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# **St John Para Medical Institute**

(Affiliated) To Para Medical Board of India, New Delhi)

:Campus: **K. S Saket P. G college Ayodhya faizabad**

# **SYLLABUS DRIT**

Provided by  
**PARA MEDICAL BOARD OF INDIA  
NEW DELHI**

# **D.R.I.T**

(Diploma in Radiology & Imaging Technology)

## **(YEARLY)**

### **DRIT FIRST YEAR**

2201	Anatomy & Osteology
2202	Basic Human Physiology
2203	Radiography Positioning-I
2204	Duties of Radiographer
2205	Dark Room Procedure-I

### **DRIT SECOND YEAR**

2221	Radiography Positioning-II
2222	Dark Room Procedure-II
2223	Radiation Physics & Radiography
2224	Radiation Hazard & Protection

### **Recommended Books**

**Radiology of Positioning**  
**Dark room Procedure**  
**Radiation Physics**  
**Duties of Radiographer**

**JP Publication**

**DRIT**  
**FIRST YEAR**

**1-Anatomy & Osteology**

**Anatomical Terms**

1. Surface Anatomy – Marking of various Body Organs Over Skin

**Digestive system**

- (a) Mouth            (b) Oesophagus        (c) Stomach  
(d) Small Intestine (e) Large Intestine    (f) Liver  
(g) Gall Bladder      (h) Pancreas  
(i) Spleen

**Respiratory System**

- ( a ) Nose ( b ) Lungs    ( c ) Trachea  
( d ) Larynx            ( e ) Bronchi

**Urinary system**

- (a) Kidney            (b) Urinary Bladders  
(c) Prostate          (d) Ureter

**Reproductive System – Male & Female Organs**

**Nervous System –**        ( a ) Spinal cord    ( b ) Meninges                    ( c ) Nerves

**Musculo – Skeletal System** ( a ) Bones –

- ( i ) Upper Limb    ( ii ) Lower Limb  
( iii ) Bony Joints & Thoracic Cage  
( b ) Vertebral Column  
( c ) Shoulder girdle & Pelvic girdle  
( d ) Groin Muscles

**Cardio – Vascular system** ( a ) Blood            ( b ) Arteries    ( c ) Vein            ( d ) Heart

**Eye & Ear**

- ( a ) Structure of Eye & Ear  
( b ) Function of Eye & Ear

**2-Basic Human Physiology**

**Digestive System**

Mouth, Oesophagus, Stomach, Small Intestine, Large Intestine, Liver, Gall bladder, Pancreas and spleen.

**Urinary System**

Kidney, Urinary bladder, Prostate gland , Ureter

**Nervous System**

Spinal cord, Meninges, and Nerves

**Musculo-Skeletal System**

Classification, Structure and function of muscles, Classification, Structure and function of bones

vertebral column , Shoulder girdle , and Pelvic Girdle , Groin Muscle.

**Reproductive System**

Male & Female organs

**Cardio Vascular System**

Blood arteries, Vein, Heart

**Eye and Ear**

Structure of eye and ear, function of eye and ear.

### 3- Radiography Positioning-I

<b>The Radiographic Image</b>	( a ) Anatomical Terminology ( b ) Image formation & Magnification ( c ) Sharpness & Image Distortion
<b>Upper Extremities –</b>	( a ) Fingers, Carpal tunnel ( b ) Fore arm and Wrist ( c ) Joints (elbow , shoulder ,Acromic – Clavicular, Scapula – Sterno – Clavicular Joint ( d ) Head of Radius & Humorous
<b>Lower Extremities –</b>	( a ) Toes & Foot      ( b ) Calcaneum & Condylar notch ( c ) Ankle Joint      ( d ) Knees & Patella and Femur
<b>Hip –</b>	( a ) Neck of Femur   ( b ) Acetabulum ( c ) Nails              ( d ) Pelvis – Hip – For hip , Panning for reduction ( e ) Spine – Thoracic spine, Lumber Spine, Cervical ( f ) Coccyx and sacrum ( g ) Flexion extension abduction and adduction
<b>Thorax –</b>	( a ) Ribs & Sternums

### 4- Duties of Radiographer

- Clinical, Ethical, and legal responsibility, Procedure in event of accident, radiographer and Patient.
- General Preliminaries to examination , patient on stretcher , Anaesthetizes Patient
- Hygiene in X-Ray department ,
- Drugs in X-Ray department, Preparation of Patient Purgatives, Prevention of Intestine gas.
- Diabetic Patient, Infant, Mobile X-Ray set , Precaution in Patient.
- Oxygen therapy, Intravenous, Fluid, Traction. Operation Theater, Radiation Safety, Ten day rule, Protective Measurement.
- Importance of record.

## 5-Dark Room Procedure-I

1. **Photographic Process**
  - ( a ) Light image
  - ( b ) Light Sensitive material
  - ( c ) Latent image formation
2. **Radiographic Image**
  - ( a ) Definition
  - ( b ) Sharpness & Contrast
  - ( c ) Viewing Condition
3. **Films Materials**
  - ( a ) Type of films used in Radiography
  - ( b ) Structure of X-Ray Films
4. **X-Ray Films Storage**
  - (Exposed & unexposed films)
5. **Cassettes & Screen**
  - ( a ) Disilgns, Care, Definition, Structure and types
  - ( b ) Construction of intensifying Screens
  - ( c ) Care of intensifying Screen.

**DRIT**  
**SECOND YEAR**

**1- Radiography Positioning-II**

- Skull-** ( a ) Maxilla ( mandible and Zygomatic T.M.Joint )  
( b ) Facial Bones ( c ) Base of skull and Orbit  
( d ) Jugular foramens & Optic Foramens
- Chest-** ( a ) Miniature Chest Radiography  
( b ) Chest in Tele
- Abdomen-** Radiography of Beck & Breast
- Dental Radiography** ( a ) View of Maxilla  
( b ) View of Nasal bones  
( c ) Dental X-Ray of mandibular teeth

**2-Dark Room Procedure-II**

- Film Processing** ( a ) Type of Developer and fixer  
( b ) Components of PQ & MQ developer and Fixer  
( c ) Efficiency of Developer & Fixer
- Dark Room Design** ( a ) Safe Light, Ventilation  
( b ) Pass Box Construction of wall  
( c ) Wet & dry bench
- Film Rinsing Washing & Drying** ( a ) Manual Method  
( b ) Automatic Method Identification of films
- Records filling & Report Distribution**

**3- Radiation Physics & Radiography**

- Practical point of heat in X-Ray equipment
- Electricity-,Kinds of Electricity ,AC & DC
- Conductor & Resister ,RMS & Peak Value
- production of X- Ray & its Properties
- Stationary A- node & Rotating A- node and Relay and Timers
- Ionization (Quality and quantity of X-Rays)
- Counters-, G.M. Counter, Scintillation Counter, TLD Counter Filters. Cylinders, LBD, FFD, Focal spot, Size, Grid, Cones Roentgen, Red & Ram (units)
- Application in Radiology, Method used to reduce its effects
- Details about Doses –Exposure Dose, Dose Rate, Depth Dose, Surface dose. Exit Dose, Details about Radium, Cesium, Cobalt

#### 4- Radiation Hazard & Protection

- Introduction. Hazards – Newer Radiation Units ICRP (90), Dose limit for occupational public, Principles and method protection.
- Diagnostic X-Ray Installation , Design location , Layout , Room size , Shielding , Illumination , control panel and waiting area , choice of equipment ., qualified and trained staff.
- Interaction of X-ray with matter, coherent scattering, photoelectric and Compton.
- Pair production and Photo Disintegration application of Compton, photoelectric.
- Effect in diagnostic radiology.



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