Topic	Objectives	Time	Depart ment	T/L activity	comments
Imaging of pulmonary nodules and cavities	•List common causes of solitary and multiple pulmonary nodules •Identify, characterize and describe nodular lung pathology in Chest radiographs •Appreciate nodular lesions in lung with respect to their sizes and number •Able to differentiate nodules from patches of alveolar or acinar shadowing (consolidations)	1 hour	Dep. of Radiology	Lecture Demonstrations	Recall lung segments
Application of CT in chest pathology	•Describe the selection of type of CT performed in different chest pathologies •List the indications for chest CT •Discuss the applications of chest CT •Identify the radiological signs of common chest diseases on CT	1 hour	Dep. of Radiology	Lecture Demonstrations	

Imaging of pulmonary and extra pulmonary tuberculosis	•Identify the radiological signs of various manifestations of primary and post primary pulmonary TB •Describe the radiological signs of active pulmonary TB •Describe radiological manifestations of pulmonary TB in immunocompromised patient	1 hour	Dep. of Radiology	Lecture Demonstrations	

Imaging of congenital & acquired heart diseases	•List the methods of imaging •Describe radiological signs of common congenital & acquired heart diseases	1 hour	Dep. of Radiology		

Imaging of acute abdomen	•List the imaging modalities used in the assessment of the acute abdomen •Discuss the choice of methods of imaging in different conditions causing acute abdomen and limitations of each modality •Describe the radiological signs of the common conditions causing acute abdomen	1 hour	Dep. of Radiology	Lecture Demonstrations	

Imaging of inflammatory & neoplastic bowel diseases	•List the methods of imaging in inflammatory and neoplastic bowel diseases •Explain the role of imaging in diagnosis of inflammatory & neoplastic bowel disease in current clinical practice •Describe radiological signs of manifestations of inflammatory and neoplastic bowel diseases with pathological basis	1 hour	Dep. of Radiology	Lecture Demonstrations	Recall the pathology knowledge
Imaging in hepatobiliary diseases and pancreatic pathology	•List the methods of imaging modalities available to diagnose the hepatobiliary and pancreatic diseases •Discuss the choice of imaging in different hepatobiliary and pancreatic diseases and limitation of each modality •Describe the radiological signs of common pathological conditions	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in obstructive uropathy & congenital anomalies of UT	•List the imaging modalities used to diagnose the congenital anomalies of the urinary tract & obstructive uropathy •Describe the radiological signs of the common congenital anomalies of the urinary tract & obstructive uropathy	1 hour	Dep. of Radiology	Lecture Demonstrations	Recall embryolo
Imaging of inflammatory & neoplastic diseases of urinary tract	•Recall clinical presentations of UTI & renal neoplasm •List the methods of imaging of UTI & renal neoplasm •Describe radiological signs of acute and chronic infections of the urinary tract & renal neoplasm in the above imaging methods •Discuss the role of imaging in acute and chronic infections of the urinary tract & renal neoplasm	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in neoplastic and inflammatory disease of CNS	•Recall the inflammatory and neoplastic conditions of CNS •Describe the role of imaging in common inflammatory & neoplastic pathologies of CNS including limitations •Describe the application of the	1 hour	Dep. of Radiology	Lecture Demonstrations	

	concept of blood brain barrier disruption on imaging •Describe the radiological signs of common inflammatory & neoplastic pathologies of CNS				
Imaging in stroke & intracranial hemorrhage	•Recall the normal anatomy the cerebral vasculature •Discuss the role of imaging in stroke and intracerebral haemorrhage including selection of appropriate imaging modality •Describe the CT and MR appearances in ischemic stroke, haemorrhagic stroke and intracranial haemorrhages	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging of inflammatory, neoplastic diseases of bone and arthropathies	•Describe the role of imaging in the evaluation of bone pathology •State the modes of imaging, their application and limitations •Discuss the correlation of pathology with imaging	1 hour	Dep. of Radiology	Lecture Demonstrations	
Basic concepts of trauma imaging	•State the imaging modalities used in trauma •Describe the basic concepts in trauma imaging including the selection of appropriate imaging modality •Be able to identify the bone and soft tissue injuries in different organ systems in trauma	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in endocrine and metabolic disorders	•Discuss the application of imaging in common endocrine and metabolic disorders •Describe the radiological signs of common endocrine and metabolic disorders	1 hour	Dep. of Radiology	Lecture Demonstrations	Except thyroid
Imaging in obstetrics & gynaecology	•State the imaging modalities used in gynaecology and obstetrics •Describe the role of imaging in common gynaecological conditions •Describe the role of imaging in obstetrics -Diagnosis and assessment of early pregnancy -Determination of gestational age -Assessment of fetal growth & well being	1 hour	Dep. of Radiology	Lecture Demonstrations	

	-To detect congenital anomalies				
Imaging of breast & thyroid diseases	•List the breast and thyroid imaging techniques •Describe the role of different imaging methods in breast and thyroid diseases •Identify the normal & abnormal imaging findings	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in paediatrics and neonatology	•Understand that the imaging of paediatrics and neonatology is different from adults with special emphasis on radiation protection. •Understand the appropriate use and limitation of each imaging modality in the evaluation of neonates and children •Identify the imaging features of common diseases of children and neonates in different imaging modalities.	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in peripheral vascular diseases (arterial & venous)	•State the role of application of imaging in the diagnosis and treatment of vascular pathology •Identify arterial stenosis and occlusions on Doppler USS, DSA, CT and MRI images •State the application of ultra sound/ Doppler in diagnosis of DVT and varicose vein disease. •State the Radiologist role in the management of DVT and varicose vein disease	1 hour	Dep. of Radiology	Lecture Demonstrations	
Imaging in scrotum and prostate	•State the imaging modalities used to assess the scrotum and prostate. •To understand the choice of imaging methods in different conditions •Identify the imaging appearances of common pathological conditions	1 hour	Dep. of Radiology	Lecture Demonstrations	
Basic concepts of radiological interventions and radiation protection	•State the basic interventional radiological (IR) methods used in the management of patients •Describe the application of IR in current medical practice	1 hour	Dep. of Radiology	Lecture Demonstrations	
Principles of nuclear imaging	•Understand the basic principles practice in Nuclear Medicine and	1 hour	Nuclear Medicine	Lecture Demonstrations	

and radiation protection issues in NM	learn differences between functional imaging and structural imaging •List different types of common NM imaging equipment (planer, SPECT, PET Hybrid or molecular imaging, SPECT/CT, PET/CT and PET/MRI) •List different isotopes/ radiopharmaceuticals commonly used in medical practice and basis of their selection •Understand the radiation protection issues related to NM practice •Learn basic principles in radiation waste disposal		Unit		
Nuclear imaging of Myocardial perfusion, Pulmonary embolism **Myocardial perfusion Imaging (MPI)**	•List different Imaging modalities use in Cardiology practice to assess the myocardial viability and understand the unique features of each modality •Understand the basic principles practiced in Nuclear Cardiology as a well-established technique to assess myocardial perfusion and ventricular function •Recall the normal coronary vascular pattern and common variations •Understand the cardiac cascade •Learn basic principles and basis of myocardial perfusion studies •Learn indications, common protocols, radiopharmaceuticals use in MPI •Basis of Rest and Stress imaging and image interpretation •Understand the Radiation protection issues related to MPI studies •Understand different diagnostic tools use in the diagnosis of pulmonary embolism (PE) •Recall the pulmonary anatomy, perfusion andBroncho pulmonary segments	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	

Lung perfusion (V/Q scans	•Common indications for VQ studies and common clinical presentations •Learn common protocols, radiopharmaceuticals use in V/Q scans •Learn PIOPED criteria and interpretation of VQ studies				
Nuclear imaging in GIT bleeding &Hepatobiliary disorders **A.GIT bleeding** **B. Hepatobiliary imaging**	•Learn frequent causes for GIT bleeding •Understand the basic principles behind red blood cell labeling, isotope / pharmaceutical's use in detection of GIT bleeding •Learn advantages of RBC labeling scan over endoscopy studies •Learn basis of Meckel's scan, indications, patient preparation and limitations •Understand different imaging modalities and recall the anatomy of the liver and the biliary system •Learn common clinical indications for hepatobiliary studies •Learn patient preparation for HIDA scans •Image interpretation in different disease conditions •Other indications for Liver / spleen imaging – focal nodular hyperplasia, liver blood pool imaging for haemangiomas, denatured RBC scan to identify accessory spleen	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	
Nuclear imaging of urinary tract pathology	•Learn basic principles behind isotope renal scans and pathophysiology of functional imaging •List indications for renal isotope scan •List different types of renal isotope scans(dynamic and static) and different radiopharmaceuticals in renal imaging (DTPA, MAG3/DMSA) •Patient selection, preparation and	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	

	imaging procedure •Principles of interpretation of DTPA/ DMSA/ Captopril and Diuretics augmented renal scans •Isotope renal studies in Renal Donors, post-transplant evaluation •Isotope application in common testicular problems.(torsion testis/ epididymitis)				
Nuclear imaging in bone diseases	Understand the radionuclide bone scan as the cornerstone of skeletal nuclear medicine imaging Learn radiotracers used in evaluation of bone formation in the skeleton related to malignant and benign disease, as well as physiological processes Learn different methods available for bone imaging and use of isotopes as the functional image to assess the bone pathologies Understand common clinical indications for bone scans Oncology (primary bone tumors, bone metastases) Rheumatology (small joint imaging Bone and joint infection Orthopedics, sports and traumatology including shin splints Spondylolisthesis (acute or subacute) & Radiological occult stress-related fractures (e.g. scaphoid, tarsals) or nonspecific symptoms osteoporotic vertebral or occult fractures, sacral fractures, femoral head or neck fractures, tibial plateau fractures, tarsal and metatarsal fractures & Septic loosening, prosthesis (hip, knee, ankle, or shoulder) &Pseudoarthrosis (delayed union, non-union) Metabolic bone diseases (Hyperparathyroidism (primary and secondary) &Osteomalacia& Renal osteodystrophy & Rare skeletal manifestations of endocrine	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	

	disorders, including hyperthyroidism and acromegaly & Vitamin D deficiency) Bone scans in children (Osteochondritis of the hip (Legg-Calvé-Perthes disease) & Transient synovitis of the hip & Osteoid osteoma & Battered child syndrome & Mandibular condylar hyperplasia & Bone infarction (osteomyelitis, sickle cell disease, thalassaemia)				
Nuclear imaging in infections and inflammation	•Understand the natural process of acute Infection & Inflammation •Learn indications for infection imaging (while cell labelling, leucoscans, infecton scan) •Learn commonly used Isotopes and radiopharmaceuticals •Learn common indications for infection imaging – deep seated abscess •Patients with Irritable bowel syndrome (IBS), Ulcerative colitis and Crohn's disease	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	
Nuclear imaging in thyroid disorders	• Recall Thyroid anatomy, embryological development and common congenital abnormalities of the thyroid gland • Recall physiology of thyroid gland function, iodine metabolism and important steps in thyroxine synthesize • Understand the thyroid gland function regulation, negative feed-back mechanism • List thyroid gland dysfunction and application of nuclear medicine in the management of thyroid diseases • Learn patient selection, preparation and limitations	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	

	of NM procedures. • **Learn common clinical conditions and interpretation of isotope images.**				
Nuclear imaging in other endocrinopathies	• Recall anatomy, embryological development and common abnormalities of other endocrine glands (parathyroid, adrenal,) • Recall physiology of parathyroid gland function, calcium metabolism and adrenal gland and its function • Learn parathyroid gland related diseases, MEN 1 and MEN 2 syndromes • Learn Nuclear imaging procedures available to confirm parathyroid adenoma and hyperplasia , different isotopes, radiopharmaceuticles use in parathyroid imaging • Understand different pathological types of thyroid cancers and basis behind the radioiodine based imaging and therapy • Learn how to Prepare a patient for Radioiodine ablation for DIC , value of serum thyroglobulin, and post therapy scan • Learn isotope imaging procedures available to confirm adrenal hyperplasia / tumors • Somastostatin receptor imaging in pancreatic tumors • Basics of molecular imaging (PET and hybrid imaging) in cancer management	1 hour	Nuclear Medicine Unit	Lecture Demonstrations	

Tutorials in Nuclear Imaging	•Recall different NM procedures available for clinical practice •Group discussions based on Questions and answers •Read with expert and case discussion	1 hour	Nuclear Medicine Unit	Discussions	
Tutorials in Radiology		1 hour		Discussions	