

Rigved Foundation

Affiliated with KME Vidyapeeth Nagpur

Diploma in radiology imaging technology

After a diploma in radiology, students can either pursue higher studies like P.H.D or PG courses. They can also enter the job sector as Radiologist, Radiology nurses, MRI technician etc.

Eligibility: 10+2 pass equivalent course with a minimum 50% marks.

Fee: 9500 per year & double for foreign students.

Duration: 3years

Diploma in Radiology Imaging Technology

Course Guidelines & Framework

Eligibility	12 th Std School Passed and 17years of age.
Duration	2 Years
Number of Beds	50 Beds
X-Ray	300 MA X-Ray Machine –1 C-Arm X-Ray -1
CT Scan	1
Tie Up	MRI, Cath. Lab - Optional
Maximum Student Intake	10
Medical College	Medical Colleges affiliated to Tamil Nadu Dr.MGR Medical University can start this course with maximum student intake of 20.
Common Room	1
Class Rooms (25x10sq ft)	2

Multimedia	LCD projector.
Library	Minimum 100sq ft With Computers & Internet facility Minimum of 100books
Teaching Responsibility	Designated Course Director should be a Radiologist -1
Faculty	Part time Lecturers to be named- Radiologists, Neurologist, NephrologistOrtho specialist, ENT specialist Gastroenterologist, OB&G and other specialities.
Training Modality	
1 st Year	Theory on 1 st year subjects.
2 nd Year	Theory on 2 nd year subjects + Practicals and Log Book.
Examinations	
1 st Year	Theory Examination + Practical
2 nd Year	Theory Examination + Practical +Viva
Fee	
University Affiliation Fee	Rs.1lakh - one time fee.
Security Deposit	Rs.1lakh - refund as per university norms
Inspection Fee	Rs.15000
Inspection Duration	Yearly for first two consecutive year. Thereafter once in three years.
Student Registration - University Fee	Rs.500 per student.

BRIEF SUBJECT TITLE TO BE COVERED

Main Subjects		Supportive Subjects
Ist Year		
1	Human Anatomy & Physiology , Radiology Physics.	English
2	General Physics, Radiation Physics & Physics of Diagnostic Radiology	Basics of Computer
3	X-Ray Machines & Accessories, Maintenance.	Medical Ethics and patient care
4	X-ray Film / Image processing Techniques (Dark Room Techniques)	
IInd Year		
5	Clinical Radiography-Positioning	Principles of Medical Emergencies
6	Equipments, Techniques of modern Imaging Modalities	
7	Contrast & Special Radiography procedures.	
8	Quality Control at Radiology & Radiation Safety	

NOTE: For the supportive subjects Internal Examination to be conducted by the institute conducting the course and marks should be submitted to the University.

Syllabus for Diploma in Radiology Imaging Technique**Ist Year**

Theory English - Communication skills- (50hrs)

Basics of Computer (Computer Applications related to Radiography) - (50hrs)

Medical Ethics and patient care - (50hrs)

Human Anatomy - & Physiology - (100hrs) Scope of Anatomy and Physiology - Definitions and Terms in Anatomy and Physiology- Structure and function of human cell - Elementary tissues of human body- Brief account on Composition of Blood - functions of blood elements - Blood Group and coagulation of blood.

Cardio Vascular System

(Structure and functions of various parts of the heart, arterial and venous system, brief account on common cardiovascular disorders).

Respiratory System

(various parts of respiratory system and their functions, Physiology of Respiration).

Digestive System

(names and various parts of digestive system-Liver, Spleen, Gall Bladder, Pancreas, Buccal Cavity, Pharynx, Oesophagus, Stomach, intestine etc.-physiology of digestion and absorption)

Urinary System (various

parts of urinary system and its function-structure and function of kidneys-physiology of urine formation - pathophysiology of renal disease and edema.)

Reproductive System

(physiology and anatomy of Male & Female reproductive system-Prostate & Uterus& Ovaries etc.)

Musculoskeletal System

(Classification of bones & joints, structure of skeleton –structure of skeletal muscle –physiology of muscle contraction)

Nervous System (various

parts of nervous system- Brain and its parts –functions of nervous system - SpinalCord & Nerves).

Ear, Nose, Throat and

Eye (Elementary knowledge of structure and functions of organs of taste, smell,hearing, vision.)

Endocrine System(

Endocrine glands ,their hormones and functions-Thyroid, Parathyroid, Suprarenal,Pituitary, pituitary and Thymus)

Haemopoietic and

Lymphatic System (Name of the blood vessels & lymph gland locations).

Surface Anatomy &

Surface Markings of Human Body.

Practicals (75 hours)Study of Human Skeleton parts with skeletal models..

Study with charts and models of all organ systems mentioned above.Microscopic slides examination of elementary human tissues, cells.

Radiology Physics, Radiation Physics & Physics of Diagnostic Radiology - (100hrs)Basic concepts of power, work, force, energy, electricity, magnetism and their units andmeasurements- einstein's formula – electromagnetic induction – Atomic structure –radioactivity- ionization and excitation - electromagnetic waves – X-rays production andproperties – X-ray tube - quality of x-rays – factors affecting quality and intensity of x-rays. X-ray circuits - interaction of X and gamma rays - X-radiation measurements etc. Principles of Radiation detection and measurements – TLD, Pocket Dosimeter, RadiationSurvey meter and radiation zone monitor.

Practicals - (50hrs)

Study with charts, models & power point presentations Atomic structure, X-ray tubes, X-ray circuits involving students to present and discuss.

X-Ray Machines & Accessories and their Maintenance - (100 hrs) X-ray machines – Anode & Cathode - Thermionic diode – X-ray valves and tubes – principle and practical aspects – semiconductors – triode valves – cathode ray oscilloscopes – X-ray circuits – self rectifying circuits – half wave pulsating voltage circuits – full valve pulsating voltage circuits - measurement of high voltage – control of kV circuit – mA circuit. X-ray beam quality

X-ray Film / Image processing Techniques - (50hrs) X-ray Films- X-ray cassettes - Intensifying screens X-ray films types – basic film structure & quality – choosing films for different studies - basics on hard copies of radiographic images – dry & wet processing – Fixer – Developer – film processing methods - manual and automatic processing – conventional & modern image processing rooms – image processing equipments – types & maintenance – day light systems advantages & disadvantages – processing faults – glossy prints, paper prints etc – production of best quality images. Intensifying screen- Fluorescence - structure of Intensifying screens – Cassette types – screen un-sharpness etc.

Practicals (50hrs)

X-ray Films- X-ray cassettes - Intensifying screens, other imaging hard copies, image processing equipments with demonstration.

EXAMINATION SCHEDULES 1ST YEAR

	THEORY
PAPER-I	Human Anatomy & Physiology relevant to Radiology.
PAPER-II	General Physics, Radiation Physics & Physics of Diagnostic Radiology.
PAPER-III	X-Ray Machines, Accessories & Maintenance.
PAPER-IV	X-ray Film / Image processing Techniques.

PRACTICALS & VIVA
Identification of Bones
Identification of X-Ray equipments/ parts.
Dark room Techniques
Models, Charts etc.,

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