

Faculty of Medicine

*Bachelor of Science in Medical Radiology and
Imaging Technology (B.Sc. MRIT)*

Semester – VI

Quality Control in Radiology and Radiation Safety Part 2

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| Course Title | Quality Control in Radiology and Radiation Safety Part 2 |
| Course Code | MRIT28 |
| Course Credit | Lecture: 3 |
| | Practical + Clinical Training: 8 |
| | Total: 7 |
| Course Objectives | |
| <ul style="list-style-type: none"> • Radiology has been developing dramatically during the past few years. With enhancements in magnetic resonance imaging (MRI) and computed tomography (CT), the role of the radiologic technologist has also been changing. • Skills in cross-sectional anatomy are important to help the technologist in MRI and CT to identify the anatomy being imaged and to communicate effectively with the radiologist and physicians. | |

| # | Detailed Syllabus | Sessions |
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| Section I | | |
| 1 | Quality Assurance and quality control of Modern Radiological and Imaging Equipment which includes Digital Radiography, Computed Radiography, CT scan, MRI Scan, Ultrasonography and PACS related | 10 |
| 2 | Image artifacts their different types | 5 |
| Section II | | |
| 3 | causes and remedies | 3 |
| 4 | Newer Radiation safety protocols and recent advances in radiation safety including AERB guidelines | 12 |

Instruction Method

1. Teaching and training sessions will be carried out through active learning. Active participation and contribution in group discussion and seminars are mandatory for students
2. Lectures to be conducted with the help of black board and/or audio-visual aids that includes multi-media projector, OHP, etc.
3. Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval
4. The course includes a laboratory where the students have an opportunity to build and appreciation for the concepts being taught in lectures.

Text Books

- Text Book of Radiology for Residents & Technicians – 4th Edition – Satish K. Bhargava CBS publishers & Distributor (p) ltd.
- Step by Step CT; Step by Step MRI and MRI made Easy for beginners – Govind B. Chavhan – Jaypee brothers and Medical Publishers (p) Ltd, New Delhi
- CT & MRI protocol – Satish K. Bhargava, CBS publishers.

Research Methodology

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| Course Title | Research Methodology | |
| Course Code | MRIT29 | |
| Course Credit | Lecture: 3 | |
| | Practical + Clinical Training: 4 | |
| | Total: 5 | |
| Course Objectives | | |
| <ul style="list-style-type: none"> Describe the positioning factors and anatomical structures visualized as they relate to the performance | | |
| # | Detailed Syllabus | Sessions |
| Section I | | |
| 1 | Accessing research literature: <ul style="list-style-type: none"> Use of databases and other sources | 5 |
| 2 | Understanding research design: <ul style="list-style-type: none"> Qualitative and quantitative methodologies Their differences and potential integration Evaluating research and its potential for informing practice Developing research questions and devising methods for their investigation Ethical issues in research | 10 |
| Section II | | |
| 3 | Analysis: <ul style="list-style-type: none"> Analysis of qualitative and quantitative data Utilisation of appropriate software to assist in the retrieval of | 8 |

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| | <i>information and data analysis</i> | |
| 4 | <i>Clinical audit:</i> <ul style="list-style-type: none"> <i>• Distinctiveness of research and audit processes and their function</i> | 3 |
| 5 | <i>Research Skills and Management:</i> <ul style="list-style-type: none"> <i>• The role of evidence based practice within health and welfare</i> | 4 |

Instruction Method

- 1. Teaching and training sessions will be carried out through active learning. Active participation and contribution in group discussion and seminars are mandatory for students*
- 2. Lectures to be conducted with the help of black board and/or audio-visual aids that includes multi-media projector, OHP, etc.*
- 3. Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval*
- 4. The course includes a laboratory where the students have an opportunity to build and appreciation for the concepts being taught in lectures.*
- 5. Instruction method will be integrated with clinical training, bedside / class room teaching and tutorials as necessary.*

Text Books

- Clark's Handbook for Radiographers – Charles Sloane, Ken Holmes & Craig Anderson, Hodder Educations, UK*
- Diagnostic Radiography – A concise practical Manual – Glenda J. Bryan (4th edn), Churchill Livingstone.*

Hospital Practice and Care of Patient

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| Course Title | <i>Hospital Practice and Care of Patient</i> | |
| Course Code | MRIT30 | |
| Course Credit | Lecture: 3 | |
| | Practical + Clinical Training: 8 | |
| | Total: 7 | |
| Course Objectives | | |
| <ul style="list-style-type: none"> • The Modalities Imaging Techniques will aim to develop an understanding of the historical evolution of these imaging methods, as well as indicate how medical imaging is likely to develop over the next few years. • Student learn about the role of teamwork and communication in patient safety | | |
| # | Detailed Syllabus | Sessions |
| Section I | | |
| 1. | Hospital staffing and administration, records, professional, ethics, co-operation with other staff and departments, Departmental organizations. | 2 |
| 2. | Handling of the patients, seriously ill and traumatized patients, visually impaired, speech and hearing impaired, mentally impaired, | 3 |

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| | <i>drug addicts and non-English speaking patients.</i> | |
| 3. | <i>Understanding patient needs - patient dignity of inpatient and out patients. Interaction with the patient's relatives and visitors.</i> | 2 |
| 4. | <i>Methods of effective communication - verbal skills, body language, professional appearance, visual contact etc.</i> | 2 |
| 5. | <i>Elementary personal and departmental hygiene, dealing with receptacles, bed pans and urinal etc.</i> | 2 |
| 6. | <i>General preliminaries to the exam. Moving chair and stretcher, patient. Unconscious patient, general comfort and reassurance for the patient.</i> | 2 |
| 7. | <i>Vital signs and oxygen - patient's Haemeatasis statu Body temp, respiratory rate, pulse, blood pressure, oxygen therapy, oxygen devices, Chest tubes and lines.</i> | 2 |
| Section II | | |
| 8. | <i>First aid - shock, electrical shock, haemorrhage, burns, Asphyxia, fractures, loss of consciousness.</i> | 2 |
| 9. | <i>Emergency treatment to the collapsed patient.</i> | 1 |
| 10. | <i>Artificial respiration and resuscitation.</i> | 2 |
| 11. | <i>Preparation of patient for general and special radiological examinations.</i> | 1 |
| 12. | <i>Supervision of patients undergoing special examination.</i> | 2 |
| 13. | <i>Administration of drugs and contrast media.</i> | 2 |
| 14. | <i>Aseptic and sterile procedures.</i> | 2 |
| 15. | <i>Handling of infections patients in the department or in the ward.</i> | 1 |
| 16. | <i>Regulation of dangerous drugs.</i> | 1 |
| 17. | <i>Trolley set up for special x-ray examinations, Radiation hazardous and protective measures.</i> | 2 |
| 1. | | |
| Text Books | | |
| <ul style="list-style-type: none"> • Text book of radiology for residents & technicians – 4th edition, Satish K. | | |

Bhargave Radiological patient care – Jensen Chesney.

- *Atlas of dental and maxillofacial radiological imaging – Brownie*
- *Care of patient in diagnostic Radiography – Chesney & Chesney.*
- *Practical Nursing and First Aid – Ross and Wilson.*