

**College of Paramedical Sciences
Teerthanker Mahaveer University**

B.Sc. (Radiological Imaging Techniques)

Programme Outcome

PO-1	:	Understanding ways of functioning effectively as an individual independently and as a member in diverse team in multidisciplinary settings (Attitude).
PO-2	:	Understanding requirements of continuous education as a function of growth and maintenance of professional competence (Lifelong learning).
PO-3	:	Understanding environmental consciousness and societal concerns in achieving sustainable development (Environment and Sustainability).
PO-4	:	Applying computer skills in health care system and taking entrepreneurial decisions (Entrepreneurship).
PO-5	:	Applying knowledge to assess societal, health, safety and legal issues related to Professional practice (Social interaction & effective citizenship).
PO-6	:	Applying systematized problem solving techniques to identify and correct procedural errors to verify the accuracy of laboratory result obtained.(Problem analysis and solving).
PO-7	:	Applying appropriate techniques, resources and tools with an understanding of limitations (Technology savvy/usage).
PO-8	:	Developing the ability towards ethical as well as critical thinking. (Critical thinking)
PO-9	:	Executing professional conduct and interpersonal communicational skills effectively with society at large (Communication).

Programme Specific Outcome

PSO-1	:	Understanding the basic concepts, theories of applied sciences (physics, chemistry, Anatomy, physiology, biochemistry, pathology) relevant to radiological imaging techniques.
PSO-2	:	Remembering the relationship between physics and radiology& modern imaging
PSO-3	:	Understanding provisions for radiation safety by various national & international regulatory bodies and applying quality assurance measures, safety procedures and maintenance of radiological equipments
PSO-4	:	Understanding of health care organization in India & basic medical terminology.
PSO-5	:	Operating all radiological and imaging equipment independently and perform the image processing in X-Ray, Fluoroscopy, Computed Tomography, DualEnergyXRay Absorptiometry (DEXA),Mammography, Digital Subtraction Angiography, Magnetic Resonance Imaging, Ultrasonography, Nuclear Medicine
PSO-6	:	Analyzing the protocols in Radiological Procedures & evaluating the factors affecting technical quality of images and various pathological conditions.
		Creating & Formulating plan for handling patient with drugs & equipments in general as well in emergency situation.

Course Outcomes

BRT-S-101	CO-1	Understanding different terminology and recognizing organs, organ system and different sample collection site.
	CO-2	Identifying and discussing the major structures of human body.
	CO-3	Demonstrating various organ systems and employ knowledge of human anatomy to solve questions regarding functions & diseases.
	CO-4	Differentiating the various organ system and its related disorders
	CO-5	Developing a holistic approach to human health and medical research
BRT-S-102	CO-1	Understanding the function & structure of cells, tissues and major human organs system/parts
	CO-2	Identifying and explaining the interrelation between different organ systems to maintain biological equilibrium
	CO-3	Demonstrating functions of various organ systems and employ its knowledge to understand diseases
	CO-4	Differentiating and drawing the diagram of various organs & organs system.
	CO-5	Evaluating and determining various experimental techniques related to physiology
BRT-S-103	CO-1	Understanding the concepts and theories of Biochemistry related to Radiology
	CO-2	Summarizing the chemistry of carbohydrates, proteins, lipids and amino acids.
	CO-3	Understanding the mechanism of enzyme action and identify the classes and factors affecting action.
	CO-4	Analyzing the biochemical testing and analyzing the test result.
BRT-S-104	CO-1	Understanding the basic concepts, theories & method, in applied physics relevant to radiological imaging techniques & image quality
	CO-2	Categorizing provisions for radiation safety by various national & international regulatory bodies.
	CO-3	Tagging of different imaging modalities in radiology department
	CO-4	Differentiating EMR radiation and its application in X –ray diagnosis and therapy.
	CO-5	Evaluating the factors affecting the image quality from x ray.
BRT-S-105	CO-1	Annotating and Remembering the Concept of Health
	CO-2	Understanding the Nutrition and major Nutritional problem's
	CO-3	Expressing and applying Universal Immunization and Vaccines schedules
	CO-4	Analyzing the causes of various diseases
	CO-5	Understanding the family welfare.
BRT-S-106	CO-1	Understanding the basic concepts, theories & method, in applied physics relevant to radiological imaging techniques & image quality
	CO-2	Describing the correlation between radiology and physics.
	CO-3	Analyzing different EMR radiation and its application in medical diagnosis and therapy.
	CO-4	Understanding of different imaging modalities in radiology department
TMUGE101	CO-1	Remembering and understanding of the basic of English grammar and vocabulary

	CO-2	Understanding of the basic Communication process.
	CO-3	Applying correct vocabulary and tenses in sentences construction.
	CO-4	Analyzing communication needs and developing communication strategies using both verbal & non-verbal method.
	CO-5	Drafting applications in correct format for common issues.
	CO-6	Developing self-confidence
BRT-S-201	CO-1	Understanding of recognizing organs, organ system and sample collection sites.
	CO-2	Identifying and discussing the major structures of human body
	CO-3	Demonstrating various organ systems and employ knowledge of human anatomy to solve questions regarding functions, diseases and sample collection
	CO-4	Differentiating the various organ system and its related disorders
	CO-5	Analyzing appropriate sample collection site
	CO-6	Developing a holistic approach to human health and medical research
BRT-S-202	CO-1	Enlisting and memorizing the function of major human organs system/parts.
	CO-2	Identifying and explaining the interrelation between different organ systems.
	CO-3	Understanding functions of various organ systems and employ its knowledge to identify disease
	CO-4	Differentiating and drawing the diagram of various organs & organs system
	CO-5	Understanding of abnormality and various physical condition
BRT-S-203	CO-1	Understanding and identify radiographic anatomy.
	CO-2	Acting out diagnostic image quality.
	CO-3	Modifying positioning and technical factors.
	CO-4	Communicating appropriately and constructively with the patient.
	CO-5	Calculating and observe recommended radiation safety measures
BRT-S-204	CO-1	Understanding the fundamental concepts of computers with the present level of knowledge of the student.
	CO-2	Categorizing binary, hexadecimal, and octal number system and their arithmetic
	CO-3	Understanding the MS OFFICE and its applications.
	CO-4	Applying MS office programs to create personal and academic documents
BRT-S-205	CO-1	Understanding professional and ethical responsibility of a Radio Imaging Technologist.
	CO-2	Knowing the importance of patients Right's and informed consent in case of terminally illEuthanasia and organ transplantation cases.
	CO-3	Expressing the Right's and confidentiality of the records of the patients and their medicolegal aspects.
	CO-4	Explaining the benefits as well as risks of various procedures to the patients before performing.
BRT-S-206	CO-1	Understanding the concepts and terminology of various modalities
	CO-2	Enlisting and memorizing the structure, function & location of different parts of body under imaging.
	CO-3	Recognizing the different parts of diagnostic imaging equipments and

		their functions.
	CO-4	Summarizing comparison between CR & DR.
	CO-5	Applying the different imaging modalities in radiology department.
TMUGE201	CO-1	Remembering & understanding the basics of English Grammar and Vocabulary
	CO-2	Understanding the basics of Listening, Speaking & Writing Skills
	CO-3	Understanding principles of letter drafting and various types of formats.
	CO-4	Applying correct vocabulary and grammar in sentence construction while writing and delivering presentations
	CO-5	Analyzing different types of listening, role of Audience & Locale in presentation
	CO-6	Creating Official Letters, E-Mail & Paragraphs in correct format.
BRT-S-301	CO-1	Enlisting basic lines, planes and projections of the body for precise and accurate radiographic positioning techniques.
	CO-2	Categorizing special positioning skills to capture images of the extremities, vertebral column, skull and respective associated joints.
	CO-3	Understanding and analyzing the techniques for using immobilization devices in pediatric radiography.
	CO-4	Determining and applying different body movement around the axis of different anatomical structure for better diagnosis.
	CO-5	Implementing specific problem solving techniques/approaches to solve the problems faced during patient position, care and management.
BRT-S-302	CO-1	Enlisting and remember the concepts and terminology of various modalities.
	CO-2	Memorizing the structure, function & location of different parts of body under imaging.
	CO-3	Recognizing and interpreting the different parts of diagnostic imaging equipment and their functions.
	CO-4	Comparing between different radiographic modalities such as CR, DR and Fluoroscopy
	CO-5	Implementing the accurate and precise radiographic techniques such as low reduction dose and high quality images.
BRT-S-303	CO-1	Quoting the basic concepts, theories & method, in applied physics relevant to ultrasonic imaging techniques & image quality
	CO-2	Understanding different scanning protocol and its application in medical diagnosis and treatment.
	CO-3	Interpreting the correlation in between findings of mammography and ultrasonic imaging.
	CO-4	Executing the quality management of imaging systems (Ultrasound & Mammography)
	CO-5	Integrating and illustrating various pathological conditions of clinical Ultrasonography.
BRT-S-304	CO-1	Remembering the basic pathological conditions related to cardiology, surgery, nephrology, orthopedic, gastrology, neurology and general medicine for the diagnosis relevant to radiological imaging techniques
	CO-2	Understanding the etiology, pathophysiology, manifestations, diagnostic studies and complications of common medical and surgical disorders

		relevant to radiological imaging techniques
	CO-3	Identify diagnoses and listing them according to priority and formulating radiological imaging techniques plan.
	CO-4	Analyzing pathology according to case diagnosis relevant to radiological imaging techniques
	CO-5	Evaluating case with condition referred to different radiology department
BRT-S-305	CO-1	Understanding basic concepts in the context of ecological and environmental sciences.
	CO-2	Interpreting the ideas about energy resources in today's scenario and discussing about alternate energy sources.
	CO-3	Classifying and describe biodiversity and also summarize biogeographically distribution of India.
	CO-4	Describing concepts and methods to apply in environmental communication and public awareness.
	CO-5	Interpreting the ethical and cultural conduct in environmental activities
TMUGE301	CO-1	Remembering and understanding the English grammar and vocabulary.
	CO-2	Understanding the art of public speaking and strategies of reading comprehension.
	CO-3	Applying correct vocabulary and sentence construction during public speaking or professional writing.
	CO-4	Analyzing different types of sentences like simple, compound and complex. Drafting notice, agenda and minutes of the meeting.
	CO-5	Developing speaking skills during common conversation and power point presentation.
TMUGS301	CO-1	Utilizing effective verbal and non-verbal communication techniques in formal and informal settings
	CO-2	Understanding and analyzing self and devising a strategy for self growth and development
	CO-3	Adapting a positive mindset conducive for growth through optimism and constructive thinking.
	CO-4	Utilizing time in the most effective manner and avoiding procrastination.
	CO-5	Making appropriate and responsible decisions through various techniques like SWOT, Simulation and Decision Tree.
	CO-6	Formulating strategies of avoiding time wasters and preparing to-do list to manage priorities and achieve SMART goals.
BRT-S-401	CO-1	Understanding the components of conventional X-ray modalities such as Portable and Fluoroscopic machines.
	CO-2	Identifying & maintaining the working principle of image intensifier and tomographic equipment.
	CO-3	Applying the direct and indirect radiography and factors affecting the image qualities.
	CO-4	Analyzing and identifying the process of image formation, image development and image quality.
	CO-5	Operating the conventional x-ray techniques and equipment independently.
BRT-S-402	CO-1	Understanding the guidance of fluoroscopy for Barium enhanced GI tract studies.

	CO-2	Identifying proper technique for male and female genitourinary system under fluoroscopy guidance.
	CO-3	Discussing the different positioning techniques for visualization of different ducts and interventional procedures for fluid extraction
	CO-4	Demonstrating equipment and supplies necessary to complete special radiographic procedures with administration of contrast media.
	CO-5	Evaluating the safety aspects of contrast media and describe the allergic reactions associated to use of different contrast media for diagnostic purpose
BRT-S-403	CO-1	Understanding history, generation & terminology related to computed tomography.
	CO-2	Explaining the basic concepts, theories, techniques & equipment relevant to computed tomography
	CO-3	Describing the components and working of equipments related to C.T.
	CO-4	Applying the techniques of the patient preparations needed before & post procedure care in any CT examination.
	CO-5	Evaluating the factors affecting the image quality.
BRT-S-404	CO-1	Understanding of the basic concepts, theories & method, in applied physics relevant to radiation monitoring & dose management.
	CO-2	Recognizing the guidelines given by different regulatory bodies.
	CO-3	Describing the correlation between radiation dose and its biological effects.
	CO-4	Analyzing the different types radiation and its effects in medical imaging, diagnosis and therapy.
	CO-5	Evaluating the quality management of different imaging modalities in radiology department.
BRT-S-405	CO-1	Defining and recognizing different basic medical pathology's etiology & clinical manifestations aspects with ref to radiology
	CO-2	CO2 Understanding to identify morphological change and discuss the major mechanism of pathology relevant to radiological imaging techniques
	CO-3	Applying radiological imaging techniques plan for Phases of diagnostic testing (pre-test, intra-test & post-test) in the image interpretation and clinical implications
	CO-4	Analyzing 3 times or more diagnosis evidence based information to maintain responsibility in department and case biases relevant to radiological imaging techniques
	CO-5	Synthesizing stimulant of pathology relevant to radiological imaging techniques
TMUGE401	CO-1	Remembering and understanding the English grammar and vocabulary.
	CO-2	Understanding the essentials of effective listening and speaking.
	CO-3	Understanding the corporate expectations and professional ethics.
	CO-4	Applying correct vocabulary and sentence construction during professional writing or job interviews.
	CO-5	Analyzing different types of interviews. Drafting resume, C.V. or cover letter.
BRT-S-501	CO-1	Understanding anatomy, physiology and basic concepts of Magnetic

		Resonance Imaging.
	CO-2	Summarizing the essential hardware and execute different parameters in imaging.
	CO-3	Classifying artifacts in imaging and use of remedy procedure.
	CO-4	Illustrating the scanning protocols.
	CO-5	Describing safety procedure for providing clinically safe imaging environment.
BRT-S-502	CO-1	Remembering the terms dealing with Radioactivity and its measuring quantities.
	CO-2	Understanding the principle for production of Radio nuclides, such as generators and reactors.
	CO-3	Applying the use of Radiopharmaceutical for diagnosis and therapy.
	CO-4	Analyzing and recognizing the site and route of radiopharmaceuticals in hospitals and diagnostic centers.
	CO-5	Analyzing the applied physics of nuclear medicine such as PET and SPECT.
BRT-S-503	CO-1	Understanding the effective verbal/nonverbal communication skills with patients and healthcare staff.
	CO-2	Discussing and demonstrating the patient care and assessment tools.
	CO-3	Demonstrating the professional code of ethics and comply with the profession's scope of practice.
	CO-4	Discussing and evaluating the practices which lead to prevention of nosocomial infections.
	CO-5	Applying appropriate radiation protection practice while performing radiologic procedures on children and adults.
BRT-S-504	CO-1	Understanding the basic concepts, theories, techniques & equipment's for different interventional radiological procedures.
	CO-2	Using the emergency drugs , and preparing the patient before & post procedure care in any interventional radiological examination
	CO-3	Interpreting& applying provisions for radiation safety and protection as prescribed by various national & international regulatory bodies.
	CO-4	Applying the factors affecting the image quality.
BRT-S-601	CO-1	Understanding Biostatistics & methodology of research.
	CO-2	Assessing and designing of research.
	CO-3	Analyzing the Clinical audit and data
BRT-S-603	CO-1	Categorizing the advancements in technology in the context of CT, MRI and USG procedures.
	CO-2	Comparing latest upgraded hardware of different imaging modalities.
	CO-3	Classifying imaging methods and techniques used in CT, MRI and USG.
	CO-4	Selecting safety aspects in different imaging modalities for patients.
	CO-5	Implementing of different post processing techniques in various procedures.
BRT-S-605	CO-1	Comparing the Clinical history pre and post processing
	CO-2	Planning the different protocols and documentation for different procedures
	CO-3	Distinguishing how to prepare patients for different radiology studies for contrast and non contrast examinations.
	CO-4	Formulating the importance of effective communication radio imaging.

	CO-5	Evaluating image quality in advance modalities.
BRT-S-606	CO-1	Understanding the Concept of biomedical waste management.
	CO-2	Remembering the hospital setting and management
	CO-3	Understanding and applying emergency situation rescue
	CO-4	Applying the patient's right and code of conduct.
BRT-S-607	CO-1	Understanding the concepts of Patients care in hospital.
	CO-2	Understanding & applying provisions for hospital management
	CO-3	Evaluating the factors affecting the hospital services.
	CO-4	Analyzing challenges and strategies in Hospital administration