

OPJS UNIVERSITY, CHURU (RAJASTHAN)



SYLLABUS

FOR

DIPLOMA IN RADIO & IMGGING TECHNOLOGY

(DRIT)

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SCHOOL OF PARA MEDICAL SCIENCE
OPJS UNIVERSITY, CHURU (RAJASTHAN)
2013-14

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DIPLOMA IN RADIO & IMGGING TECHNOLOGY

SYLLABUS

Duration of course – 2 year (4 Semester)

SEMESTER –I

S.No.	PAPER CODE	NAME OF PAPER	M.M.(T-S-P)
1.	DRIT-11	X-RAY ANATOMY & OSTEOLOGY	70+30+50
2.	DRIT-12	BASIC HUMAN PHYSIOLOGY	70+30+50
3.	DRIT-13	RADIATION PHYSIC & RADIOLOGY-I	70+30+50

SEMESTER –II

S.No.	PAPER CODE	NAME OF PAPER	M.M.(T-S-P)
1.	DRIT-21	RADIOGRAPHY PROCEDURE	70+30+50
2.	DRIT-22	RADIATION PHYSICS & RADIOLOGY-II	70+30+50
3.	DRIT-23	ROLE & RULE OF RADIOGRAPHER	70+30+50

SEMESTER –III

S.No.	PAPER CODE	NAME OF PAPER	M.M.(T-S-P)
1.	DRIT-31	PROFESSIONAL RADIOGRAPHY	70+30+50
2.	DRIT-32	RADIOGRAPHY - PHARMACOLOGY	70+30+50

SEMESTER –IV

S.No.	PAPER CODE	NAME OF PAPER	M.M.(T-S-P)
1.	DRIT-41	SPECIAL DIGNOSTIC PROCEDURE	70+30+50
2.	DRIT-42	INTERVENTION RADIOLOGY	70+30+50
3.	DRIT-43	CLINICAL ADVANCE IN RADIOGRAPHY	70+30+50

Details of Syllabus
SEMESTER –I
X-RAY ANATOMY & OSTEOLOGY

INTRODUCTION OF ANATOMY

- Subdivision of anatomy
- Various positions, planes, terms in relation of various regions and movements
- Terms for describing muscles
- Term used for describing bone features
- Terms in clinical anatomy

SKELETON

- Bone
- Function of bone
- Classification of bone
- Gross structure of an adult long bone

JOINTS

- Terminology of joint
- Classification of joint
- structure of joint

CONNECTIVE TISSUE , LIGAMENTS AND RAPHE

- Type of connective tissue
- Ligaments
- Clinical anatomy of connective tissue

SUPERIOR EXTREMITY

- Surface landmark, surface marking , ossification of the bone of upper limb, surface marking.

THORAX

- Surface landmark, surface marking , ossification of ribs sternum & Vertebrae,

ABDOMEN

- Surface landmark, surface marking , ossification of lumber vertebra, Land mark for abdominal organ & diaphragm.

HEAD & NECK

- Surface landmark, surface marking , ossification of the bone cervical vertebra.

BRAIN

- Parts of brain, spinal cord.

OSTEOLOGY

- Definition , clinical Application of Osteology.

BASIC HUMAN PHYSIOLOGY

RESPIRATORY SYSTEM:-

Physiology of breathing , gaseous exchange, respiration, transport of respiratory gases, Lungs volume & capacities, Pulmonary function test.

CARDIOVASCULAR SYSTEM:-

Blood pressure and physiology of heart, cardiac cycle cardiac output , ECG.

DIAGESTIVE SYSTEM:-

Digestive enzyme & gland, digestion of carbohydrate, protein & fat , vitamin

CIRCULATORY SYSTEM:-

RBC, WBC, Platelets, blood components, plasma, blood composition & content collected from various site.

ENDOCRINE SYSTEM:-

Different hormone, their site of production, mech. of action function deficiency syndrome

EXCRETORY SYSTEM:-

Excretory function by kidney, liver, formation of urine

REPRODUCTIVE SYSTEM:-

Male & female genital system , function of ovary, function of testis & hormone testosterone, progesterone Estrogen hormone menstruation cycle & fertilization.

SKIN:-

Layers of skin, function of skin

CENTRAL NERVOUS SYSTEM:-

CSF, Function of Brain, special senses smell, taste, touch, hearing.

RADIATION PHYSICS & RADIOLOGY – I

PRINCIPLES OF RADIOGRAPHY

- Generation of X-ray
- Properties of X-ray , Photographic effect, fluorescent effect, biological effect.

RADIOGRAPHIC VIEWS

- Antro posterior, postero anterior & oblique views, Other views.

RADIOGRAPHIC PROCEDURE

- Fluoroscopy , plain radiography contrast radiography.

SPECIAL PROCEDURE

- Computerized tomography (CT Scanning), USG, Magnetic Resonance imaging.

BASIC PHYSICS

- Magnetic density & magnetic Line of force characteristics of x-ray beam.

X-RAY INTERACTION WITH MATTER

- Coherent scattering, Photoelectric and compton pair production and photo disintegration, Application of compton, photoelectric effect in diagnostic radiology .

SEMESTER –II

RADIOGRAPHY PROCEDURES

DARK ROOM PROCEDURE

- Dark room size and installation, ventilation, electric wiring , pass box Entrance, illumination , Dry & wed side .

FILM CONSTRUCTION

- Type of film, Intensifying screen , characteristics screen, rare earth screen, fluoroscopic screen, green sensitive film, laser films , day light processing.

RADIOGRAPHICAL PROCESSING

- Manual & Automatic processing.

GENERAL RADIOGRAPHY

- Unsharpness, magnification , distortion , grid, sharpness of image , photography density, step range radiography air gap technique.

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RADIATION PHYSICS & RADIOLOGY -II

DARK ROOM PROCEDURE

- X-ray collimators, diaphragmatic apertures cone and cylinder .

FILTERS

- Inherent filter, added filtration, wedge filter heavy metals.

RADIATION HAZARD AND PROTECTION

- Introduction , hazard, newer radiation unit , ICRP Room planning in radiology , shielding, dosimeter

MEASUREMENT OF RADIATION EXPOSURE

- TLD-BADGE- Structure and use, film badge –structure & use, Advantage and disadvantage of TLD & film badge

ROLE & RULE OF RADIOGRAPHER

- Clinical Responsibility of radiographer
- Ethical Responsibility of radiographer
- Legal Responsibility of radiographer
- Procedure preliminaries to examination
- patient on stretcher
- Anaesthetized patient
- Hygiene in x-ray department
- Ten day rules
- Protective measure
- Importance of record
- International rule for radiographer
- Duties for radiographer

SEMESTER -III

PROFESSIONAL RADIOGRAPHY

POSITIONING FOR REGIONAL RADIOGRAPHY

- Uper limb, lower limb, thorax, head & neck , Abdomen.

EMERGENCY RADIOGRAPHY

- Radiographic position in emergency setting.

PEDIATRIC RADIOGRAPHY

- Development , risk of pediatric radiography, equipment, immobilization, approaching to child & unique features to pediatric patient .

DIGITAL RADIOGRAPHY (D.R.)

- Defination, components of D.R. System digital fluoroscopic system , DS angiograph, tube generators , TV monitor.

RADIOGRAPHY -PHARMACOLOGY

- Sedative, hypnotic drugs.
- Analgesic drugs.
- Anesthetic agents
- Purgative & laxative
- Contrast agents & dye use in Radiology
- Various IV fluids
- Oxygen therapy
- BA meal
- Radio therapeutic agent used in radiology

INSTRUMENTATION & IMAGING

- Digital X-ray imaging.
- An introduction of ultrasound, basic principle and bio-logical safety.
- An introduction of color Doppler ultrasound & principle .
- An introduction of computed technology
- An introduction of magnetic resonance imaging (MRI)
- An introduction of Digital tomosynthesis.
- An introduction of endoscopic process.
- BA meal x-ray .

SEMESTER -IV

SPECIAL DIGNOSTIC PROCEDURE

GENITOURINARY SYSTEM-

- IVP, retrograde, micturating and cystourethrography, saipingography.

GASTROINTESTINAL TRACT-

- sialography, BA swallow, BA meal, hypotonic duodenography .
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BILIARY TRACT-

- Oral cholecystogram, intravenous cholecystogram, Endoscopic, Retrograde cholecystogram.

DACROCYSTOGRAPHY-

RESPIRATORY SYSTEM-

INTERVENTION RADIOLOGY

- Position in intervention radiology.
- Procedure in intervention radiology.
- Catheter in intervention radiology.
- Equipment in intervention radiology.
- Common procedure in intervention radiology.
- Digital Subtraction.
- Angiography.
- Guidewire.
- Ebola therapy.
- Particulate agent
- Gelfoam
- Coils

CLINICAL ADVANCE IN RADIOGRAPHY

- Clinical application of X-ray imaging.
- Clinical application of computed tomography .
- Clinical application of magnetic resonance imaging (MRI)
- Clinical application of Ultrasound USG
- Clinical application of color Doppler ultrasound
- Clinical application of endoscopy
- Clinical application of echocardiogram
- Clinical application of fusion imaging & PET scan, nuclear medicine.
