Ophthalmology

Part A

1. Course name / Course code : Course-0914:2571
2. Course Title : Ophthalmology
3. Course Type : Core Course
4. Year : 1st (Week 55)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Ophthalmology department for 1 week so that they can recognise any ophthalmological emergency (if happen or come) in radiology department. They will attend outdoor, indoor and operation theatre which will help them to remember the sign symptoms treatment and complications of Ophthalmological patients. They will have a communication with there ophthalmology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with ophthalmological Emergency
2. Describe sign-symptoms of patients with different diseases of ophthalmological.
3. Perform relevant ophthalmological examination.
4. Explain Pathophysiology of ophthalmological diseases commonly come for radiological evaluation (e.g. Grave's ophthalmopathy, Orbital pseudotumor))
5. Describe indications of radiological investigation for ophthalmological Surgery patients.
6. Describe names with gross interpretation of commonly used non radiological tests used in ophthalmology department.
7. Describe the Congenital ocular diseases.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 55	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
55	Common Ophthalmological Diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common ophthalmological diseases (complication of intraconal mass lesion). - Indication of radiological investigation of different ocular diseases. - Mention the ophthalmological cases where interventional radiologist can contribute.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading:

- 2) Supplementary Readings:
- 3) Others:

Block-A5; Course-0914:2581 Urology

Part A

1. Course name / Course code : Course-0914:2581
2. Course Title : Urology
3. Course Type : Core Course
4. Year : 1st (Week 56)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :2
9. Contact Hours :8 hours
10. Total Marks :15

11. Rationale of the Course :The students will visit Urology department for 1 week so that they can recognise any Urology emergency (if happen or come) in radiology department. They will attend outdoor, indoor and operation theatre which will help them to remember the sign symptoms treatment and complications of Urology patients. They will have a communication with there Urology colleagues which will help in future patient management.

12. Course Objectives :Will be able to:

1. Explain Clinical Feature of patients with Urology Emergency
2. Describe sign-symptoms of patients with different diseases of Urology.
3. Perform relevant Urology examination.
4. Explain Pathophysiology of Urology diseases commonly come for radiological evaluation (e.g. Ureteric calculus)
5. Describe indications of radiological investigation for Urology patients.
6. Describe names with gross interpretation of commonly used non radiological tests used in Urology department.
7. Describe the Congenital ocular diseases.
8. Mention cases where Urologist and Interventional Radiologist can manage patient together.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 56	3	3	2	3	3	3	3	3	2	1	3

PART B= Course Plan

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
56	Common Genitourinary diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Genitourinary diseases (e.g.complication of UTI, undescended testis). - Indication of radiological investigation of different Genitourinary diseases. - Mention the Genitourinary cases where interventional radiologist can contribute.

PART C

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book (5)

B. Course ending exam (MCQ) -10

C. Block ending exam - 8.3% of total A5 block ending exam

b) Summative : As part of Surgery

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading:Oxford Hand Book of Clinical Surgery (Latest Edition)

- 2) Supplementary Readings:
- 3) Others:

Block-A5; Course-0914:2592 Obstetrics, Gynaecology & Gynae-oncology

Course-A5.i (Part A)

1. Course name / Course code : Course-0914:2592
2. Course Title : Obstetrics, Gynaecology & Gynae-oncology
3. Course Type : Core Course
4. Year : 1st (Week 57-58)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :4
9. Contact Hours :16 hours
10. Total Marks :30
11. Rationale of the Course :The students will visit Obstetrics, Gynaecology & Gynae-oncology department for 2 weeks so that they can recognise any Obstetrics, Gynaecology & Gynae-oncology emergency (if happen or come) in radiology department. They will attend outdoor, indoor and operation theatre which will help them to remember the sign symptoms treatment and complications of Obstetrics, Gynaecology & Gynae-oncology patients. They will have a communication with there Obstetrics, Gynaecology & Gynae-oncology colleagues which will help in future patient management.
12. Course Objectives :Will be able to:
 1. Explain Clinical Feature of patients with Obstetrics, Gynaecology & Gynae-oncology Emergency
 2. Describe sign-symptoms of patients with different diseases of Obstetrics, Gynaecology & Gynae-oncology.
 3. Perform relevant Obstetrics, Gynaecology & Gynae-oncology examination.
 4. Explain Pathophysiology of Obstetrics, Gynaecology & Gynae-oncology diseases commonly come for radiological evaluation (e.g. Ovarian Tumor, Carcinoma Cervix)
 5. Describe normal foetal growth and the different foetal anomaly
 6. Describe indications of radiological investigation for Obstetrics, Gynaecology & Gynae-oncology patients.
 7. Describe names with gross interpretation of commonly used non radiological tests used in Obstetrics, Gynaecology & Gynae-oncology department.
 8. Mention cases where Obstetrics, Gynaecology & Gynae-oncology and Interventional Radiologist can manage patient together.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 57-58	3	3	2	3	3	3	3	3	2	1	3

Course A5.i (PART B= Course Plan)

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
57-58	Common Genitourinary diseases Diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Genitourinary diseases (e.g.complication of UTI, undescended testis). - Indication of radiological investigation of different Genitourinary diseases. - Mention the Genitourinary cases where interventional radiologist can contribute.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

1) *Assessment Strategy:*

A. Formative

A. Log Book

B. Course ending exam-MCQ

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book (10)

B. Course ending exam (MCQ) -20

C. Block ending exam - 16% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: DC Dutta's Textbook of Gynaecology (Latest Edition)

2) Supplementary Readings:

3) Others:

Block-A5; Course-0914:25-10-2 Paediatrics

Part A

1. Course name / Course code : Course-0914:25-10-2
2. Course Title : Paediatrics
3. Course Type : Core Course
4. Year : 1st (Week 59-60)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :4
9. Contact Hours :16 hours
10. Total Marks :30
11. Rationale of the Course :The students will visit Paediatric department (including Paediatric Surgery) for 2 weeks so that they can recognise any Paediatric emergency (if happen or come) in radiology department. They will attend outdoor, indoor and operation theatre which will help them to remember the sign symptoms treatment and complications of Paediatric patients. They will have a communication with there Paediatric colleagues which will help in future patient management.
12. Course Objectives :Will be able to:
 1. Explain Clinical Feature of patients with Paediatric Emergency
 2. Describe sign-symptoms of patients with different diseases of Paediatrics.
 3. Perform relevant physical examination of Paediatrics children.
 4. Explain Pathophysiology of different Paediatric diseases commonly come for radiological evaluation (e.g. Intussusception, Hirschsprung disease, AGN)
 5. Describe indications of radiological investigation for Paediatric patients.
 6. Describe names with gross interpretation of commonly used non radiological tests used in Paediatrics department.
 7. Mention cases where Paediatric Surgeon and Interventional Radiologist can manage patient together.

13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 59-60	3	3	2	3	3	3	3	3	2	1	3

Course A5.j (PART B= Course Plan)

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
59-60	Common Paediatric Diseases	- Lecture - Self and group study - Indoor and outdoor & operation theater visit	- Course ending exam - Block ending exam - Portfolio - Phase final exam	Students will be able to: - Describe the pathophysiology - Describe Clinical feature - Perform Relevant physical examination - Explain Commonly used non radiological investigations - Describe Treatment - Mention Complications of Common Paediatric diseases (e.g. Intestinal Volvulus, ASD). - Indication of radiological investigation of different Paediatric diseases. - Mention the Paediatric cases where interventional radiologist can contribute.

PART C= Assessment and Evaluation

15. Assessment and Evaluation

- 1) **Assessment Strategy:**
 - A. Formative
 - A. Log Book
 - B. Course ending exam-MCQ
 - B. Summative
- 2) **Marks distribution:**
 - a) Continuous Assessment:
 - A. Log Book (10)

- B. Course ending exam (MCQ) -20
- C. Block ending exam - 16% of total A5 block ending exam

b) Summative : As part of Surgery

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

- 1) Recommended Reading: Pocket Pediatrics, Paritosh Prasad (Latest Edition)
- 2) Supplementary Readings:
- 3) Others:

Assessment of Block A5

Block Ending Exam at the end of Week-60, Organised jointly by Respective Clinical departments with R&I Department.

15. Assessment and Evaluation

1) Assessment Strategy:

A. Formative

i. Log Book

ii. Block ending Exam : Block ending exam at the end of Week-60, Organised jointly by respective Clinical departments with R&I Department. Marks distribution in Table (Table: A5-Assessment-1).

Table: A5-Assessment-1; Course wise Block Ending Exam(A5) Mark distribution		
Course Code (Week)	Course Title	Marks (%)
Course-A5.a (2)	General +Breast+Hepatobiliary+Col orectal)	10 (10%)
Course-A5.b (1)	Orthopedic Surgery	5 (5%)
Course-A5.c (1)	Neurosurgery	5 (5%)
Course-A5.d (1)	Vascular Surgery	5 (5%)
Course-A5.e (1)	Oral & Maxillofacial Surgery	5 (5%)
Course-A5.f (1)	Otolaryngology	5 (5%)
Course-A5.g (1)	Ophthalmology	5 (5%)
Course-A5.h (1)	Urology	5 (5%)
Course-A5.i (2)	Obstetrics, Gynaecology & Gynaecology	10 (10%)
Course-A5.j (2)	Paediatrics	15 (15%)
*Though week distribution for Paediatric (i.e. 2 week) is same like surgery of Gynaecology but mark allocation has been made 1.5 time to bring a round figure in total mark as well as to give importance to Paediatrics.		

B. Summative (With Phase-A Final)

Table: A5-Assessment-2 Mark allocation for Block A5 in Summative (Phase-A Final) Exam	
Written	12.5% (i.e. 25% of Paper I)
OSPE	12.5% (i.e. 25% of Paper I)
VIVA / Clinical	12.5% (i.e. 25% of Paper I)
Portfolio	6.25%

3) Make-up Procedures: Repeat Block ending exam.

Course A5.j (PART B= Course Plan)

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
61-72	1. Introduction of Nervous System	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Introduction including:</i> - Cellular Architecture. - Classification of neurons. - Reflex Arc - Parts of Nervous systems. - Parts of Brain. - Gross study of Brain.
	2. Meninges of the brain and cerebrospinal fluid.	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Meninges of the brain and cerebrospinal fluid including:</i> - Introduction. - Dura Matter. - Arachnoid Matter. - Pia Mater. - Subarachnoid space. - Cerebrospinal fluid. - Functions of CSF.
	3. Spinal Cord.	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Spinal cord including:</i> - Introduction. - Meningeal Coverings. - Spinal Nerves. - Nuclei of Spinal Cord. - Laminar Organization in Spinal \cord. - Tracts of the spinal cord. - Descending tracts. - Ascending tracts. - Summary.

	4. Cranial Nerves.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Cranial Nerves including:</i> • Embryology. • First cranial nerve. • Olfactory (Smell) pathway. • Second cranial nerve. • Visual (Optic) Pathway. • Structures in visual pathway. • Third cranial nerve. • Fourth cranial nerve. • Sixth cranial nerve. • Fifth cranial nerve. • Seventh cranial nerve. • Eighth cranial nerve. • Last four cranial Nerves. • Ninth Cranial nerve. • Tenth Cranial nerve. • Eleventh cranial nerve. • Twelve cranial nerve.
	5. Brainstem.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Brainstem including:</i> • Introduction. • Medulla Oblongata. • Pons. • Midbrain. • Development.
	6. Cerebellum.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Cerebellum including:</i> • Introduction. • Development.

	7. Fourth Ventricle.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Fourth Ventricle including:</i> • Introduction. • Lateral boundaries. • Floor. • Roof. • Tela choroidea of fourth ventricle. • Communication. • Recesses of fourth ventricle.
	8. Cerebrum.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Cerebrum including:</i> • Introduction. • Cerebral sulci and gyri. • Functional and cortical areas. • Thalamus. • Metathalamus (Part of Thalamus). • Medial geniculate body. • Lateral geniculate body. • Epithalamus. • Hypothalamus. • Sub thalamus. • Basal nuclei. • Corpus striatum. • White matter of cerebrum. • Association (Arcuate) fibers. • Projection Fibers. • Commissural Fibers. • Development.
	9. Third Ventricle, Lateral Ventricle and Limbic System.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Third Ventricle, Lateral Ventricle and Limbic System including:</i> • Third ventricle. • Lateral ventricle. • Limbic system. • Clinical anatomy.

	10. Some neural pathways and reticular Formation.	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Some neural pathways and reticular Formation including:</i> - Pyramidal tract. - Pathway of pain and temperature. - Pathway of touch. - Pathway of proprioceptive Impulses. - Taste pathway. - Clinical anatomy.
	11. Blood supply of spinal cord and brain.	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Blood supply of spinal cord and brain including:</i> - Blood supply of spinal cord. - Arteries of brain. - Circulus Arteriosus of Circle of Willis. - Arterial supply of different areas. - Blood-Brain Barrier. - Prevascular spaces. - Veins of cerebrum. - Blood supply of the brainstem.
	12. Investigations of neurological case, surface and radiological anatomy and evolution of head.	- Lecture classes - Group and individual Study using models and viscera.	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the Investigations of neurological case, surface and radiological anatomy and evolution of head including:</i> - Investigations required in a neurological case. - Surface anatomy. - Functional areas of cerebral cortex. - Cerebellum. - Radiological anatomy of the brain. - Cerebral Angiography. - Evolution of the head.
	1. OSTEOLOGY OF HEAD AND NECK	- Lecture classes - Group and individual Study using Bones	- Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 - Phase A exam	<i>Will be able to describe the anatomy of skull bones including:</i> - Bones of skull including ossification - Joints of Head and neck especially Temporo-mandibular, Atlanto-occipital and Atlanto-axial joints - Skull base and Structures passing through foramina - Orbit and its boundaries - Temporal bones especially the petrous part - Paranasal sinuses

	2.Scalp, Temple and Face	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	Will be able to describe the: • Scalp, • Superficial temporal region including the arteries, • Eyelids • Lacrimal Apparatus • Development of face
	3.Side of Neck	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of side of Neck including:</i> • Landmarks of side of neck • Deep Cervical Fascia • Investing Layer • Pretracheal Fascia • Prevertebral Fascia • Carotid Sheath • Buccopharyngeal Fascia • Pharyngobasilar Fascia • Posterior triangle Contents • Potential spaces of neck including Lower and Upper jaws
	4. Back of the neck	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of back of the neck including:</i> • Introduction. • Muscles of the back dissection. • Suboccipital triangle. • Suboccipital muscles. • Clinical anatomy.
	5. Contents of vertebral canal	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of contents of vertebral column of the neck including:</i> • Epidural Space. • Spinal dura matter • Arachnoid matter. • Spinal Pia matter. • Spinal nerves. • Vertebral System of Veins.

	6. Cranial Cavity	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of contents of cranial cavity of the neck including:</i> • Cranial Cavity Dissection. • Cerebral dura matter • Venous sinuses of dura matter. • Cavernous sinuses. • Hypophysis \cerebri (Pituitary Gland) dissection. • Histology and Hormones. • Trigeminal Ganglion Dissection. • Middle Meningeal Artery Dissection. • Cranial Nerves. • Internal Carotid Artery (Cavernous part). • Petrosal Nerves. • Clinical Anatomy.
	7. Contents of the Orbit.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of contents of the Orbit:</i> • Introduction. • Dissection. • Extra ocular Muscles. • Ophthalmic Artery Dissection. • Optic Nerve. • Ciliary Ganglion. • Lacrimal Nerves. • Frontal Nerve. • Nasociliary Nerve. • Infraorbital Nerve • Zygomatic Nerve. • Sympathetic Nerves of the Orbit. • Clinical Anatomy.
	8. Anterior Triangle of the Neck	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of contents of anterior triangles of the neck:</i> • Surface Landmarks. • Skin. • Structures of the anterior median region of the neck dissection. • Anterior triangle of the neck Dissection. • Submental Triangle. • Digastric triangle. • Carotid Triangle dissection. • Common Carotid Artery. • External Carotid Artery. • Muscular Triangle. • Clinical Anatomy.
	9. Parotid Region	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Parotid Region of the neck:</i> • Salivary Glands. • Parotid Gland Dissection. • Capsule of Parotid Gland. • External Features. • Clinical Anatomy.

	10. Temporal and Infra Temporal Regions.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Temporal and Infra Temporal Regions of the neck:</i> • Introduction. • Infratemporal Fossa. • Pterygopalatine Fossa. • Landmarks of the lateral side of the head. • Muscles of mastication dissection. • Relations of lateral pterygoid. • Relations of medial pterygoid. • Maxillary Artery. • Temporomandibular joint Articular Surfaces dissection. • Ligaments. • Movements. • Mandibular Nerve Dissection. • Course and Relations. • Branches. • Otic Ganglion. • Connection and Branches. • Clinical Anatomy.
	11. Submandibular Region.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Submandibular Region of the neck:</i> • Supra Hyoid Muscles Dissection. • Submandibular salivary gland. • Sublingual salivary gland. • Submandibular ganglion. • Connection and Branches. • Clinical Anatomy.

	12. Deep structures in the Neck.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the deep structures in the Neck:</i> • Glands. • Thyroid gland Dissection. • Capsules of Thyroid Relations • Arterial Supply development. • Parathyroid glands. • Thymus. • Blood Vessels. • Subclavian Artery. • Branches. • Common Carotid Artery Dissection. • Internal Carotid Artery. • Subclavian Vein. • Internal Jugular Vein. • Brachiocephalic Vein. • Cervical part of sympathetic trunk • Ganglia Dissection. • Cervical Plexus. • Branches. • Phrenic Nerve. • Course and relations in the Neck. • Trachea. • Oesophagus. • Lymph Nodes of head and neck. • Superficial circle. • Deep circle. • Prelaryngeal and pretracheal nodes. • Paratracheal Nodes. • Retropharyngeal Nodes. • Scalene Muscles. • Cervical Pleura. • Styloid Apparatus. • Clinical Anatomy.
	13. Prevertebral Region.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the prevertebral region in the Neck:</i> • Prevertebral muscles. • Vertebral Artery Dissection. • Branches of Vertebral Artery. • Development of vertebral Artery. • Joints of the Neck. • Clinical Anatomy.

	14. Mouth and Pharynx.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Mouth and Pharynx in the Neck:</i> • Oral Cavity. • Teeth. • Development of teeth. • Hard palate dissection. • Soft palate. • Muscles of the soft palate. • Passavants Ridge. • Development of palate. • Pharynx Dissection. • Boundaries. • Parts of the pharynx. • Waldeyer's Lymphatic Ring. • Palatine Tonsil. • Laryngeal part of pharynx. • Structure of pharynx. • Muscles of the Pharynx Dessection. • Killian's Dehiscence. • Deglutition (Swallowing). • Auditory tube. • Clinical Anatomy.
	15. Nose and Paranasal sinuses.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Nose and Paranasal sinuses region:</i> • Introduction. • Nose. • External nose. • Nasal Cavity Dissection. • Chonchae and Meatuses Dissection. • Teeth. • Paranasal sinuses dissection. • Pterygopalatine Fossa. • Maxillary Nerve dissection. • Pterygopalatine Ganglion / Sphenopalatine Ganglion / Ganglion of Hay Fever. • Summary of Pterygopalatine fossa. • Clinical Anatomy.
	16. Larynx.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Larynx region:</i> • Introduction. • Cartilages of larynx. • Laryngeal ligaments and membranes. • Cavity of larynx. • Intrinsic muscles of larynx. • Movements of vocal folds. • Mechanism of nspeech. • Clinical Anatomy.

	17. Tongue.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the tongue region including:</i> • Introduction. • External features. • Muscles of the tongue. • Nerve supply. • Histology. • Development of tongue. • Taste pathway. • Clinical Anatomy.
	18. Ear and Vestibulocochlear Nerve.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Ear and Vestibulocochlear Nerve region including:</i> • Features of the Temporal Bone. • External Ear. • Middle ear. • Boundaries. • Ear ossicles. • Joints of the ossicles. • Muscles of the middle ear. • Internal Ear. • Development. • Vestibulocochlear nerve. • Clinical Anatomy.
	19. Eyeball.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the anatomy of the Eyeball region including:</i> • Introduction. • Outer coat. • Cornea. • Middle coat. • Inner coat / Retina. • Aqueous Humour. • Lens. • Development. • Vitreous Body. • Clinical Anatomy.
	20. Surface Marking and Radiological Anatomy.	• Lecture classes • Group and individual Study using models and viscera.	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 15 • Phase A exam	<i>Will be able to describe the Surface Marking and Radiological Anatomy including:</i> • Surface Landmark. • Surface landmarking of various structures. • Arteries. • Veins. • Nerves. • Glands. • Palatine Tonsil. • Paranasal sinuses. • Radiological Anatomy. • Lateral view of skull. • Cranial vault. • Base of Skull. • Special P/A View of paranasal sinuses. • Cervical vertebrae.

	1. Introduction of thorax	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmark and shape of thorax • Thoracic inlet • Thoracic outlet
	2. Bones and Joints of Thorax	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Ribs and Costal Cartilage • Sternum • Vertebral Column • Joints of thorax • Respiratory Movements
	3. Wall of thorax	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Thoracic Wall Proper. • Internal Thoracic Artery. • Azygos Vein. • Thoracic Sympathetic Trunk.
	4. Thoracic Cavity and Pleura.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Thoracic Cavity. • Pleura. • Nerve Supply of the Pleura.

	5. Lungs.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Introduction of Lungs. • Fissures and lobes. • Roots of the lung. • Bronchial tree. • Nerve Supply of Heart. • Developmental components. • Foetal Circulation.
	6. Mediastinum.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Superior Mediastinum. • Inferior Mediastinum. • Anterior Mediastinum. • Middle Mediastinum. • Posterior Mediastinum.
	7. Superior venacava, Aorta and Pulmonary Trunk.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Large Blood Vessel. • Superior venacava. • Ascending aorta. • Arch of the aorta. • Descending thoracic aorta. • Pulmonary trunk.
	8. Pericardium and heart.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Pericardium. • Heart. • External Features. • Right Atrium. • Right Ventricle. • Left Atrium. • Left Ventricle. • Structure of Heart. • Musculature of Heart. • Conducting System. • Right Coronary Artery. • Left Coronary Artery. • Veins of the Heart. • Nerve Supply of Heart. • Developmental components. • Foetal Circulation.

	9. Superior venacava, Aorta and Pulmonary Trunk.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Large Blood Vessels. • Superior vena cava. • Ascending Aorta. • Arch of the Aorta. • Descending Thoracic Aorta. • Pulmonary Trunk.
	10. Trachea, oesophagus and thoracic duct.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Trachea. • Oesophagus. • Thoracic duct.
	11. Surface marking and radiological anatomy of thorax.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Surface marking. • Radiography. • Numericals.
	12. Surface marking and radiological anatomy of thorax.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 16 and 17 • Phase A exam	<i>Will be able to describe the-</i> • Surface marking. • Radiography. • Numericals.

	1.Introduction and Osteology of Abdomen	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Lumbar vertebrae • Sacrum • Coccyx • Bony pelvis • Intervertebral Joints
	2. Anterior Abdominal Wall	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Skin and Superficial Fascia • Umbilicus • Muscles of Anterolateral Abdominal Wall • Action of main muscles of anterior abdominal wall • Inguinal Ligament • Conjoint Tendon or Flax inguinalis • The Cremester Muscle • Deep nerves of Anterior Abdominal wall • Deep Arteries of anterior Abdominal Wall • Rectus Seath • The Fascia Transversalis • Inguinal Canal • Structures passing through the inguinal canal • Constituents of inguinal canal
	3. Male external genital organs.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Organs Included. • Penis. • Scrotum. • Testis. • Epididymis.

	4. Abdominal cavity and peritoneum.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Nine regions of abdomen. • Peritoneum. • Functions of peritoneum. • Peritoneal folds. • Transverse Mesocolon. • Sigmoid Mesocolon. • Reflexion of the peritoneum of the liver. • Vertical tracing / Sagittal tracing. • Horizontal tracing above the level of transverse colon. • Horizontal tracing below the level of the transverse colon. • Horizontal tracing of peritoneum of the lesser pelvis (Male). • Horizontal tracing of peritoneum of the lesser pelvis (Female). • Epiploic foramen / Omental foramen / Foramen of Winslow. • Lesser sac and omental bursa. • Special regions of the peritoneal cavity. • Supracolic compartment / Supraphrenic spaces. • Infracolic compartment. • Rectouterine pouch (Pouch of Douglas). • Peritoneal Fossa (Recesses). • Development.
	5. Abdominal part of Oesophagus and stomach.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Oesophagus and stomach. • Abdominal part of Oesophagus. • Histology. • Stomach. • External features. • Lymphatic drainage. • Interior of stomach. • Histology of stomach. • Development.

	6. Small and large intestine.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Small Intestine. • Relevant features. • Duodenum. • Peritoneal relations. • Suspensory muscles of duodenum. • Histology. • Jejunum and Ileum. • Histology. • Meckel's Diverticulum. • Large intestine. • Caecum. • Vermiform appendix. • Histology. • Ascending colon. • Right colic flexure (Hepatic flexure). • Transverse colon. • Left colic flexure (Splenic flexure). • Descending colon. • Sigmoid colon (Pelvic colon). • Histology of colon. • Development.
	7. Large blood vessels of the gut.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Blood vessels. • Coeliac trunk. • Superior mesenteric artery. • Superior mesenteric vein. • Inferior mesenteric artery. • Inferior mesenteric vein. • Marginal artery of Drummond. • Portal vein. • Portosystemic communication. • Development.
	8. Extrahepatic biliary apparatus.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Hepatic ducts. • Gall Bladder. • Histology. • Development.

	9. Spleen, pancreas and liver.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Spleen. • Histology. • Development. • Head of the pancreas. • Body of the pancreas. • Tail of the pancreas. • Ducts of the pancreas. • Histology. • Development. • Liver. • External features. • Hepatic segments. • Histology. • Developments.
	10. Kidney and Ureter.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Kidneys. • Relation of the kidneys. • Capsules of covering the kidneys. • Exposure of the kidneys from behind. • Histology. • Ureters. • Dimensions. • Histology. • Development of kidneys and ureters.
	11. Supra renal gland and chromaffin system.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Supra renal gland. • Right supra renal gland. • Left supra renal gland. • Histology. • Development of supra renal gland. • Chromaffin system.
	12. Diaphragm.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Gross anatomy. • Openings in the diaphragm. • Development.

	13. Posterior abdominal wall.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	• Will be able to describe the anatomy of- • Introduction. • Blood vessels, Muscles and Nerves. • Abdominal aorta. • Common iliac arteries. • Inferior vena cava. • Abdominal part of azygos and hemiazygos vein. • Lymph nodes of posterior abdominal wall. • Cisterna Chyli. • Thoracolumbar fascia (Lumbar fascia). • Nerves of posterior abdominal wall. • Abdominal part of autonomic nervous system. • Layers of the abdomen.
	14. Perineum.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	• Will be able to describe the anatomy of- • Superficial boundaries. • Deep boundaries of the perineum. • Anal region. • Perineal body. • External anal sphincter. • Ischioanal fossa. • Male perineum. • Perineal membrane. • Female perineum. • Female external genital organs / Pudendum / Vulva. • Female urogenital region. • Deep perineal space. • Perineal spaces / pouches. • Pudendal canal. • Internal pudendal artery. • Internal pudendal vein. • Histology of body of Penis / Clitoris.
	15. Preliminary consideration of boundaries and contents of pelvis.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Lesser pelvis. • Muscles. • Pelvis inlet: Superior aperture of pelvis. • Pelvis outlet: Inferior aperture of pelvis. • Pelvic floor. • Contents. • Structures crossing the pelvic inlet / Brim of the pelvis.

	16. Urinary bladder and urethra.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Introduction of urinary bladder and urethra. • Male urethra. • Female urethra. • Micturation. • Histology of urinary bladder. • Development of urinary bladder and urethra.
	17. Female reproductive organs.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Internal genital organs. • Ovaries. • External features. • Histology Uterine tubes. • Histology uterus. • Histology vagina. • Histology development.
	18. Male reproductive organs.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Introduction. • Ductus deference. • Histology. • Development. • Seminal vesicles. • Prostate. • Vertebral systems of veins. • Communications and implications.
	19. Rectum and anal canal.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Rectum. • Anal canal. • Relations of the anal canal. • Interior of the anal canal. • Musculature of the anal canal. • Histology. • Development.

	20. Walls of pelvis.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Vessels of the pelvis. • Internal iliac artery. • Internal iliac vein. • Lymphnodes of the pelvis. • Nerves of the pelvis. • Lumbo-Sacral plexus. • Coccygeal plexus. • Pelvis autonomic nerve. • Pelvis fascia and muscles. • Pelvis muscles. • The Levator Ani. • Joints of pelvis. • Lumbo-sacral joints. • Sacro-iliac joint. • Pubic symphysis. • The mechanism of pelvis.
	21. Surface marking of abdomen and pelvis.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Plans and the regions of abdomen. • Viscera. • Vessels. • Miscellaneous.
	22. Radiological and imaging procedures.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Plain skiagram of abdomen. • Alimentary canal: Barium studies. • Billiary apparatus. • Hysterosalpingography. • Photogram.
	23. Appendix 2.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 19 to 22 • Phase A exam	<i>Will be able to describe the anatomy of-</i> • Lower Intercostal Nerves. • Upper lumbar Nerves. • Lumbar plexus. • Sacral plexus. • Abdominal part of sympathetic trunk. • Pelvic part of sympathetic trunk. • Collateral and prevertebral ganglia and plexus. • Clinical terms.

	1.Introduction of Upper Limb	• Lecture classes • Group and individual Study using models, Bones and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Parts of Upper Limb including the evolution • Lines of Force Transmission
	2. Bones of Upper Limb	• Lecture classes • Group and individual Study using models, Bones and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Clavicle. • Scapula. • Humerus. • Radius. • Ulna. • Carpal bones. • Metacarpal bones. • Phalanges. • Sesamoid bones of the upper limb.
	3. Pectoral region.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmarks. • Superficial fascia. • Breast / Mammary gland. • Deep pectoral fascia. • Muscles of the pectoral region.
	4. Axilla.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Contents of axilla. • Axillary artery. • Relations of axillary arteries. • Axillary Lymphnodes. • Brachial plexus.

	5. Back.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmarks. • Skin and fasciae of the back. • Muscles connecting upper limb with the vertebral column.
	6. Scapular region.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmarks. • Muscles of the scapular region. • Deltoid. • Intermuscular spaces. • Axillary and circumflex nerve. • Anastomoses around scapula.
	7. Cutaneous nerves, superficial veins, Lymphnodes and lymphatic drainage.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Cutaneous nerves. • Dermatomes. • Superficial veins. • Lymphnodes and lymphatic drainage.
	8. Arm.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmark. • Anterior compartment. • Muscles. • Musculocutaneous nerves. • Brachial artery. • Large nerves. • Cubital fossa. • Posterior compartments. • Triceps brachii muscles. • Radial nerve and musculospiral nerve. • Profunda brachii artery.

	9. Forearm and hand.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Muscles of front of forearm. • Superficial muscles. • Deep muscles. • The arteries of the forearm. • Radial artery. • Ulnar artery. • The nerves. • Median nerve. • Radial nerve. • Ulnar nerve. • Palmer aspect of wrist and hand. • Intrinsic muscles of the hand. • Arteries of the hand. • Spaces of the hand. • Back of forearm and hand. • Dorsum of the hand and superficial muscles. • Superficial muscles. • Deep muscles. • Posterior interosseous nerve. • Posterior interosseous artery.
	10. Joints of upper limb.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Shoulder girdle. • Sternoclavicular joint. • Acromioclavicular joint. • Shoulder joint. • Movement of shoulder joint. • Dancing shoulder joint. • Elbow joint. • Radioulnar joints. • Wrist (Radiocarpal) joints. • Intercarpal, carpometacarpal and intermetacarpal joints.
	11. Surface marking, radiological anatomy and comparison of upper and lower limb.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface Landmarks. • Arteries. • Nerves. • Joints. • Retinacula. • Synovial Sheaths of the Flexor Tendons. Radiological Anatomy of Upper Limb. • Comparison of Upper and lower Limbs.

	13. Bones of lower limb.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Hip bone. • Ileum. • Pubis. • Ischium. • Acetabulum. • Obturator foramen. • Femur. • Patella. • Tibia. • Fibula. • Bones of the foot. • Tarsus / Tarsals. • Talus. • Calcaneus or calcaneum. • Navicular bone cuneiform bones. • Medial cuneiform. • Intermediate cuneiform. • Lateral cuneiform. • Cuboid. • Metatarsus. • Phalanges. • Sesamoid bones.
	14. Front of thigh.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface landmarks. • Skin and superficial fascia. • Deep fascia and femoral triangle. • Femoral triangle. • Femoral artery. • Femoral vein. • Femoral nerve. • Branches and distributions. • Muscles of the front of the thigh • Iliacus and psoas major. • Adductor / Hunter's / Subsartorial canal.
	15. Medial side of thigh.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Adductor compartment. • Boundaries. • Muscles of the adductor compartment of thigh. • Relations of adductor longus. • Obturator nerve. • Accessory obturator nerve. • Obturator artery. • Medial circumflex femoral artery.

	16. Gluteal region.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Surface landmark. • Superficial fascia. • Deep fascia. • Muscles of gluteal region. • Structures under cover of gluteus maximus. • Structures of deep of the gluteus medius. • Structures of deep of the gluteus minimus. • Sacrotuberous and sacrospinous ligaments. • Nerves of the gluteal region. • Superior gluteal nerve. • Inferior gluteal nerve. • Sciatic nerve. • Posterior cutaneous nerve of the thigh. • Nerve of quadratus femoris. • Pudendal nerve. • Nerve of the obturator internus. • Perforating cutaneous nerve. • Arteries of gluteal region. • Superior gluteal artery. • Inferior gluteal artery. • Internal pudendal artery. • Trochanteric anastomoses. • Cruciate anastomoses. • Structures passing through the greater sciatic foramen (Gateway of gluteal region). • Structures passing through the lesser sciatic foramen.
	17. Popliteal fossa.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Surface landmarks. • Popliteal fossa. Popliteal artery. • Popliteal vein. • Tibial nerve. • Common peroneal nerve. • Posterior cutaneous nerve of thigh. • Genicular branch of obturator nerve. • Popliteal Lymphnodes. • Anastomoses around the knee joint.
	18. Back of thigh.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Muscles and nerves. • Muscles of back of the thigh. • Sciatic nerve. • Arteries of the back of the thigh. • Anastomoses of the back of the thigh.

	19. Front. Lateral and medial sides of the leg and dorsum of foot.	• Lecture classes • Group and individual Study using models	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Surface landmarks. • Superficial fascia. • Contents. • Deep fascia. • Muscles of front of the leg. • Muscles of anterior compartment of the leg. • Anterior tibial artery. • Deep peroneal artery. • Dorsum of foot. • Dorsalis pedis artery (Dorsal artery) of the foot. • Fascia and muscles of lateral side of the leg. • Peroneal retinacula. • Peroneal muscles. • Superficial peroneal nerve. • Medial side of the leg.
	20. Back of leg.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Superficial fascia. • Deep fascia. • Boundaries and subdivisions flexure retinaculum. • Superficial muscles. • Deep muscles. • Posterior tibial artery. • Peroneal artery. • Tibial nerve.
	21. Sole of foot.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Skin. • Fasciae. • Deep fascia. • Muscles and tendons of the first and second layers. • Muscles and tendons of the third and fourth layers. • Plantar vessels and nerves. • Medial plantar nerve. • Lateral plantar nerve. • Medial plantar artery. • Lateral plantar artery. • Plantar arch.

	22. Venous and lymphatic drainage, segmental innervation and comparison.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Venous drainage. • Veins of lower limb. • Long saphenous vein. • Small and short saphenous vein. • Perforating veins. • Lymphatic drainage. • Superficial lymphatics. • Deep lymphatic. • Segmental innervation. • Sympathetic innervation.
	23. Joints of lower limb.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Hip joint. • Knee joint. • Synovial membrane. • Relations of knee joint. • Movement of the knee joint. • Ankle joint. • Tibiofemoral joints. • Joints of the foot. • Calcaneocuboid joints. • Transverse tarsal and mid tarsal joints.
	24. Arches of foot.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Introduction. • Formation of structure of arches. • Factors responsible for maintenance of arches. • Functions of arches. • Summary.
	25. Surface and radiological anatomy.	• Lecture classes • Group and individual Study using models and viscera	• Short Oral and practical exams (like Item, documented in Log book) on each topic during rotation at week 23-24 • Phase A exam	<i>Will be able to describe the-</i> • Surface marking of arteries. • Veins. • Nerves. • Miscellaneous structures. • Radiological anatomy. • Hip. • Knee. • Foot.

Block A6 (PART C)
Course A6 (PART C= Assessment and Evaluation)

15. Assessment and Evaluation

1) ***Assessment Strategy:***

A. Formative

- Log Book
- Course ending exam

B. Summative

2) ***Marks distribution:***

a) Continuous Assessment:

A. Log Book

B. Course ending exam

C. Block ending exam: 50 (*4)

b) Summative :

3) ***Make-up Procedures:*** Repeat Course ending exam / Block ending exam

Course A6 (PART D=Learning Materials)

16. Learning Materials

1) Recommended Reading:

2) Supplementary Readings:

3) Others:

Block-A7; Course-0914:271-13 Nuclear Medicine

Part A

1. Course name / Course code : Course-0914:271-13 Nuclear Medicine
2. Course Title : Nuclear Medicine
3. Course Type : Core Course
4. Year : 1st (Week 73-84)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite (If any) :
8. Credit Value :13
9. Contact Hours :96 hours
10. Total Marks :200
11. Rationale of the Course :The students will visit Nuclear Medicine department for 12 weeks when they will mostly learn the knowledge part of the course and then in another 12 weeks in phase B they will achieve the psychomotor and affective part of the Nuclear medicine training. They will have a communication with there Nuclear Medicine colleagues which will help in future patient management.
12. Course Objectives :Will be able to explain the Basic Principles of:
 1. Radioactivity and Radionuclides
 2. Radiation Detection and Ancillary Instrumentation
 3. SPECT, PET and Hybrid Imaging
 4. Radiopharmaceuticals
 5. Mollucular Imaging
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO 1 Clinical Expert	PLO 2 Teacher	PLO 3 Researcher	PLO 4 Communicator	PLO 5 Collaborator	PLO 6 Manager	PLO 7 Professional	PLO 8 Health Advocate	PLO 9 Leader	PLO 10 Entrepreneur	PLO 11 Scholar
Week 57-58	3	3	2	3	3	3	3	3	2	1	3

Course A7 (PART B= Course Plan)

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
73-84	Basics of Nuclear Medicine	• Lecture • Self and group study • Helping Faculties and senior residents in their work.	• Block ending exam • Portfolio • Phase final exam	Students will be able to: • Radioactivity and Radionuclides • Radiation Detection and Ancillary Instrumentation • SPECT, PET and Hybrid Imaging • Radiopharmaceuticals • Molecular Imaging

PART C

15. Assessment and Evaluation

1) **Assessment Strategy:**

A. Formative

A. Log Book

B. Course/Block ending exam

B. Summative: Phase A final Exam- 25% Paper -I

2) **Marks distribution:**

a) Continuous Assessment:

A. Log Book-

B. Block ending exam: 200

b) Summative :

• Written: 25

• SCA:12.5

• Oral:25

3) **Make-up Procedures:** Repeat Course ending exam / Block ending exam

PART D=Learning Materials

16. Learning Materials

1) Recommended Reading: Janis PO, *Nuclear Medicine and Molecular Imaging, The Requisites*. ELSEVIER

2) Supplementary Readings:

3) Others:

Phase-B

Block Schedule:

Table 18.b.1												
Month	March	April	May	June	July	August	September	October	November	December	January	February
Year 1	Searching Research Interest	Literature Review & Research gap		Protocol Writing IRB Application	IRB clearance, Pretesting & finalisation of tool		Data Collection + Analysis					
Year 2	Data Collection + Analysis						Thesis Writing			Publication		
Year 3	Thesis Defence						Block -B6					

Table 18.b.2: Block wise Course Distribution

Block-B1	Respiratory + CVS
Block-B2	Abdomen and Gastrointestinal (GI)
Block-B3	Genitourinary + Women's Imaging
Block-B4	Skeletal System and soft tissues + Interventional Radiology+ Nuclear Imaging
Block-B5	Head and Neck + Neuroimaging
Block-B6	Preparatory Block

Annex: Core Course Phase B

Block B: Core-B1.1 Diagnostic Cardiothoracic (Chest) Radiology-1

Part A

1. Course name / Course code : Core-B1.1
2. Course Title : Diagnostic Cardiothoracic (Chest) Radiology-1
3. Course Type : Core Course
4. Year : Phase B, Year 1 (Week1-11)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value : 12
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Respiratory Imaging will be acquired here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 1-11	3	3	3	3	3	2	3	3	3	1	3

Part B

14.Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 1	Normal Chest	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal radio anatomy of chest in image of all modalities of Radiology
Week 2	Differential Diagnosis in Chest Imaging	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to Describe differential diagnosis of chest disease in imaging
Week 3	Mediastinum	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain Mediastinal Imaging in detail.

Week 4	Pleura, Diaphragm, and Chest Wall	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Pleura, Diaphragm, and Chest Wall in detail.
Week 5	Pulmonary Infections	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Pulmonary Infections in detail.
Week 6	Lung Tumors	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Lung Tumors in detail.

Week 7	Diseases of Airways	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diseases of Airways in detail.
Week8	Diffuse Lung Disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diffuse Lung Disease in detail.
Week9	Paediatric Chest	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Paediatric Chest in detail.

Week1 0	Miscellaneous Conditions of Chest	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Miscellaneous Conditions of Chest in detail.
Week11	Acute Chest	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Acute Chest in detail.

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Course Final Exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B1: Core-B1.2-CVS

Part A

1. Course name / Course code : Core-B1.2-CVS
2. Course Title : Diagnostic Cardiothoracic (CVS) Radiology-2
3. Course Type : Core Course
- 4 . Year :Phase B, Year 1 (Week12-24)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value :12
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Cardiac Imaging will be gathered here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 12-24	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 12	Normal Heart	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal radio anatomy of Heart in image of all modalities of Radiology
Week 13	Congenital Heart Disease - Part 1	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings Congenital Heart Disease in all modalities of Radiology
Week 14	Congenital Heart Disease - Part 2	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings Congenital Heart Disease in all modalities of Radiology

Week 15	Chest Radiograph in Acquired Heart Disease part 1	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Acquired Heart Disease in detail.
Week 16	Chest Radiograph in Acquired Heart Disease part 2	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Acquired Heart Disease in detail.
Week 17	Coronary artery disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Coronary artery disease in detail.

Week 18	Cardiomyopathy and cardiac tumor	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology & Cardiac Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Cardiomyopathy and cardiac tumor in detail.
Week 19	Pericardium	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diseases of Pericardium in detail.
Week 20	Diseases of artery part 1	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Vascular Surgery & Rheumatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diseases of artery in detail.

Week 21	Diseases of artery part 2	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Vascular Surgery & Rheumatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diseases of artery in detail.
Week 22	Valvular heart disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Valvular heart disease in detail.
Week 23	Diseases of vein and lymphatics Part 1	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Vascular Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diseases of vein and lymphatics in detail.

Week 24	Paediatric Congenital Heart Disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Paediatric Congenital Heart Disease in detail.
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PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Course Final Exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

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Phase B:

Block B2: Core-B2-GIT

Part A

1. Course name / Course code : Core-B2-GIT
2. Course Title : Diagnostic Abdomen & Gastrointestinal Radiology
3. Course Type : Core Course
4. Year : Phase B, Year 1 (Week 25-45)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value :22
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Abdomen & Gastrointestinal Imaging will be acquired here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 25-45	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 25	Conventional Abdominal Radiology	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal radio anatomy of Abdomen in image of all modalities of Radiology
Week 26	Disease of oesophagus	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings Disease of oesophagus in all modalities of Radiology
Week 27	Disease of Stomach	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Gastroenterology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings Disease of Stomach in all modalities of Radiology

Week 28	Imaging of small bowel	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Gastroenterology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Small Bowel Disease in detail.
Week 29	Imaging of large bowel	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Gastroenterology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Large Bowel Disease in detail.
Week 30	Liver anatomy and variants	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Hepatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Liver anatomy and variants in detail.

Week 31	Non cirrhotic liver Part 1	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Hepatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Non cirrhotic liver in detail.
Week 32	Non cirrhotic liver Part 2	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending General Surgery & Hepatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Non cirrhotic liver in detail.
Week 33	Diffuse liver disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Diffuse liver disease in detail.

Week 34	Liver cirrhosis	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Liver cirrhosis in detail.
Week 35	HCC	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatology & Hepatobiliary Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of HCC in detail.
Week 36	Spleen	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Splenic Diseases in detail.
Week 37	Gall bladder	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatobiliary Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Gall bladder Disease in detail.

Week 38	Biliary tree	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatobiliary Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Biliary tree Disease in detail.
Week 39	Non neoplastic disease of pancreas	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatobiliary & pancreatic Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Non neoplastic disease of pancreas in detail.
Week 40	Pancreatic neoplasm	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Hepatobiliary Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Non neoplastic disease of pancreas in detail.
Retroperitoneum	Peritoneum	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of disease of pancreas peritoneum in detail.

Week 42	Retroperitoneum & abdominal wall	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of disease of Retroperitoneum & abdominal wall in detail.
Week 43	Pediatric Gastrointestinal Tract and Hepatobiliary System	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Gastrointestinal Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings Pediatric Gastrointestinal Tract and Hepatobiliary System in detail.
Week 44	Trauma of the Torso	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Casualty Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Different type of Abdominal Trauma in detail.
Week 45	Acute Abdomen	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Medicine, Surgery and Emergency Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Acute Abdomenin detail.

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B3: Core-B3.1-GU

Part A

1. Course name / Course code : Core-B3.1-GU
2. Course Title : Diagnostic Genitourinary Radiology
3. Course Type : Core Course
4. Year : Phase B, (Week 46-58)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value :14
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Genitourinary Imaging will be acquired here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 46-58	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
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Week 46	Urinary tract anatomy –IVU interpretation	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal Urinary tract anatomy in image of all modalities of Radiology
Week 47	Congenital lesions and variants _Miscellaneous	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of congenital genitourinary lesions and variants in all modalities of Radiology
Week 48	Urinary tract infections & inflammatory conditions-path of stone formation	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Urinary tract infections & inflammatory conditions-path of stone formation in all modalities of Radiology

Week 49	Imaging investigation of choice-Large kidney	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Nephrology and Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Enlarged Kidney in detail.
Week 50	Renal insufficiency-Anterior urethral injury	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Nephrology and Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Renal insufficiency & Anterior urethral injury in detail.
Week 51	Solid renal tumour-imaging in metastatic RCC	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Solid renal tumour-imaging in metastatic RCC in detail.

Week 52	Cystic mass of kidney	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Cystic mass of kidney in detail.
Week 53	Adrenal (introduction)- Adrenal cyst	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Endocrinology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain Radioanatomy of Adrenal Gland & demonstrate Imaging findings of Adrenal Cyst in detail.
Week 54	Pheochromocytoma- Hematospermia	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Endocrine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Adrenal diseases in detail.

Week 55	Prostate malignancy-nuclear imaging	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Uro Oncology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Prostate malignancy & nuclear imaging of Prostate in detail.
Week 56	Male urethra_Epididymo-orchitis	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain radio anatomy of Male urethra & Imaging findings of Epididymo-orchitis in detail.
Week 57	Extratesticular tumor-imaging in male infertility	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Extratesticular tumor-imaging in male infertility Diseases in detail.

Week 58	Paediatric Genitourinary Tract	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging findings of Paediatric Genitourinary Tract disease in detail.
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PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200

- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B3: Core-B3.2-WI**Part A**

1. Course name / Course code : Core-B3.2-WI
2. Course Title : Women's Imaging
3. Course Type : Core Course
- 4 . Year : Phase B, (Week 59-73)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value :16
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Female Imaging will be gathered here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 59-73	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 59	Uterus & cervix (introduction)-fibroid	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynaecology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal Uterine anatomy in image of Fibroid all modalities of Radiology
Week 60	Adenomyosis-Surveillance and recurrence	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynaecology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Adenomyosis in image of all modalities of Radiology

Week 61	Ovaries and adnexal (introduction)-PID	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynaecology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging of ovary and adnexa in all modalities of Radiology
Week 62	Neoplasm-Choriocarcinoma	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynae Oncology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Genitourinary neoplasm in all modalities of Radiology
Week 63	Sex cord stromal tumour-(MRI – risk stratification)	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynae Oncology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to demonstrate Imaging findings ovarian tumor in detail.

Week 64	Endometriosis- ESHRE/ESGE classification	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Gynae Oncology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging endometriosis in detail.
Week 65	Infertility- Primary valval carcinoma	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Infertility Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging infertility in detail.
Week 66	1 st trimester	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Obstetric Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging 1 st trimester of Pregnancy in detail.

Week 67	2 nd trim. (introduction)- ventral wall defect	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Obstetric Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to describe imaging of 2 nd Trimester of Pregnancy in detail.
Week 68	Genitourinary system-Invasive test	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Urology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Genitourinary system-Invasive tests in detail.
Week 69	3 rd trim (introduction)- gestational trophoblastic disease	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Obstetric Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain imaging of 3 rd trimester & and demonstrate Imaging findings of gestational trophoblastic disease in detail.

Week 70	Umbilical cord-Summery	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Obstetric Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain umbilical cord Imaging in detail.
Week 71	Fetal echocardiograph y-Fetal surgeries	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Cardiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate fatal echocardiograph y in detail.
Week 72	Breast- Interpretation of USG and lexicon	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Breast Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging of Breast in detail.

Week 73	Breast MRI-MRI guided intervention	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Breast Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Breast MRI in detail.
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PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B4: Core-B4.1-MSK**Part A**

1. Course name / Course code : Core-B4.1-MSK
2. Course Title : Musculoskeletal Imaging
3. Course Type : Core Course
- 4 . Year : Phase B, (Week 74-88=15 weeks)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value :16
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Musculoskeletal Imaging will be acquired here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 74-88	3	3	3	3	3	2	3	3	3	1	3

Part B**14. Course Plan**

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
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Week 74	Arthritis	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic, Physical Medicine & Rheumatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of different types of arthritis in with pathophysiological explanation in different modality .
Week 75	Endocrine and Metabolic Bone Diseases	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & Endocrine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Endocrine and Metabolic Bone Diseases in all modalities of Radiology
Week 76	Lymphoreticular and Hematopoietic Bone Diseases	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic, & Heamatology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Lymphoreticular and Hematopoietic Bone Diseases in all modalities of Radiology

Week 77	Musculoskeletal Infections	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Imaging findings of Musculoskeletal Infections in all modalities of Radiology
Week 78	Shoulder	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to demonstrate Imaging findings of normal shoulder and other shoulder pathology in detail.
Week 79	The Elbow	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging of elbow in detail.

Week 80	Imaging of the Wrist and Hand	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging of the Wrist and Hand in detail.
Week 81	Hip	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of normal hip & pathology of hip detail.
Week 82	Knee	• Lecture • Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of normal hip & pathology of hip detail.

Week 83	Ankle and foot	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of normal ankle & foot & pathology of ankle & foot detail.
Week 84	Bone Tumors	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of bone tumor in detail.
Week 85	Bone Tumor Mimics	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of mimics of bone tumor in detail.

Week 86	Soft Tissue Tumors	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic & physical medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Imaging finding of Soft Tissue Tumor in detail.
Week 87	Pediatric Musculoskeletal System	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Paediatric Orthopedic Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain indication and demonstrate Imaging findings of Pediatric Musculoskeletal System in detail.
Week 88	Skeletal Trauma	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Orthopedic Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Student will be able to explain and demonstrate Skeletal Trauma in images of different modality in detail.

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B4: Core-B4.2-IR & NI**Part A**

1. Course name / Course code : Core-B4.2-IR & NI
2. Course Title : Interventional Radiology & Nuclear Imaging
3. Course Type : Core Course
- 4 . Year : Phase B, (Week 89-95=7 weeks)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value : 6
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Interventional Radiology and part of Nuclear Imaging will be achieved here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 89-95	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 89	Introduction to Interventional Radiology	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Interventional Radiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate basics of Interventional Radiology
Week 90	Abdominal Interventions	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Interventional Radiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Indication, contraindication of different abdominal interventional procedures. Explain the steps of different Abdominal Interventional procedures. Explain the complications of different Abdominal Interventional procedures.

Week 91	Aortic and Peripheral Vascular Interventions and Interventions in the Chest	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Interventional Radiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate pathophysiology of Aortic and Peripheral Vascular diseases, explain suitable treatment. Describe indication and contraindication of IR procedure in different aortic and peripheral vascular diseases. Explain steps of major IR procedures with probate complications. Describe indication, contraindication, steps, complications of different IR
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Week 92	Neurointervention	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Interventional Radiology Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate pathophysiology of IR related diseases of head neck & brain. Describe indication, contraindication, steps, complications of different IR procedures of head neck & brain.
Week 93	Musculoskeletal Interventional Radiology	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Respiratory Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate pathophysiology of IR related diseases of Musculoskeletal system. Describe indication, contraindication, steps, complications of different IR procedures of Muscleskeletal system.

Week 94	Conventional Nuclear Medicine Imaging	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Nuclear Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Student will be able to explain basics of Nuclear Imaging.
Week 95	Positron Emission Tomography/Computed Tomography	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Nuclear Medicine Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Student will be able to interpret PET Image of any part of body.

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200

- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Background & Intent: Nuclear Medicine & Nuclear Imaging is taught in two Phase A & Phase B by 3 month + 3 month placement in Nuclear Medicine department. A detail training including knowledge skill & attitude is achieved in this 6 months, that's why time allocated for Nuclear Imaging is short in this "Interventional Radiology & Nuclear Imaging" course.

Block B5: Core-B5.1- H&N**Part A**

1. Course name / Course code : Core-B5.1- H&N
2. Course Title : Head Neck Radiology
3. Course Type : Core Course
- 4 . Year : Phase B, (Week 96-107=12 weeks)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value : 13
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Head Neck imaging will be gathered here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Cour se Lear ning Outc ome (CL O)	PLO1 Clinic al Exper t	PLO2 Teach er	PLO3 Resea rcher	PLO4 Com muni cator	PLO5 Colla borat or	PLO6 Mana ger	PLO7 Profe ssion al	PLO8 Healt h Advo cate	PLO9 Leade r	PLO1 0 Entre prene ure	PLO1 1 Schol ar
Week 96-10 7	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 96	Oral Cavity and Pharynx	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Head neck surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Oral cavity and Pharynx in all modality of Radiology
Week 97	Larynx	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Head neck surgery & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Larynx in all modality of Radiology

Week 98	Neck Nodes	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, & Head neck surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal Lymph nodes according to Pathology and location.
Week 99	Neck Spaces	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Head neck surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Neck Spaces in all modality of Radiology
Week 100	Thyroid and Parathyroids	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Thyroid and Parathyroids in all modality of Radiology

Week 101	Paranasal Sinuses	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Paranasal Sinuses in all modality of Radiology
Week 102	Orbit	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Ophthalmology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Orbit in all modality of Radiology
Week 103	Temporal Bone	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT & Maxilofacial Surgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Temporal Bone in all modality of Radiology

Week 104	Skull Base	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Skull Base in all modality of Radiology
Week 105	Oral and Dentomaxillofacial Radiology	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Maxillofacial surgery & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate Normal & abnormal findings of Oral and Dentomaxillofacial region in all modality of Radiology
Week 106	Paediatric Head and Neck	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Paediatric Surgery & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final Seminar	Will be able to demonstrate Normal & abnormal findings of Paediatric Head and Neck region in all modality of Radiology

Week 107	Neuro, Head, and Neck Trauma	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Maxillofacial surgery & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final Seminar	Will be able to demonstrate Normal & abnormal findings in case of Neuro, Head, and Neck Trauma in all modality of Radiology
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PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200
- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings: Text Book of Radiology & Imaging, David Sutton, Edition 8
- Supplementary Readings:
- Others:

Block B5: Core-B5.2- Brain & Spine

Part A

1. Course name / Course code : Core-B5.2- Brain & Spine
2. Course Title : Neuroradiology
3. Course Type : Core Course
- 4 . Year : Phase B, (Week 108-114=7 weeks)
5. Academic Session :
6. Course Teacher/Instructor :
7. Pre-requisite :
8. Credit Value : 8
9. Contact Hours :
10. Total Marks :
11. Rationale of the Course : Deep knowledge on Head Neck imaging will be gathered here.
12. Course Objectives :
13. Course Learning Outcomes (CLOs) and Mapping of CLOs with Program Learning Outcomes (PLOs)

Course Learning Outcome (CLO)	PLO1 Clinical Expert	PLO2 Teacher	PLO3 Researcher	PLO4 Communicator	PLO5 Collaborator	PLO6 Manager	PLO7 Professional	PLO8 Health Advocate	PLO9 Leader	PLO10 Entrepreneur	PLO11 Scholar
Week 96-107	3	3	3	3	3	2	3	3	3	1	3

Part B

14. Course Plan

Week	Topic	Teaching learning strategy	Assessment Strategy	Corresponding CLOs
Week 108	Benign Brain Lesions and Epilepsy	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Neurology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate possible benign Brain lesions. Will be able to demonstrate cause of epilepsy correlating with EEG findings.
Week 109	Metabolic and Degenerative Diseases	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Neurology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of Metabolic and Degenerative Diseases of brain with pathophysiological explanation.

Week 110	Stroke and Vascular Abnormalities	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Neurology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of Stroke & vascular Diseases of brain with pathophysiological explanation.
Week 111	Brain Tumors	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Neurology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of Brain tumors.
Week 112	Spine	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Neurology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Corse Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of Spine.

Week 113	Paediatric Brain and Spine	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending ENT, Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Will be able to demonstrate imaging findings of Paediatric Brain.
Week 114	Acute Neurological Emergencies	• Lecture • Self Study • Group Study • Teaching Assistance • Seminar • Attending Ophthalmology & Neurosurgery Conferences • Attending Medical board	• Continuous assessment during daily practice work • Presentation in Morning Session • Seminar • Topic Assessment • Course Final • Block Ending Exam • Phase Final	Will be able to detect Acute Neurological Emergencies & will perform further duties for early management.

PART C

15. Assessment and Evaluation

1) Assessment Strategy:

- Formative continuous assessment during report finalisation,
- Formative weekly exam,
- Block ending exam,
- Phase final exam,

2) Marks distribution:

- Continuous Assessment:
 - Formative weekly exam :10,
 - Course Final Exam- :100,
 - Block ending exam :200

- Summative: In Phase B Final

3) Make-up Procedures: Repeat course final within respective Block period

Part D

16. Learning Materials:

- Recommended Readings:
 - Text Book of Radiology & Imaging, David Sutton, Latest Edition
 - Diagnostic Neuroradiology, Osborn (Latest Edition)
- Supplementary Readings:
- Others:

Part-D Grading / Evaluation

The assessment method is comprehensive, integrated and phase-centered attempting to identify attributes expected of specialists for independent practice and lifelong learning and covers cognitive, psychomotor and affective domains. It keeps strict reference to the components, the contents, the competencies and the criteria laid down in the curriculum.

Principles of assessment

- Assessment process will reflect the aim and objectives of the curriculum
 - There will be provision for external assessors for quality / reliability assurance
 - The assessment methods will be reliable and valid. A wide range of assessment methods will be adopted which will include:
 - Written: Short answer questions (SAQs)
 - Structured clinical assessment (SCA).
 - Clinical Examination (Oral).
 - Portfolio Assessment
 - Assessment will be both formative and summative
 - Assessment will emphasize :
 - i) Recall of knowledge.
 - ii) Critical thinking and problem solving/ Analysis/ Synthesis or evaluation
 - iii) Skill including transferable skill such as communication skill.
- Methods of Assessment:

Methods of Assessment:

Methods of assessment will be: 1. Formative & 2) Summative

Formative Assessment:

Formative assessment will be conducted throughout the training. It will be carried out for tracking the progress of residents, providing feedback, and preparing them for final assessment (Phase completion exams).

There will be continuous (day-to-day) and periodic type of formative assessment.

Continuous Formative Assessment:

1. Weekly faculty report:

Students will be under direct supervision of a faculty in each week while they work on same modality. Faculty signs their daily record and at the end of week they give a mark on their domain wise (especially on skill and attitude) weekly performance.

2. Case Presentation:

Students need to present a case collected from their daily work. This case he/she is supposed manage completely (complete available radiological examination with collaboration of corresponding clinical colleagues). During this management he will gather deep knowledge by self drive and will present in front of fellow colleagues and faculties. This assessment will be followed by immediate feedback. Here assessment of all 3 domains I.e. knowledge, skill and attitude is done.

3. Seminar:

At every week end there will be a seminar presented by student scheduled in academic calendar. The presenter will be assessed at the end of the seminar with immediate feedback. Mainly knowledge domain will be assessed here.

4. Seminar topic assessment:

After each weekly seminar there is a assessment (MCQ/Fill in blank/SAQ) for all students (phase wise) record of which is kept in log book. (Annex: Core Course Phase B)

5. REALM (Radiology Events and Learning Meetings):

In this structured meeting anonymous review of radiological discrepancies and other learning cases done, aiming promote a positive learning environment.

6. Peer review:

Peer review of students and faculties done to improve skill and attitude of both sides.

Periodic Formative Assessment:

1) Course Final:

A course typically refers to a specific area of study that is taught over a defined period of time. Course schedule is given in academic calendar which a student will get at the beginning of their residency. There will be course final exam at the end of different courses which will be arranged by responsible faculty and will be recorded in log book.

2) Block Ending Exam:

A block is a defined period where a specific set of courses are taught in concentrated manner. Block Ending Exam will be held at the end of blocks. Block ending exams are arranged as mirror way of the phase final exam.

Report is given in common format provided by university.

Residents has to complete the courses which belongs to each block before attending the block ending exam.

Residents has to complete all the blocks to appear the Phase Final examination.

Summative (Phase final) Examinations:

PHASE-A final

University examination on Radiophysics, Nuclear Medicine, Medicine and Allied, Radio-anatomy, Anatomy, Surgery & Allied will be taken after completion of 2 years Phase-A residency training.

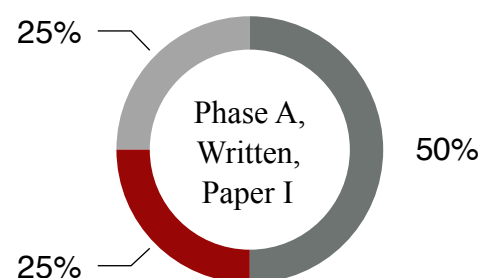
Those who will not be able to pass this examination may be allowed to sit for next 4 consecutive examinations.

1. Written : Paper I-Mark-100 (Pass mark 60), Paper II-Mark-100 (Pass mark 60)

● Radiophysics
● Nuclear Medicine
● Medicine & Allied

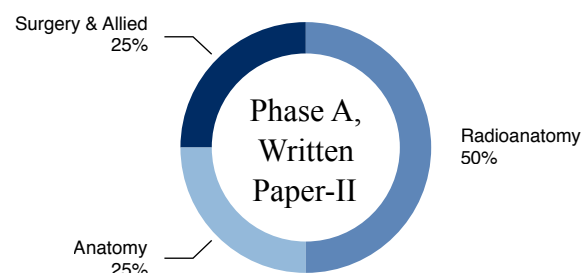
Paper I:

1. Group A (50% Radiophysics)
2. Group B (25% Nuclear Imaging + 25% Medicine & Allied)



Paper II:

1. Group A (50% Radio-anatomy)
2. Group B (25% Anatomy + 25% Surgery & Allied)



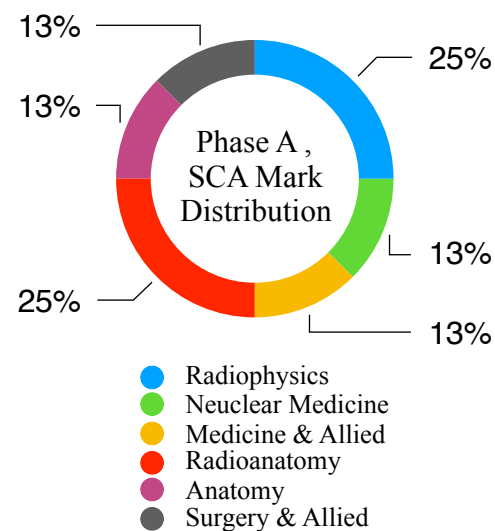
2. SCA : Paper I-Mark100 (Pass mark 60), Paper II
Mark-100 (Pass mark 60)

Paper I:

1. Radiophysics 25%
2. Nuclear Imaging 12.5%
3. Medicine & Allied 12.5%

Paper II:

1. Radio-anatomy 25%
2. Anatomy 12.5%
3. Surgery & Allied 12.5%



Clinical :Paper I (Mark-100) - 75% Radiophysics,
25% Medicine & Allied

Paper II (Mark-100) - 75% Radio-anatomy,
25% Surgery & Allied

PHASE-B Final:

Candidate will be eligible to appear in the Phase-B final examination after satisfactory completion of 3rd, 4th and 5th year core training in six blocks including block ending exams, Log book / port folio assessment.

Phase B Final Compartment A				
Parts of Examination	Name of Examination	Name of Subject	Marks allocated	Pass Mark
Written	Paper I (Short Essay narrative type)	1. Respiratory & Thoracic Imaging 2. Cardiovascular Radiology 3. GI & Hepatobiliary Radiology 4. Musculoskeletal Radiology	100	60
	Paper II (Short Essay narrative type)	• Neuroradiology • Head- Neck Radiology • Urogenital Radiology • Womens Imaging (Obstertrics, Gynaecology and Breast) • Soft tissue Radiology • Interventional Radiology • Nuclear Imaging	100	60
SCA/OSPE			100	60
Oral			100	60
Clinical: Long Case Short Case			100 100	60 60
Compartment B				
Thesis Thesis Defence			200 100	120 60
Log Book Assessment			100	75

Grading Scale:

Table 17.E.1

Marks Obtained	Grade Point Letter	Grade Point Average
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	B+	3.5
65% to less than 70%	B	3.25
60% to less than 65%	C	3.0
Less than 60%	F	0.00

Annexure 1: Core Course List (Phase B)

Knowledge Domain Topic Wise Week Distribution Ref: Text Book of Radiology & Imaging, David Sutton, 8th Edition			
Course Number	Course Name & Code	Topic	Week
1	1. Respiratory System CoreB: Respiratory	Normal Chest	1 Week
2		Differential Diagnosis in Chest Imaging	1 Week
3		Mediastinum	1 Week
4		Pleura, Diaphragm, and Chest Wall	1 Week
5		Pulmonary Infections	1 Week
6		Lung Tumors	1 Week
7		Diseases of Airways	1 Week
8		Diffuse Lung Disease	1 Week
9		Paediatric Chest (pg 2231-2247)	1 Week
10		Miscellaneous Conditions of Chest	1 Week
11		Acute Chest P2526- 2539	1 Week
12	2. CVS	Normal heart	1 Week
13		Congenital Heart Disease - Part 1	1 Week
14		Congenital Heart Disease - Part 2	1 Week
15		Chest Radiograph in Acquired Heart Disease part 1 p407-420	1 Week

16		Chest Radiograph in Acquired Heart Disease part 2 p421-436	1 Week
17		Coronary artery disease p437-460	1 Week
18		Cardiomyopathy and cardiac tumor p477-498	1 Week
19		Pericardium p499-514	1 Week
20		Diseases of artery part 1 p515-528	1 Week
21		Diseases of artery part 2 p529-546	1 Week
22		Valvular heart disease p461-476	1 Week
23		Diseases of vein and lymphatics Part 1 p547-568	1 Week
24		Paediatric Congenital Heart Disease (P 2192-2230)	1 Week
25	3. Gastrointestinal	Conventional Abdominal Radiology p589-608	1 Week
26		Disease of oesophagus p609-624	1 Week
27		Disease of Stomach p625-644	1 Week
28		Imaging of small bowel p645-666	1 Week
29		Imaging of large bowel p667-679	1 Week
30		Liver anatomy and variants p680-690	1 Week
31		Non cirrhotic liver Part 1 p691-705	1 Week

32		Non cirrhotic liver Part 2 p706-719	1 Week
33		Diffuse liver disease p719-727	1 Week
34		Liver cirrhosis p728-735	1 Week
35		HCC p736-758	1 Week
36		Spleen p759-777	1 Week
37		Gall bladder p778-797	1 Week
38		Biliary tree p797-808	1 Week
39		Nonneoplastic disease of pancreas p809-826	1 Week
40		Pancreatic neoplasm p826-840	1 Week
41		Peritoneum p841-863	1 Week
42		Retroperitoneum & abdominal wall p863-872	1 Week
43		Pediatric Gastrointestinal Tract and Hepatobiliary System P2248- 2280	1 Week
44		Trauma of the TorsoP2462- 2498	1 Week
45		Acute Abdomen P2540- 2558	1 Week
46	4. Genitourinary	Urinary tract anatomy –IVU interpretation (page 873-892)	1 Week
47		Congenital lesions and variants _Miscellaneous (Page892-908)	1 Week

48	Urinary tract infections & inflammatory conditions-path. of stone formation (P909-921)	1 Week
49	Imaging inv. Of choice-Large kidney (p921-939)	1 Week
50	Renal insufficiency-Anterior urethral injury (P939-962)	1 Week
51	Solid renal tumour-imagingin metastatic RCC (p963-979)	1 Week
52	Cystic mass of kidney-Conclusion (P979-993)	1 Week
53	Adrenal (introduction)-Adrenal cyst (p994-1010)	1 Week
54	Pheochromocytoma-Hemospermia (p1011-10250)	1 Week
55	Prostate malignancy-nuclear imaging (p1025-1045)	1 Week
56	Male urethra_Epididymo-orchitis (p1046-1050)	1 Week
57	Extratesticular tumor-imaging in male infertility(1059-1070)	1 Week
58	Pediatric Genitourinary Tract P2281- 2323	1 Week

59	5. Women's Imaging	Uterus&cervix (introduction)-fibroid (p1071-1084)	1 Week
60		Adenomyosis- Surveillance and recurrence(p1085-10 01)	1 Week
61		Ovaries and adnexal (introduction)- PID(p1102-1116)	1 Week
62		Neoplasm- Choriocarcinoma (p1116-1127)	1 Week
63		Sex cord stromal tumour-(MRI –risk stratification) (p1027-1140)	1 Week
64		Endometriosis- ESHRE/ESGE classification (p1142-1158)	1 Week
65		Infertility-Primary ovarian carcinoma (p1159-11681)	1 Week
66		1 st trimester (p1169-1189)	1 Week
67		2 nd trim. (introduction)-ventral wall defect (p1190-1207)	1 Week
68		Genitourinary system-Invasive test (p1207-1216)	1 Week
69		3 rd trim (introduction)- gestational trophoblastic disease (p1217-1236)	1 Week
70		Umbilical cord- Summery (p1236-1256)	1 Week

71		Fetal echocardiography-Fetal surgeries (p1255-1277)	1 Week
72		Breast-Interpretation of USG and lexicon (p1278-1297)	1 Week
73		Breast MRI-MRI guided intervention (Page 1297 to last page)	1 Week
74	6. Musculoskeletal System	Arthritis P1319-1365	1 Week
75		Endocrine and Metabolic Bone Diseases P1366-1389	1 Week
76		Lymphoreticular and Hematopoietic Bone Diseases P1390-1417	1 Week
77		Musculoskeletal Infections P1418-1434	1 Week
78		Shoulder P1435-1466	1 Week
79		The Elbow P1467-1484	1 Week
80		Imaging of the Wrist and Hand P1485-1510	1 Week
81		Hip P1511- 1535	1 Week
82		Knee P1536- 1564	1 Week
83		Ankle and foot P1565- 1590	1 Week
84		Bone Tumors P1591-1626	1 Week

85		Bone Tumor Mimics P1627- 1643	1 Week
86		Soft Tissue Tumors P1644- 1696	1 Week
87		Pediatric Musculoskeletal System P2324- 2386	1 Week
88		Skeletal TraumaP2387- 2431	1 Week
89	IR & Nuclear Imaging	Introduction to Interventional Radiology P2559- 2581	1 Week
90		Abdominal Interventions P2582- 2621	1 Week
91		Aortic and Peripheral Vascular Interventions and Interventions in the Chest P2622- 2647	1 Week
92		Neurointervention P2648- 2662	1 Week
93		Musculoskeletal Interventional Radiology P2663- 2672	1 Week
94		Conventional Nuclear Medicine ImagingP2673- 2720	1 Week
95		Positron Emission Tomography/ Computed Tomography P2721- 2747	1 Week
96	7. Head and Neck	Oral Cavity and Pharynx P1697- 1722	1 Week
97		Larynx P1723- 1737	1 Week

98		Neck Nodes P1738-1748	1 Week
99		Neck Spaces P1749-1778	1 Week
100		Thyroid and Parathyroids P1779-1794	1 Week
101		Paranasal Sinuses P1795- 1827	1 Week
102		Orbit P1828- 1851	1 Week
103		Temporal Bone P1852- 1873	1 Week
104		Skull Base P1874-1894	1 Week
105		Oral and Dentomaxillofacial Radiology P1895-1930	1 Week
106		Pediatric Head and Neck P2155- 2191	1 Week
107		Neuro, Head, and Neck TraumaP2432-2461	1 Week
108	8. Brain & Spinal Cord	Benign Brain Lesions and EpilepsyP1931- 1985	1 Week
109		Metabolic and Degenerative Diseases P1986-2019	1 Week
110		Stroke and Vascular Abnormalities P2020- 2039	1 Week
111		Brain Tumors P2040-2075	1 Week
112		Spine P2076- 2116	1 Week
113		Pediatric Brain and Spine P2117- 2154	1 Week

114		Acute Neurological Emergencies P2499- 2525	1 Week
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