# INTEGRAL UNIVERSITY, LUCKNOW

## INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH

## DEPARTMENT OF PARAMEDICAL SCIENCES

**MASTERS OF SCIENCE IN RADIOLOGY AND IMAGING TECHNOLOGY**

**(M.Sc. RIT)**

**SYLLABUS AND EVALUATION SCHEME**

**YEAR/ SEMESTER**

**II/III & II/IV**

**&**

**PEOs-POs-PSOs**

# Integral University, Lucknow
## Department of Paramedical Sciences
## Study and Evaluation Scheme

**Program: M.Sc. RIT** **Semester-III**

| S. N. | Course code | Course Title | Type of Paper | Period Per hr/week/sem | | | Evaluation Scheme | | | | Sub. Total | Credit | Total Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | CT | TA | Total | ESE | | | |
| **THEORIES** | | | | | | | | | | | | | |
| 1 | RT501 | Quality Assurance and Quality Control in Diagnostic Radiology and Imaging | Core | 3 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 3:1:0 | 4 |
| 2 | RT502 | Patient Care in Diagnostic Radiology | Core | 3 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 3:1:0 | 4 |
| 3 | RT503 | Interventional & Nuclear Medicine Techniques | Core | 3 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 3:1:0 | 4 |
| **PRACTICAL** | | | | | | | | | | | | | |
| 1 | RT504 | Residency – III Lab | Core | 0 | 0 | 10 | 40 | 20 | 60 | 40 | 100 | 0:0:5 | 5 |
| 2 | RT505 | Quality Assurance and Quality Control in Diagnostic Radiology and Imaging- Lab | Core | 0 | 0 | 8 | 40 | 20 | 60 | 40 | 100 | 0:0:4 | 4 |
| 3 | RT506 | Interventional & Nuclear Medicine Techniques – Lab | Core | 0 | 0 | 8 | 40 | 20 | 60 | 40 | 100 | 0:0:4 | 4 |
| **Total** | | | | **09** | **03** | **26** | **240** | **120** | **360** | **240** | **600** | **25** | **25** |

| S. N. | Course code | Course Title | Type of Paper | Attributes | | | | | | | United Nation Sustainable Development Goal (SDGs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **THEORIES** | | | | | | | | | | | |
| 1 | RT501 | Quality Assurance and Quality Control in Diagnostic Radiology and Imaging | Core | √ | √ | √ | | | √ | √ | 3,4 |
| 2 | RT502 | Patient Care in Diagnostic Radiology | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 3 | RT503 | Interventional & Nuclear Medicine Techniques | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| **PRACTICAL** | | | | | | | | | | | |
| 1 | RT504 | Residency – III Lab | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 2 | RT505 | Quality Assurance and Quality Control in Diagnostic Radiology and Imaging- Lab | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 3 | RT506 | Interventional & Nuclear Medicine Techniques – Lab | Core | √ | √ | √ | √ | | √ | √ | 3,4 |

**L:** Lecture **T:** Tutorials **P:** Practical **CT:** Class Test **TA:** Teacher Assessment **ESE:** End Semester Examination,
AE= Ability enhancement, DSE- Discipline Specific Elective, **Sessional Total:** Class Test + Teacher Assessment **Subject Total:** Sessional Total + End Semester Examination (ESE)

# Integral University, Lucknow
## Department of Paramedical Sciences
## Study and Evaluation Scheme

**Program: M.Sc. RIT** **Semester-IV**

| S. N. | Course code | Course Title | Type of Paper | Period Per hr/week/sem | | | Evaluation Scheme | | | | Sub. Total | Credit | Total Credits |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | T | P | CT | TA | Total | ESE | | | |
| **THEORIES** | | | | | | | | | | | | | |
| 1 | RT507 | Research Methodology and Biostatics | Core | 3 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 3:1:0 | 4 |
| 2 | RT508 | Advanced CT, MRI & USG | Core | 3 | 1 | 0 | 40 | 20 | 60 | 40 | 100 | 3:1:0 | 4 |
| **PRACTICAL** | | | | | | | | | | | | | |
| 1 | RT509 | Residency – IV Lab | Core | 0 | 0 | 10 | 40 | 20 | 60 | 40 | 100 | 0:0:5 | 5 |
| 2 | RT510 | Advanced CT, MRI & USG Lab | Core | 0 | 0 | 8 | 40 | 20 | 60 | 40 | 100 | 0:0:4 | 4 |
| 3 | RT511 | Thesis/Dissertation | Core | 0 | 0 | 20 | 40 | 20 | 60 | 40 | 100 | 0:0:10 | 10 |
| **Total** | | | | **06** | **02** | **38** | **200** | **100** | **300** | **200** | **500** | **27** | **27** |

| S. N. | Course code | Course Title | Type of Paper | Attributes | | | | | | | United Nation Sustainable Development Goal (SDGs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Employability | Entrepreneurship | Skill Development | Gender Equality | Environment & Sustainability | Human Value | Professional Ethics | |
| **THEORIES** | | | | | | | | | | | |
| 1 | RT507 | Research Methodology and Biostatics | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 2 | RT508 | Advanced CT, MRI & USG | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| **PRACTICAL** | | | | | | | | | | | |
| 1 | RT509 | Residency – IV Lab | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 2 | RT510 | Advanced CT, MRI & USG Lab | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| 3 | RT511 | Thesis/Dissertation | Core | √ | √ | √ | √ | | √ | √ | 3,4 |
| | | | | | | | | | | | |

**L:** Lecture **T:** Tutorials **P:** Practical **CT:** Class Test **TA:** Teacher Assessment **ESE:** End Semester Examination,
AE= Ability enhancement, DSE- Discipline Specific Elective, **Sessional Total:** Class Test + Teacher Assessment **Subject Total:** Sessional Total + End Semester Examination (ESE)

# MASTERs OF SCIENCE IN RADIOLOGICAL IMAGING TECHNOLOGY
# (M.Sc.RIT)

# Program Educational Outcomes
# (PEOs)

# Program Educational Outcomes (PEOs)

The educational goals of the curriculum reflect the knowledge, skills, and behaviors expected of program graduates. The graduates of the Integral University BRIT program will be expected to:

| | |
|---|---|
| **PEO1:** | Be advanced leaders in the profession. |
| **PEO2:** | Be compassionate, caring healthcare professionals. |
| **PEO3:** | Be eligible, well-prepared, and able to sit for and pass the credentialing examination. |
| **PEO4:** | Have immediate job placement within six months of graduation. |
| **PEO5:** | Work in advanced imaging fields and sit for advanced imaging Examinations. |
| **PEO6:** | Identify with and contribute to the aims and ideals of the profession. |
| **PEO7:** | Practice in an ethical and legal manner. |

# MASTERS OF SCIENCE IN RADIOLOGICAL IMAGING TECHNOLOGY
# (M.Sc.RIT)

# PROGRAMME OUTCOMES
# (POs)

# MASTERS OF SCIENCE IN RADIOLOGICAL IMAGING TECHNOLOGY (M.Sc.RIT)
## PROGRAMME OUTCOMES (POs)

**PROGRAMME OUTCOMES (POs) and their Attributes: -**

Radio imaging Graduates will be able to-

| | |
|---|---|
| **PO-1:** | Understanding ways of functioning effectively as an individual independently and as a member in a diverse team in multidisciplinary settings. (Attitude) |
| **PO-2:** | Understanding requirements of continuing 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 the 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 results 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) |
| **PO-10:** | Have the technical ability to correctly repeat images, when the quality is not adequate for diagnostics. |
| **PO-11:** | Demonstrate radiation safety for self, staff, and patients as set forth by the ALARA standards. |
| **PO-12:** | Demonstrate an understanding of advanced multiple imaging modalities and the need for lifelong learning. |

# MASTERS OF SCIENCE IN RADIOLOGICAL IMAGING TECHNOLOGY
# (M.Sc.RIT)

## Program Specific Outcomes
## (PSOs)

# MASTERS OF SCIENCE IN RADIOLOGICAL IMAGING TECHNOLOGY
## (M.Sc.RIT)
## PROGRAMME SPECIFIC OUTCOME (PSOs)

The aim of the course is to provide comprehensive, training to the students that prepare them for providing a quality diagnosis of the patients so that at the end of the course he/she will be able to perform the following:

| | |
|---|---|
| **PSO1:** | Understanding the basic concepts, and theories of applied sciences (physics, chemistry, Anatomy, physiology, biochemistry, pathology) relevant to radiological imaging techniques. |
| **PSO2:** | Remembering the relationship between physics, radiology & modern imaging. |
| **PSO3:** | Understanding provisions for radiation safety by various national & international regulatory bodies and applying quality assurance measures. |
| **PSO4:** | Safety procedures and maintenance of radiological equipment. |
| **PSO5:** | Operating all radiological and imaging equipment independently and performing the image processing in X-Ray, Fluoroscopy, Computed Tomography, Dual Energy X-Ray Absorptiometry (DEXA), Mammography, Digital Subtraction Angiography, Magnetic Resonance Imaging, Ultrasonography, and Nuclear Medicine. |