

MAHARASHTRA STATE BOARD OF VOCATIONAL EDUCATION EXAMINATION, MUMBAI – 51

1	Name of Course	C.C.In Radiology Technician (W. E. F. 2015-16)						
2	Course Code	201229						
3	Max.No.of Students Per Batch	25 Students						
4	Duration	One year						
5	Type	Full Time						
6	No.Of Days / Week	6 Days						
7	No.Of Hours /Days	7 Hrs						
8	Space Required	Workshop = 200 Sq.Ft. Class Room = 200 Sq.Ft. Total = 400 Sq.Ft. 1) MOU with hospital having relevant facility is required. 2) Distance between Hospital and Institute Should not be more than 10 Km.						
9	Minimum Entry Qualification	S.S.C.						
10	Objective Of Course	To provide skilled man power in scanning , x ray, e.c.g. department sector and for hospitals						
11	Employment Opportunity	Jobs can be available as C.T. Scan , X- ray, ECG Assistant in hospital						
12	Teacher's Qualification	Degree / PG degree – Relative Branch						
13	Training System	Training System Per Week						
14	Exam. System	Theory		Practical		Total		
		12Hours		30Hours		42Hours		
		Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks
		1	20122911	General Anatomy & Anatomy Of Heart	TH I	3 hrs	100	35
		2	20122912	C T Scan, X-Ray, ECG Technique	TH II	3 hrs	100	35
		3	20122921	General Anatomy & Anatomy Of Heart	PR-I	6 hrs	200	100
		4	20122922	C T Scan, X-Ray, ECG Technique	PR-II	6 hrs	200	100
		Total			600	270		

Theory - I - General Anatomy & Anatomy of Heart

Introduction

Human Body introduction Human skeleton

Upper and lower Limb

Skull, vertebral column and Thorax System

Digestive Reproductive Urinary Respiratory Circulatory

Central nervous system Darkroom

Criteria, purpose of darkroom Exposure of film, entrance to darkroom

Safety of darkroom, light, x-ray film with structure, care of x- ray film Film holders intensifying screen

Film processing, developing, fixing, rising, washing, drying, store keeping record Keeping

Preparation of solution, developer Fixer

Fundamentals of X- Ray technique

EM Radiation

X-ray tube, properties of x-ray in diagnostic radiology

And other fundamental properties of x-ray

Accessories- x-ray film, cassettes with intensifier screens.

Stationary and moving grids

Body section radiographic equipments

Fluoroscopic screen and fluoroscope, image intensifier

Other ancillary x-ray equipment

Shutter mechanism, Filtration

Use of radiation protection devices

Image formation and interpretation

Image sharpness, distortion, image magnification

Film identification- general terms and concepts in diagnostics

Radiology

1. Anatomy in brief
2. Bio- Chemistry
3. Anatomy of heart
4. Physiology of conduction of tissue of heart

PRACTICE - I - GENERAL ANATOMY & ANATOMY OF HEART

Conducting practical's to take various x rays involving following parts.

Upper limb
Lower limb
Hip and pelvis
Vertebral column
Chest
Abdomen
Skull
Dental

Anatomy of Heart

Anatomy in brief
Bio- Chemistry
Anatomy of heart
Physiology of conduction of tissue of heart

Theory - II - C T Scan, X-Ray, ECG Technique

C T Scan

Anatomical landmarks
Contents of Thorax, Abdomen, Pelvic
Introduction to skull
CT contrast medium
Patient preparation
Emergency Drugs

Gray scale imaging CT Terminology
Computerized Topography equipment Computer hardware and software Available CT Scanners
Scanning of Head- orbit, Temporal Bone, Neck, PNS, Thorax, Abdomen, Pelvic

E.C.G. DEPARTMENT

Electrical potentials and genesis of ECG waves
ECG recording
Indications of ECG recording
Information from ECG
Normal ECG waves
Description of conduction abnormalities
description of ischemic Claque
description of infraction
description of Arrhythmia
description of chamber enlargement
ECG leads

X-RAY DEPARTMENT

Radio physics

Discovery of x rays
Properties of x rays
X ray production and x ray tube
Grids
Intensifying screens.

X ray film

Structure of x ray films
Types of x ray films
Storage & care of x ray films.

Cassettes

Design, types, care of cassettes.
Mounting of screens

Dark room

General information about dark room and accessories.

Processing chemicals

- 1) Developer
- 2) Fixer
- 3) Replenished
- 4) Practical factors

Film processing methods –

- 1) Manual
- 2) Automatic
- 3) Film dryers

Miscellaneous

Duties of x ray technici

Identification, record keeping, report dispatching

1)To prepare developer and fixer solutions

1. Care and maintenance of cassettes
2. Care and maintenance of intensifying screens.
Loading, unloading and processing of x ray films.

Practical - II - C T Scan, X-Ray, ECG Technique

C.T.Scan Technique

C T Scan

Anatomical landmarks

Contents of Thorax, Abdomen, Pelvic

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Computerized Topography equipment Computer hardware and software Available CT

Scanners

Scanning of Head- orbit, Temporal Bone, Neck, PNS, Thorax, Abdomen, Pelvic

X-ray Technique

Darkroom

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intensifying screen

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Film identification- general terms and concepts in diagnostics

Radiology

E C G Technique

- 1 Description of machine types
 - 2 Description of paper
 - 3 Description of jelly
 - 4 Technique of ECG recording
 - 5 Energy source and electrical disturbances
 - 6 ECG on pacemaker patient
 - 7 Determination of heart beats
 - 8 ECG abnormalities
 - 9 Demonstration of recording of paper loading
 - 10 Demonstration of patient preparation for ECG
 - 11 Demonstration of cable connection
 - 12 Demonstration of earthing of ECG equipment
 - 13 Demonstration of pacemaker patient ECG recording
 - 14 Demonstration of application of loads other than 12 leads
- Interpretation of normal and abnormal ECG

Infrastructure To Be Required In Institute		
Sr.No.	Items	Require Quantity
1	Computer	02
2	One Class Room	Capacity 25 Student
3	OHP & Slide Pojector Or LCD Projector	01
4	Printer	01
5	Bons Set	01
6	BP Apparatus	01
7	E.C.G. Machine	05
8	Stethoscope	25
9	Thermometer	05
10	All Types Of Anatomy & Physiology Charts	As per requirement
11	Hospital Related Equipment For Daily Practice	As per requirement
12	Changing Room	As per requirement

Infrastructure And Equipments Required to be available In Hospital

Sr.No.	Items
1	X – RAY
2	Dental X-ray
3	Dental X-ray film processor
4	Mobile X -ray unit
5	Mobile X -ray unit with Image intensifier
6	X-ray safe light
7	Ultra sound unit(general)
8	X-ray viewer(single screen)
9	X-ray viewer(double screen)
10	Cassette pass- box
11	Film marker
12	General X-ray Unit
13	Automatic Film Processor
14	Manual Film Processor
15	Film Drier
16	Film hopper
17	X-ray Cassettes(see annex),
18	OPG Unit
19	Screening unit
20	Mammography unit
21	Darkroom accessories(sets
22	CT Scan Machine
23	ECG
