

PROGRAM OUTCOME (POs)

Annexure-3J of AC-50/2024

Course Code	B.Sc. MEDICAL RADIOLOGY & IMAGING TECHNOLOGY
PO1	Technological aptitude: Exhibit expertise in using a range of radiologic equipment, such as ultrasound, CT, MRI, and X-ray machines, to guarantee reliable imaging results. Apply proper patient positioning procedures to produce the finest diagnostic pictures while maintaining patient comfort and safety.
PO2	Patient Safety and Care: Demonstrate a thorough comprehension of patient care concepts, such as the capacity to communicate clearly, uphold patient privacy, and deliver compassionate care. Adopt radiation safety procedures to reduce patient and healthcare worker exposure.
PO3	Clinical Proficiency: Assess and analyse radiographic pictures accurately to help with illness diagnosis and treatment. Ensure the provision of top-notch patient care by working efficiently with healthcare teams made up of radiologists, doctors, and other medical specialists.
PO4	Guidelines for Ethicing and Law: Respect the law and moral standards when practicing medical radiography, especially when it comes to patient privacy and getting informed permission. Keep yourself up to date on the laws and regulations that currently regulate the use of radiologic technology within these limits.
PO5	Problem-solving with Critical Thinking: Apply critical thinking and problem-solving abilities to evaluate intricate clinical scenarios and arrive at well-informed conclusions about imaging methods and patient treatment. Adjust to new difficulties and modifications in medical imaging technologies or practices.
PO6	Proficiency in Communication: When speaking with patients, healthcare teams, and other stakeholders, exhibit effective verbal and writing communication skills. Prepare reports and documentation pertaining to radiologic procedures in a clear, accurate, and succinct manner.
PO 7	Professional Growth and Continuous Learning: By ongoing education, professional development, and participating in professional organisations, showcase your dedication to lifelong learning and being up to date with developments in medical radiography and imaging technology. Practice reflection to keep developing your professional and personal abilities.
PO 8	Research and Innovation: Contribute to the advancement of new methods and technology by engaging in medical radiology research and innovation. To enhance patient outcomes, incorporate evidence-based approaches into the therapeutic setting.
PO 9	Cultural Proficiency: Acknowledge and honour patients' varied histories and needs while delivering culturally sensitive treatment in a range of therapeutic contexts.
PO 10	Teamwork and Leadership: Demonstrate leadership abilities by overseeing radiologic initiatives or departments, coaching colleagues, and fostering a cooperative healthcare environment. Function well in a multidisciplinary team while exhibiting professionalism and a dedication to provide patients with top-notch treatment.
PO 11	Holistic Development: Acknowledge and understand about the spiritual and cultural develoment for the well-being of them and for the society.

Course Outcomes (COs)

Course Code	B.Sc. MEDICAL RADIOLOGY & IMAGING TECHNOLOGY
SEMESTER I	
BMRIT 101 L	Human Anatomy Part I
CO1	Define basic technical terminology and language associated with medical anatomy
CO2	Identify and describe the gross anatomy of various tissues and organs in the human body along with Skeletal and Muscular Systems
CO3	Understand and demonstrate the anatomy of Respiratory system, Circulatory system, Digestive system and Excretory system with it's clinical application
BMRIT 102 L	Human Physiology Part I
CO1	Describe basic physiological principles involved in normal funtioning of the human body and thier applications in comprehending the pathophysiology of various diseases.
CO2	To understand the basic mechanism, operation and regulation of different organ systems such as Cardiovascular system, Digestive system, Respiratory system and Muscle-Nerve physiology.
CO3	Ability to identify techniques to evaluate the funtioning of organ systems and interpret the results as normal or abnormal.
BMRIT 103 L	General Biochemistry & Nutrition

CO1	Understand the fundamental principles of biochemistry, including the chemistry and functions of biomolecules such as carbohydrates, proteins, lipids and nucleic acids.
CO2	Gain insights into the principles of bioenergetics and enzymology in human body.
CO3	Undersand basics of collection, handling and processing analysis of blood and urine samples for clinical diagnostics.
BMRIT 104 L	Introduction to National Health Care System (Multidisciplinary/Interdisciplinary)
CO1	Understand the measures of the health services and high-quality health care
CO2	Gain Basic insight into the main features of Indian health care delivery system and how it compares with the other systems of the world.
CO3	Introduction to Background objectives, action plan, targets, operations,in various National Heath Programmes.
CO4	Introduction the AYUSH System of medicines.
BMRIT 105 P	Community Engagement and Clinical Visit (Including related practicals to the Parent course)
CO1	Understand the role of health professional in community
CO2	Personality Development
AEC 001 L	English and Communication Skills
CO1	Develop ability to read, write and speak better in English language
CO2	Grow personally and professionally to develop confidence in the field of healthcare.
AEC 002 L	Environmental Sciences
CO1	Understand and define terminology commonly used in enviromental sciences
CO2	Understand the concepts of ecosystems, biodiversity and its conservation
CO3	Understand the relationship between humans and enviroment
CO4	Discuss the factors affecting the availability of natural resources, their conservation and management.
CO5	Discuss the goals, targets, challenges and global strategies for sustainable development
SEMESTER II	
BMRIT 106 L	Human Anatomy Part II
CO1	Understand and demonstrate the anatomy of Reproductive system, Endocrine system, Nervous system, Sensory system and Lymphatic system with it's clinical application
BMRIT 107 L	Human Physiology Part II
CO1	Understand the basic physiological fucntions of Special senses and Skin,.
CO2	To understand the basic mechanism, operation and regulation of different systems such as Nervous system, Endocrine system, Reproductive system and Excretory system
CO3	Ability to identify techniques to examination of the physiological funtioning of sensory and motor systems and interpret the results as normal or abnormal.
BMRIT 108 L	General Microbiology
CO1	Understanding the Basic principles of Microbiology with General Methods for recovery, identification of pathogens, culture techniques, procedures, antibiotic testing and sterilization techniques.
CO2	Understand the applications of universal safety precautions.
CO3	Adept knowledge about the systemic bacteriology including morphology, species, lab diagnosis, isolation and identification.
CO4	Basic knowledge of pathogenic diseases and their clinical features
BMRIT 109 L	Basic Pathology & Hematology

CO1	Know the basic concepts in hematology and clinical pathology
CO2	Ability to collect blood and urine sample under guidance
CO3	Understanding types of anemias and basics of leukemias
BMRIT 110 L	Introduction to Quality and Patient Safety (Multidisciplinary / Interdisciplinary)
CO1	Understand the basic concepts of Quality in Health Care System and develop skills to implement sustainable quality assurance programs in the health system.
CO2	Understand the basics of emergency care and life support skills.
CO3	Understanding of the concepts for infection prevention and control.
CO4	Knowledge on the principles of on-site disaster management and prevent harm to workers, property, the environment and the general public.
CO5	Ability to apply healthcare quality improvement and patient safety principles, concepts, and methods at the micro, meso and macro system levels.
BMRIT 111 P	Community Engagement and Clinical Visit (Including related practicals to the Parent course)
CO1	Understand the role of health professional in community
CO2	Personality Development
SEC 001 L	Medical Bioethics & IPR
CO1	Ability to recognise and understand ethical concerns in research and healthcare sector.
CO2	Adapt skills to rationally justify decisions by understanding the complexity and multi - dimensionality of medical or clinical ethical concerns.
CO3	Gain awareness about significance of patent, copyright, plagiarism and their applications in legal problems
SEC 002 L	Human Rights & Professional Values
CO1	Acquire conceptual clarity and develop respect for norms and values of freedom, equality, fraternity and justice
CO2	Awareness of civil society organizations and movements promoting human rights
CO3	Understand the difference between values of human rights and their duties
SEMESTER III	
BMRIT 112 L	Basic of Radiation Physics
CO1	Describe the basic physics and basic structure of atom to understand the radioactivity
CO2	Describe the basic equipment related to physics those can be helpful for students to understand the physical activity
BMRIT 113 L	Radiographic Techniques - I
CO1	Describe the basic anatomy of the human body related to radiography
CO2	Describe the positioning in relation of human anatomy. Students will be able to read the scans after the completion.
BMRIT 114 L	Patient Care & Radiation Protection
CO1	Describe the patient vital signs and taking patient history for the preparation of scans
CO2	Describe about the responsibilities of radiographers for the scanning and related to departments for various type of scanning.
CO3	Describe the radiation safety measure and radiation protection needed for the radiology department and radiographers
CO4	Describe various government bodies those are responsible for the radiation safety measure and students will be able to understand the importance of radiation safety and radiation protection.

GEC 001 L	Pursuit of Inner Self Excellence (POIS)
CO1	Students will become self-dependent, more debility for their study and career related matter ecisive and develop intuitive
CO2	Student's ability to present their ideas will be developed.
CO3	Enhanced communication skills, public speaking & improved Presentation ability.
CO4	Students will be able to explore their inner potential and inner ability to become a successful researcher or technician & hence become more focused.
CO5	Students will observe significant reduction in stress level.
CO6	With the development of personal attributes like Empathy, Compassion, Service, Love & brotherhood, students will serve the society and industry in better way with teamwork and thus grow professionally.
GEC 002 L	Organizational Behavior
CO1	Describe and apply motivation theories to team and organizational scenarios in order achieve a team's or an organization's goals and objectives.
CO2	Explain the effect of personality, attitudes, perceptions and attributions on their own and other's behaviors in team and organizational settings.
CO3	Explain types of teams and apply team development, team effectiveness, and group decision making models and techniques.
SEMESTER IV	
BMRIT 116 L	Physics for Medical Imaging
CO1	It will describe the mechanics of equipment which are used for the scanning and imaging purpose
CO2	Describe the x ray generation, production and how radiation can be useful for the imaging purpose
CO3	Describe the working principle and instrumentation and function of modern equipment for the scanning and imaging purpose.
BMRIT 117 L	Radiographic Techniques - II
CO1	Describe the basic anatomy of the human body related to radiography
CO2	Describe the positioning in relation of human anatomy. Studnets will be able to read the scans after the completion.
BMRIT 118 L	Dark Room Techniques
CO1	Describe the conventional method of image development
CO2	Describe the various equipment used for the image production and image formation
AEC 003 L	Computers and Applications
CO1	Introduction to Hardware and processing of computers and storage devices.
CO2	Adept knowledge of computer software and applications such as Microsoft office (Word, Excel and Power Point)
CO3	Application of operating systems, computer networks & internet in Health Care Settings.
AEC 004 L	Good Clinical Laboratory Practice and Research Skills
CO1	Proficiency an adept knowledge of Good Clinical Laboratory Practice (GCLP), ethical principles and guidelines to ensure patient rights and welfare in clinical research.
CO2	Understand the importance of Ethical Guidelines and Good Documentation Practices (GDP) in conducting Clinical Research.
CO3	Effectively understand the Basics of Biostatistics, Research Study Designing, Methodology, Implementation and Grant Application.

SEMESTER V	
BMRIT 120 L	Quality Assurance in Medical Imaging
CO1	Describe the importance of government bodies in the maintenance of radiographic equipments and also the importance of quality assurance and quality control.
CO2	Describe the importance of quality control in the maintaining quality of radiographic image.
BMRIT 121 L	Equipment for Medical Imaging - I
CO1	Describe the basics of radiographic equipments which are to be used for the scanning such as CT, MRI and many more
CO2	Describe the scanning protocols of the radiographic equipments which are used for the scanning and diagnosis as well.
BMRIT 122 L	Special Procedures in Medical Imaging
CO1	Describe the scanning procedures and technique for the x ray in which contrast is used and the importance of these kind of scans.
CO2	Describe the role of contrast media injection for the scanning and how contrast is to be used.
DSE 001 L	Basics of Clinical Skill Learning
CO1	Ability to Measure Vital Signs, do basic physical Examination of the patients, NG tube basics, Administration of Medicines
CO2	Understand about Asepsis, and the Cleanliness related to asepsis and on mobility of the patients
DSE 002 L	Hospital Operation Management
CO1	Understand and apply the knowledge of Medico-Legal regulations and Medical Ethics in Healthcare System.
CO2	Ability to utilize Hospital Information system in Hospital services.
CO3	Understand the operation management of Equipment's and medical records in Health Care services.
SEMESTER VI	
BMRIT 124 L	Basics of Radio Therapy and Nuclear Medicine
CO1	Elaborate the radiotherapy equipment's and characteristics of equipment's for the procedure and experiments.
CO2	Introduction of nuclear medicine, radioactivity and role of nuclear medicine in the department of radiodiagnosis.
BMRIT 125 L	Equipment for Medical Imaging-II
CO1	Describe the advancement and recent trends of radiographic equipments which are to be used for the scanning such as CT, MRI and many more
CO2	Describe the advanced scanning protocols of the radiographic equipments which are used for the scanning and diagnosis as well.
BMRIT 126 L	Advanced Radiographic Techniques
CO1	Describe those technique which are used outside of the radiodiagnosis department and those techniques which are participating in the image quality enhancement.