5TH SEMESTER

BASIC AND ADVANCED ULTRA SOUND IMAGING – THEORY

Subject Code: **BRMIS1 -501** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

- **Course Objectives:** Medical ultrasound (also known as diagnostic sonography or ultrasonography) is a diagnostic imaging technique, or therapeutic application of ultrasound. It is used to create an image of internal body structures such as tendons, muscles, joints, blood vessels, and internal organs. Its aim is often to find a source of a disease or to exclude pathology**.**
- **Course Outcomes:** Helpful to understand what types of sonography courses you might be required to take and analyses the report produced by ultrasounds.

Unit-1 (15 Hrs)

- Basic acoustics principle- Basic physics of sound propagation in different media, production of Ultrasound (piezoelectric effect)
- Terminology - physical principle.
- Different types of machines –Portable etc.
- U/S generators, different modes, doppler U/S. clinical applications.
- Image display & recording systems

Unit-2 (15 Hrs)

- ultrasound properties propagation in tissue, absorption, scattering, reflection and refraction- acoustic impedence – piezo electric effect – transducer – Pulsar – receiver – beam/sensitivity and gain - generators- A, B and M scanning & echo modes- transducers-techniques of sonography-equipment selection- display methods
- Transducers (scanning probes) - construction types and uses
- Types and shapes/choice/care and maintenance
- Recording devices/orientation of the image
- Focus of the beam/sensitivity and gain

Unit-3 (15 Hrs)

- Artifacts/quality control
- Acoustic coupling agents - Ingredients/preparation
- Interventional – accessories + Colour Doppler /portable systems

Unit-4 (15 Hrs)

- ultrasound image formation
- Data storage and display
- Image and artifacts, doppler instrumentation, doppler equation, transducer
- Quality assurance and performance tests
- Bio effects and safety considerations.
- Types of machines –portable systems- acoustic coupling agents-ingredients/preparation

Recommended Text Books / Reference Books:

1. "Christensen's Physics of diagnostic Radiology" (Lea &Febiger) Reference books
2. " First year Physics for Radiographers Hay & Hughes (ELBS)
3. 'Basic Medical Radiation Physics Stantor (Appleton- Century & Crofts)
4. Processing and Quality Control – William
5. "Radiologic science for Technologist" Stewart C. Bushong, (M Mosby.)
6. "Recent advances in Radiology and Medical Imaging" Lodge & Steiner (Churchill Livingstone)

NUCLEAR MEDICINE IMAGING

Subject Code: **BRMIS1 -502** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

- **Course Objectives:** Nuclear medicine imaging provides unique information that often cannot be obtained using other imaging procedures and offers the potential to identify disease in its earliest stages.
- **Course Outcomes:** After studying this graduates are able to acquire, comprehend, apply and evaluate patient information at genetic level sufficiently well to offer appropriate patient care

Unit -1 (15 hrs)

- History of nuclear medicine imaging.
- Isotopes And Radionuclides
- Production Of Radionuclides
- Radio Activity
- Radioactive Transformations

Unit-2 (15 hrs)

- Specific Activity
- Radiopharmaceuticals And Their Preparation
- Precautions While Handling Radiopharmaceuticals
- Principles Of Tracer Techniques
- Instrumentation- Multihole Collimator, Crystal, Photomultipiier, Computer, Moitor.
- Scanning Technique

Unit-3 (10 Hrs)

- Resolution- Spatial Temporal
- Gamma Camera
- Rectilinear Scanner

Unit-4 (20 Hrs)

POSITION EMISSION TOMOGRAPHY (PET)

- Single Photon Emission Computed Tomography (Spect)
- Radio Immuno Assay (RIA)
- Documentation
- Safety Considerations- Radiation Dose
- Quality Assurance.

Reference Book

1. Essentials of Nuclear Medicine Imaging by Fred A. Mettler Jr. MD MPH (Author), Milton J. Guiberteau MD FACR FACNM (Author).
2. Essentials of Nuclear Medicine Imaging: Expert Consult - Online and Print by Fred A. Mettler.
3. Nuclear Medicine Technology: Procedures and Quick Reference by Pete Shackett Paperback.
4. Mosbeys manual of Nuclear Medicine Procedures Bruce Sodee, Paul J.Early

BASIC AND ADVANCED CT SCAN – THEORY

Subject Code: **BRMIS1 -503** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

- **Course Objectives:** CT-scans provide detailed cross-sectional images of various internal structures for example internal organs, blood vessels, bones, soft tissue etc, and can be used for: Diagnostic purposes-Guidance for specific treatment or further tests-surgeries, biopsies and radiation therapy.
- **Course Outcomes:** Learner get knowledge of real-time imaging, making it a good tool for guiding minimally invasive procedures such as needle biopsies and needle aspirations of many areas of the body,

Unit-1 (15 Hrs)

- **Advanced Computerized Tomography (CT)**
- Introduction to historical background, Various generations of scanners
- Advancement in CT technology (helical/spiral and multi slice)
- Ultra fast scanners System components
- CT performance parameters
- Image quality and methods of image reconstruction,
- Image display, storage, recording system CT control console, Options and accessories for CT systems

Unit-2 (15 Hrs)

- **Advanced Computerized Tomography (CT)**
- Tools for use in CT guided Interventional procedures.
- Dosimeter
- Image quality in CT
- Future developments
- CT systems (operation) – care/basic troubleshooting Present/Past/Future radiation dose measurements and technical aspects of Q.A. (quality assurance).

Unit-3 (15 Hrs)

- CT
- Head and neck
- Thorax
- Abdomen
- Pelvis
- Musculo-skeletal system
- Spine

Unit-4 (15 Hrs)

- PNS
- Clinical indications and contraindications
- Patient preparation technique
- Contrast media- types, dose, injection technique; timing, sequence - image display – patient care – function of image processing facilities,
- CT anatomy and pathology of different organ systems.

Recommended Text Books / Reference Books:

1. "MRI for Technologists" Peggy Woodward & Roger F. Freimark (McGraw Hill)
2. "Imaging for Students" David A. Lisle (Arnold)
3. "Digital subtraction ateriography" Charles, Andrew, Joseph (Year book Medical Publishers)
4. Computed Tomography by Euclid Seeram W.B. Saunder's Company

HOSPITAL PRODUCTS, PROMOTION, SALES & PUBLIC RELATIONS AND PHYSICIAN'S OFFICE MANAGEMENT

Subject Code: **BRMIS1 -504** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

Course Objectives:

- Marketing communication in the health sector is the communication of the products or services produced by health organizations to the potential users and convincing them about the benefits to be provided.

Course Outcomes:

- Healthcare marketing allows students to increase their patient connections and nurture those relationships to form long-term, loyal patients and its management.

Unit -1 (15 Hrs)

- An introduction to Marketing Role of marketing in Business management – Evolution and definition of marketing – Concepts of Marketing – Service vs. Products – Management of Service Management process. Services Marketing
- Classification of services – Characteristics of services and their marketing implication – Selecting appropriate tools for marketing.

Unit-2 (15 Hrs)

- **Component of Service Marketing Product Planning, Market research system** – Market segmentation – Targeting – Positioning –Launching new service – Concept of product life cycle, Pricing, Setting the price – Economic Theory – Responding to price change, Physical Distribution, Major Aspects – Channels of distribution – Selection of channel, Promotion, Role of communication – Promotion mix – advertising (Media – budget – Cost effectiveness – (attributing to hospitals a human face – Good will – image building among major public) Sales promotion (techniques – Evaluation), Direct selling (Sales force – Evaluation), Physical Environment, Process, People

Unit-3 (20 Hrs)

- Analysing Markets and Buyer Behaviour Model of consumer behavior – Factors influencing buyer behavior – Buying decision process Branding of a Hospital Facility
- Brand name and concept – Positioning hospitals – Developing and USP – Brand image – Image building – long term and short term activities.
- Other Marketing routes for Health Care Units Interpersonal communication – Print materials institutional marketing – seminars – conference

Unit-4 (10 Hrs)

- Marketing Strategies for Hospital
- Managing Differentiation – Service Quality – Productivity – Product support service. Unit V: Evaluating and Controlling Market Performance
- Annual plan control (sales analysis – market share analysis – Marketing expense to sales analysis – Financial analysis), Profitability control, Efficiency control, Strategic control.

Recommended Book

1. Essentials of Hospital Management and Administration by D L Ramachandra.
2. Hospital Administration and Management: A Comprehensive Guide by Gupta Joydeep Das.
3. Financial Management Hospital Administration by GR Kolkarni P Satyashankar.

OCCUPATIONAL SAFETY & HEALTH

Subject Code: **BRMIS1 -505** **L T P C** **Duration: 30 (Hrs.)**
1 1 0 2

- **Course Objectives:** The aim of an occupational safety and health program is to foster a safe and healthy occupational environment OSH also protects all the general public who may be affected by the occupational environment
- **Course Outcomes:** Workplace safety training is as vital as workplace safety itself. It enables the management to ensure a safe and healthy work environment. It also helps the employees to recognize safety hazards and correct them. It enables them to understand best safety practices and expectations.

Unit -1. **(7 Hrs)**

- **Safety and Health Management:** Occupational Health Hazards, Promoting Safety, Safety and Health training, Stress and Safety. Ergonomics - Introduction, Definition, Objectives, Advantages. Ergonomics Hazards - Musculoskeletal Disorders and Cumulative Trauma Disorders. Organizing for safety, Health and Environment.
- Organization: Structure, Function and responsibilities Safety Committee: Structure and function
- **Electrical Hazards:** Safe limits of amperages, voltages, distance from lines, etc., Joints and connections, Overload and Short circuit protection, Earthing standards and earth fault protection , Protection against voltage fluctuations,
- **Vibration and Noise:** Activities related to vibrations, its impact on human health, abatement Sources, effects of noise on man, Measurement and evaluation of noise, Silencers, Practical aspects of control of noise

Unit-2. **(8 Hrs)**

- **Radiation and Industrial Hazards:** Types and effects of radiation on human body, Measurement and detection of radiation intensity. Effects of radiation on human body, Measurement – disposal of radioactive waste, Control of radiation, Industrial noise -Sources, and its control
- **Fire and Other Hazards:** General causes and classification of fire, Detection of fire, extinguishing methods, fire fighting installations with and without water

Unit-3. **(7 Hrs)**

- **Theories & Principles of Accident Causation & Prevention:** The effect of accident, unsafe act, unsafe condition, unpredictable performance, Human factors contributing to accidents - causes for unsafe acts,
- Safety and psychology -Theories of motivation and their application to safety. Consequences of accident, accident prevention programmers, Role of safety Incident, accident, injury, dangerous occurrences, unsafe acts, unsafe conditions, hazards, error, oversight, mistakes, etc.
- *Accident Prevention:* Theories / Models of accident occurrences, Principles of accident prevention, Accident and Financial implications.

Unit-4. **(8 Hrs)**

- **First Aid:** Body structure and Functions, Position of causality, the unconscious casualty, fracture and dislocation, Injuries in muscles and joints, Bleeding, Burns, Scalds and accidents caused by electricity, Respiratory problems, Rescue and Transport of Casualty. Cardiac massage, poisoning, wounds.
- iPersonal Protective Equipments: Need, selection, supply, use, care and maintenance, Personal protective devices for head, ear, face, eye, foot, knee and body protection, Respiratory personal protective devices.

- **Recommended Book**:
  1. Basic radiological physics. Jaypee bothers pvt ltd, New delhi
  2. An Introduction to Radiation Protection. Allen Martin & Samuel
  3. Radiation safety in Medical practice. M.M. Rchami.
  4. Radiation Protection. Ronald L. Kathren
  5. AERB safety code and manuals,
  6. " Aid to Tray and Trolley Setting" Marjorie Hougton (Bacilliere)
  7. "First Aid' Haugher& Gardner (Hamlyn.)

HEALTHCARE

Subject Code: BRMIS1-506 **L T P C** **Duration: 30(Hrs.)**
1 1 0 2

Course Objectives: The main objective to ensure adequate, qualitative, preventive & curative health care to people of the State and to provide affordable quality healthcare to the people.
Course Outcomes: learning of patient care during critical conditions and examination of Specimens and first Aid treatments in emergency cases.

Unit -1 (7 Hrs)

- **Introduction to Health:** Definition of health, determinants of health, health indicators of India, health team concept.
- National health policy
- National health programmes (Briefly objectives and scope)
- Population of India and family welfare programme in India

Unit-2 (8 Hrs)

- **Introduction to Nursing:** nursing, Nursing principles, inter-personnel relationships.
- Bandaging: basic turns, bandaging extremities, triangular bandages and their application.
- Nursing position, prone, lateral, dorsal, dorsal recumbent, Fowler's positions, comfort measures, bed making, rest and sleep.
- Lifting and transporting patients: lifting patients up in the bed, transferring from bed to wheel chair, transferring from bed to stretcher.
- Bed side management: giving and taking bed pan, urinal.

Unit-3 (7 Hrs)

- Observation of stools, urine, sputum
- Use and care of catheters, enema giving.
- Methods of giving nourishment: feeding, tube feeding, drips, transfusion.
- Recording of body temperature, respiration and pulse.
- Simple aseptic techniques, sterilization and disinfection.
- Surgical dressing: observation of dressing procedures.

Unit-4 (8 Hrs)

- **First Aid :** Physical Exam and SAMPLE History
- Documentation and Legal Considerations & Sudden Illness, Bleeding
- Caring for Shock, Burns, Injuries to muscles, bones, and joints, Splints, Bites and Stings
- Administering Epinephrine
- Assisting with bronchodilators (inhalers)&Heat/Cold Related Emergencies
- In-line stabilization forhead, neck and back injuries
- First Aid Kits, Fire & safety

Recommended Book

1. Clint & Geraldine, 2011, Potter and Perry‟s fundamentals of Nursing, Elsevier publications
2. Textbook of Pathology, Harsh Mohan, 3rd edition
3. First Aid – Haugher and Gardner.
4. Practical Nursing and First Aid – Ross and Wilson.

BASIC AND ADVANCED ULTRA SOUND IMAGING – PRACTICAL

Subject Code: BRMIS1-507	L	T	P	C	Duration: 60(Hrs.)
	0	0	4	2	

Objective: Imaging is a range of tests used to create images of parts of the body. These can help: screen for possible health conditions before symptoms appear. Diagnose the likely cause of existing symptoms.

Experiment

- USG abdominal imaging.
- USG Neck imaging
- Doppler evaluation
- Advanced Ultrasound Imaging
- Spotter / Image discussion

NUCLEAR MEDICINE IMAGING - PRACTICAL

Subject Code: BRMIS1-508	L	T	P	C	Duration: 30(Hrs.)
	0	0	2	1	

Objective: Nuclear Imaging is a range of tests used to create images of parts of the body. These can help: screen for possible health conditions before symptoms appear. Diagnose the likely cause of existing symptoms.

Experiment

- Radiotherapy and nuclear medicine instruments handling
- Teletherapy instruments
- Simulator
- Linear accelerator
- Brachytherapy instruments
- Positron Emission Tomography (PET)

Single photo emission computed tomography (SPECT)

BASIC AND ADVANCED CT SCAN - PRACTICAL

Subject Code: BRMIS1-509	L	T	P	C	Duration: 60(Hrs.)
	0	0	4	2	

Objective: Imaging is a range of tests used to create images of parts of the body. These can help: screen for possible health conditions before symptoms appear. Diagnose the likely cause of existing symptoms.

Experiment

- Brain scanning Protocol
- CT Chest scanning Protocol
- CT Abdomen scanning Protocol
- CT Angiography Protocol
- Image processing in workstation
- CT Biopsy Protocol

6TH SEMESTER

QUALITY ASSURANCE & RADIATION SAFETY (AERB GUIDELINES) IN DIAGNOSTIC RADIOLOGY PART 2

Subject Code: **BRMIS1 -601** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

Course Objectives:

- The aim of radiation protection is to prevent reliably the deterministic effects of radiation and to reduce the risk of stochastic effects to a reasonably achievable level. The dose limit values are set so that deterministic effects are ruled out.

Course Outcomes:

- Students will learn about how to operate radiations instruments and protection from them in healthcare.

Unit -1 (15 hrs)

- Safety of critical organs in planning methods, Role of treatment shell immobilization devices and laser in patients set up and positioning Acceptance tests on therapy simulator telescope megavoltage X-ray and electron bean machines
- Quality Assurance and quality control of Modern Radiological and Imaging Equipment which includes Digital Radiography.

Unit -2 (15 hrs)

- Evaluating research and its potential for informing practice. Developing research questions and devising methods for their investigation.
- Newer Radiation safety protocols and recent advances in radiation safety including AERB guideline

Unit -3 (15 hrs)

- Analysis: Analysis of qualitative and quantitative data.
- Planning procedure in general with special emphasis on turnout localization and target volume measurement by conventional radiographic method and simulator imaging.

Unit -4 (15 hrs)

- Clinical audit: Distinctiveness of research and audit processes and their function
- Requirement and practice of organ shielding single multiple fields, and rotational field therapy, planning procedures

Recommended Book

1. Ethics and Values in Healthcare Management (Professional Ethics) by Souzy Dracopolou
2. Radiation Safeties and Quality Control 3 Methodology of Educational Research Lokesh Koul by A.P. Saxena.
3. Quality assurance and control in diagnostic radiology and imaging By Satish Kumar Bhargava

RESEARCH METHODOLOGY

Subject Code: **BRMIS1 -602** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

Course Objective

- To enable students to present, analyze and interpret data.
- To enable students to use concepts of probability in business situations.
- To enable students to make inferences from samples drawn from large datasets.
- To enable students to apply univariate and multivariate statistical techniques.

Course Outcomes

- To understand the importance & Methodology for research
- To learn in detail about sampling, probability and sampling distribution, significance tests correlation and regression, sample size determination, study design and multivariate analysis.

Unit -1 (15 Hrs)

- Accessing research literature: Use of databases and other sources.
- Understanding research design: Qualitative and quantitative methodologies - their differences and potential integration.

Unit -2 (15 Hrs)

- Evaluating research and its potential for informing practice.
- Developing research questions and devising methods for their investigation. Ethical issues in research.

Unit -3 (15 Hrs)

- Analysis: Analysis of qualitative and quantitative data.
- Utilization of appropriate software to assist in the retrieval of information and data analysis.

Unit -4 (15 Hrs)

- Clinical audit: Distinctiveness of research and audit processes and their function. Research Skills and Management: The role of evidence based practice within health and welfare.

- **Recommended Book**
  1. Research in Education, 10th Editio by Best & Kahn
  2. Research Methodology by C.R.KOTHAR
  3. Methodology of Educational Research Lokesh Koul
  4. Case Study Research John Mcleod

HOSPITAL PRACTICE AND CARE OF PATIENT

Subject Code: **BRMIS1 -603** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

Course Objectives:

- Goals of Patient Care is a clinical care planning process used during an admission to hospital or other care facility. It helps to determine which treatments would be useful for you, if there was deterioration in your condition.

Course Outcome:

- Learning outcomes for patient care and clinical practices with hygiene safety and maintenance and aseptic treatments during operations.

Unit -1 (15 Hrs)

- Hospital staffing and administration, records, professional, ethics, co-operation with other staff and departments, Departmental organizations.
- Handling of the patients, seriously ill and traumatized patients, visually impaired, speech and hearing impaired, mentally impaired, drug addicts and non-English speaking patients. Understanding patient needs - patient dignity of inpatient and out patients.

Unit -2 (15 Hrs)

- Interaction with the patient's relatives and visitors. Methods of effective communication - verbal skills, body language, professional appearance, visual contact etc.
- Elementary personal and departmental hygiene, dealing with receptacles, bedpans and urinal etc.
- General preliminaries to the exam. Moving chair and stretcher, patient.

Unit -3 (15 Hrs)

- Unconscious patient, general comfort and reassurance for the patient. Vital signs and oxygen - patient's Haemeatasis status. Body temp, respiratory rate, pulse, blood pressure, oxygen therapy, oxygen devices, Chest tubes and lines.
- First aid - shock, electrical shock, haemorrhage, burns, Asphyxia, fractures, loss of consciousness. Emergency treatment to the collapsed patient. Artificial respiration and resuscitation.

Unit -4 (15 Hrs)

- Preparation of patient for general and special radiological examinations. Supervision of patients undergoing special examination. Administration of drugs and contrast media.
- Aseptic and sterile procedures. Handling of infections patients in the department or in the ward.
- Regulation of dangerous drugs. Trolley set up for special x-ray examinations, Radiation hazardous and protective measures.

- **Recommended Book:**
  1. Notes on Radiological Emergencies – Ansell and Churchill
  2. Care of patient in diagnostic Radiography – Chesney & Chesney.
  3. First Aid – Haugher and Gardner.
  4. Steward c. Bushong: radiological science for technologists, physics , biology , protection

PROFESSIONALISM, VALUES AND MANAGEMENT

Subject Code: **BRMIS1 -604** **L T P C** **3 1 0 4** **Duration: 60 (Hrs.)**

Course Objectives:

- The module on professionalism will deliver the concept of what it means to be a professional and how a specialized profession is different from a usual vocation. It also explains how relevant professionalism is in terms of the healthcare system and how it affects the overall patient environment.

Course Outcomes:

- Offering professional development and management allows students to perform better and prepares them for positions of greater responsibility.

Unit -1 (15 Hrs)

- Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality
- Personal values- ethical or moral values

Unit -2 (15 Hrs)

- Attitude and behavior- professional behavior, treating people equally
- Code of conduct, professional accountability and responsibility, misconduct.

Unit -3 (15 Hrs)

- Differences between professions and importance of team efforts.
- Cultural issues in the healthcare environment.
- Principals of Management Strategic Management Foundations of Planning.

Unit -4 (15 Hrs)

- Tools and Techniques Decision Making, conflict and stress management
- Managing Change and Innovation Understanding Groups and Teams Leadership Time Management Cost and efficiency.

- **Recommended Books:**

1. Ethics and Values in Healthcare Management (Professional Ethics) by Souzy Dracopolou
2. **Professionalism in Medicine By Jill Thistlethwaite, Dr John Spencer.**

MEDICAL LAW & ETHICS

Subject Code: **BRMIS1 -605** **L T P C** **Duration: 60 (Hrs.)**
3 1 0 4

Course Objectives:

- Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical problems that arise in practice".

Outcomes:

- Student get learning knowledge of medical related laws and ethics used in healthcare to provide insurance policy during emergency.

Unit -1 (15 Hrs)

- Medical ethics - Definition - Goal – Scope
- Introduction to Code of conduct
- Basic principles of medical ethics – Confidentiality

Unit -2 (15 Hrs)

- Malpractice and negligence - Rational and irrational drug therapy
- Autonomy and informed consent - Right of patients
- Care of the terminally ill- Euthanasia

Unit -3 (15 Hrs)

- Medico legal aspects of medical records
- Medico legal case and type Records and document related to MLC
- ownership of medical records - Confidentiality Privilege communication
- Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.

Unit -4 (15 hours)

- Professional Indemnity insurance policy
- Development of standardized protocol to avoid near miss or sentinel events.
- Organ transplantation

- **Recommended Books:**
  1. Medical Law and Ethics by Bonnie F. Fremgen.
  2. Medical Law and Ethics: Routledge CRC Press.

QUALITY ASSURANCE & RADIATION SAFETY -PRACTICAL

Subject Code: BRMIS1-606 **L T P C** **Duration: 30(Hrs.)**
0 0 2 1

Objective: It is used to diagnose or treat patients by providing the best healthcare facility and set up of instruments in hospitals before operating any procedure.

- Familiarization of Radiation Survey meters and their functional performance checks
- Radiological Protection Survey of Diagnostic X-Ray installation
- Diagnostic Imaging: Quality Assurrance – M. M Rehani
- AERB safety requirements- Atomic Energy Act, Radiation protection rules.

HOSPITAL PRACTICE & CARE OF PATIENTS -PRACTICAL

Subject Code: BRMIS1-607 **L T P C** **Duration: 30(Hrs.)**
0 0 2 1

Objective: A primary goal of the radiation protection program is to reduce radiation doses wherever and whenever reasonably achievable, thereby reducing the health risk that is assumed to be proportional to the radiation dose

Experiment:

- Perform and execute the patient care techniques.
- Plan and perform the radiation protection using the monitoring devices.
- Preparation of patient for general and special radiological examinations.
- Trolley set up for special x-ray examinations