

### **INTEGRAL UNIVERSITY, LUCKNOW** INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH **DEPARTMENT OF PARAMEDICAL SCIENCES**

BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS)

> SYLLABUS AND EVALUATION SCHEME YEAR/ SEMESTER III/V & III/VI & PEOs-POs-PSOs



#### Integral University, Lucknow Department of Paramedical Sciences<u>Study and</u> <u>Evaluation Scheme</u>

| I        | Program: BMRIS Semester-V |  |                  |   |    |    |                   |     |       |     |       |        |         |
|----------|---------------------------|--|------------------|---|----|----|-------------------|-----|-------|-----|-------|--------|---------|
| S.<br>N. | Course                    | Course Title                             | Type<br>of Paper |   |    |    | Evaluation Scheme |     |       |     | Sub.  | Credit | Total   |
| 14.      | code                      |  | orraper          | L | Т  | Р  | СТ                | TA  | Total | ESE | Total | crean  | Credits |
|          | THEORIES                  |  |                  |   |    |    |                   |     |       |     |       |        |         |
| 1        | RS301                     | Magnetic Resonance Imaging               | Core             | 3 | 1  | 0  | 40                | 20  | 60    | 40  | 100   | 3:1:0  | 4       |
| 2        | RS302                     | Hospital Practice & Care of Patient      | Core             | 3 | 1  | 0  | 40                | 20  | 60    | 40  | 100   | 3:1:0  | 4       |
| 3        | RS303                     | Orientation in Clinical Sciences-II      | Core             | 3 | 1  | 0  | 40                | 20  | 60    | 40  | 100   | 3:1:0  | 4       |
|          | PRACTICAL                 |  |                  |   |    |    |                   |     |       |     |       |        |         |
| 1        | RS304                     | Magnetic Resonance Imaging-Lab           | Core             | 0 | 0  | 2  | 40                | 20  | 60    | 40  | 100   | 0:0:1  | 1       |
| 2        | RS305                     | Hospital Practice & Care of Patient -Lab | Core             | 0 | 0  | 4  | 40                | 20  | 60    | 40  | 100   | 0:0:2  | 2       |
| 3        | RS306                     | Seminar                                  | Core             | 0 | 3  | 0  | 50                | 50  | 100   | 00  | 100   | 0:3:0  | 3       |
| 4        | RS307                     | Hospital Posting                         | Core             | 0 | 0  | 14 | 40                | 20  | 60    | 40  | 100   | 0:0:7  | 7       |
|          | Total                     |  |                  |   | 06 | 20 | 290               | 170 | 460   | 240 | 700   | 25     | 25      |

| se Course Title THEORIES Magnetic Resonance Imaging | of<br>Paper   | Employability  | Entrepreneurship  | Skill<br>Development  | Gender<br>Equality  | Environment &<br>Sustainability   | Human<br>Value  | Professional<br>Ethics  | Sustainable<br>Development Goal<br>(SDGs)   |
|---|---|--|---|---|---|---|---|---|---|
| 1 Magnetic Resonance Imaging                        | Core  |  |   |   |   |   |   |   |   |
|   | Core  |  |   |   |   |   |   |   |   |
|   |   | N  |   |   |   |   | $\checkmark$  |   | 3,4   |
| 2 Hospital Practice & Care of Patient               | Core  | $\checkmark$   |   |   |   |   | V   | V   | 3,4   |
| 03 Orientation in Clinical Sciences-II Lab          | Core  | $\checkmark$   |   | $\checkmark$  |   |   | $\checkmark$  |   | 3,4   |
| PRACTICAL   |   |  |   |   |   |   |   |   |   |
| 4 Magnetic Resonance Imaging-Lab                    | Core  | $\checkmark$   |   |   |   |   | $\checkmark$  | V   | 3,4   |
| 5 Hospital Practice & Care of Patient -Lab          | Core  | $\checkmark$   |   |   |   |   | V   | V   | 3,4   |
| 6 Seminar   | Core  | $\checkmark$   |   | $\checkmark$  |   |   | $\checkmark$  |   | 3,4   |
| 7 Hospital Posting-                                 | Core  | $\checkmark$   |   |   |   |   |   |   | 3,4   |
| )<br>4<br>5<br>6                                    | 3       Orientation in Clinical Sciences-II Lab         PRACTICAL         4       Magnetic Resonance Imaging-Lab         5       Hospital Practice & Care of Patient -Lab         6       Seminar | 3       Orientation in Clinical Sciences-II Lab       Core         PRACTICAL       Core         Image: | 3       Orientation in Clinical Sciences-II Lab       Core       √         PRACTICAL       PRACTICAL       V         I       Magnetic Resonance Imaging-Lab       Core       √         5       Hospital Practice & Care of Patient -Lab       Core       √         6       Seminar       Core       √ | 3       Orientation in Clinical Sciences-II Lab       Core       √       √         PRACTICAL         I       Magnetic Resonance Imaging-Lab       Core       √       √         5       Hospital Practice & Care of Patient -Lab       Core       √       √         6       Seminar       Core       √       √ | 3       Orientation in Clinical Sciences-II Lab       Core       √       √         PRACTICAL         4       Magnetic Resonance Imaging-Lab       Core       √       √         5       Hospital Practice & Care of Patient -Lab       Core       √       √         6       Seminar       Core       √       √       √ | 3       Orientation in Clinical Sciences-II Lab       Core       √       √       √       √         PRACTICAL         I       Magnetic Resonance Imaging-Lab       Core       √       √       √       √         I       Hospital Practice & Care of Patient -Lab       Core       √       √       √       √         I       Seminar       Core       √       √       √       √ | 3       Orientation in Clinical Sciences-II Lab       Core       √       √       √         PRACTICAL         4       Magnetic Resonance Imaging-Lab       Core       √       √       √         5       Hospital Practice & Care of Patient -Lab       Core       √       √       √       √         5       Seminar       Core       √       √       √       √       √ | 3       Orientation in Clinical Sciences-II Lab       Core       √       √       √       √       √         PRACTICAL         Image: Image | 3       Orientation in Clinical Sciences-II Lab       Core       √        √       √       √ |

L: LectureT: TutorialsP: PracticalCT: Class TestTA: Teacher Assessment ESE: End Semester Examination,AE= Ability enhancement, DSE- Discipline Specific Elective, Sessional Total: Class Test + Teacher AssessmentSubject Total: Sessional Total + End Semester Examination (ESE)



#### Integral University, Lucknow Department of Paramedical Sciences <u>Study and Evaluation Scheme</u>

#### **Program: BMRIS**

Semester-VI

| S.<br>N | Course    |  | Type<br>of Paper | Period Per<br>hr/week/sem |    | Evaluation Scheme |    |     | Sub. Total | Credit | Total |        |         |
|---------|-----------|--|------------------|---------------------------|----|-------------------|----|-----|------------|--------|-------|--------|---------|
| 1       | code      |  | or raper         | L                         | Т  | Р                 | СТ | TA  | Total      | ESE    |       | creuit | Credits |
|         | THEORIES  |  |                  |                           |    |                   |    |     |            |        |       |        |         |
| 1       | RS308     | Advance CT, MRI & USG                      | Core             | 3                         | 1  | 0                 | 40 | 20  | 60         | 40     | 100   | 3:1:0  | 4       |
| 2       | RS309     | Nuclear Medicine Technology & PET Scan     | Core             | 3                         | 1  | 0                 | 40 | 20  | 60         | 40     | 100   | 3:1:0  | 4       |
| 3       | RS310     | Interventional Procedure & Emergency Drugs | Core             | 3                         | 1  | 0                 | 40 | 20  | 60         | 40     | 100   | 3:1:0  | 4       |
| 4       | RS311     | Research Methodology & Biostatistics       | Core             | 3                         | 1  | 0                 | 40 | 20  | 60         | 40     | 100   | 2:1:0  | 4       |
|         | PRACTICAL |  |                  |                           |    |                   |    |     |            |        |       |        |         |
| 1       | RS312     | Advance CT, MRI & USG -Lab                 | Core             | 0                         | 0  | 2                 | 40 | 20  | 60         | 40     | 100   | 0:0:1  | 1       |
| 2       | RS313     | Nuclear Medicine Technology & PET Scan-Lab | Core             | 0                         | 0  | 4                 | 40 | 20  | 60         | 40     | 100   | 0:0:2  | 2       |
| 3       | RS314     | Hospital Posting                           | Core             | 0                         | 0  | 12                | 40 | 20  | 60         | 40     | 100   | 0:0:6  | 6       |
|         |           | Total                                      |                  | Total                     | 12 | 04                | 18 | 280 | 140        | 420    | 280   | 700    | 25      |

| S.   | Course | Course Title                               | Type<br>of Paper |               | United Nation<br>Sustainable |                      |                    |                                 |                |                        |     |
|------|--------|--|------------------|---------------|------------------------------|----------------------|--------------------|---------------------------------|----------------|------------------------|-----|
| N.   | code   |  |                  | Employability | Entrepreneurship             | Skill<br>Development | Gender<br>Equality | Environment &<br>Sustainability | Human<br>Value | Professional<br>Ethics |     |
| THE  | ORIES  |  |                  |               |                              |                      |                    | •                               |                |                        |     |
| 1    | RS308  | Advance CT, MRI & USG                      | Core             | V             | V                            | V                    |                    |                                 | V              | V                      | 3,4 |
| 2    | RS309  | Nuclear Medicine Technology & PET Scan     | Core             | V             | V                            | V                    |                    |                                 | V              | V                      | 3,4 |
| 3    | RS310  | Interventional Procedure & Emergency Drugs | Core             | V             | V                            | V                    |                    |                                 | V              | V                      | 3,4 |
| 4    | RS311  | Research Methodology & Biostatistics       | Core             |               | V                            | V                    |                    |                                 |                | $\checkmark$           | 3,4 |
| PRAC | ГICAL  |  |                  |               |                              |                      |                    |                                 |                |                        |     |
| 1    | RS312  | Advance CT, MRI & USG -Lab                 | Core             | V             | V                            | V                    |                    |                                 | V              | V                      | 3,4 |
| 2    | RS313  | Nuclear Medicine Technology & PET Scan Lab | Core             | V             | V                            | V                    |                    |                                 | V              | V                      | 3,4 |
| 3    | RS314  | Hospital Posting                           | Core             | V             | V                            | V                    |                    |                                 | V              | $\checkmark$           | 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)
 Semester Examination (ESE)
 Semester Examination (ESE)

# BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS)



# 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 BMRIS 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.                  |
| <b>PEO7:</b> | Practice in an ethical and legal manner.  |

## BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS)



# PROGRAMME OUTCOMES (POs)

#### BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS) PROGRAMME OUTCOMES (POs)

#### PROGRAMME OUTCOMES (POs) POs and its Attributes: -

Radio imaging Graduates will be able to-

| PO-1:          | Understanding ways of functioning effectively as an individual independently and as a member in diverse team in   |  |  |  |  |  |  |  |  |
|----------------|---|--|--|--|--|--|--|--|--|
| P0-1:          | 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.<br>(Environment and Sustainability)                                       |  |  |  |  |  |  |  |  |
| <b>PO-4</b> :  | 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) |  |  |  |  |  |  |  |  |
| <b>PO-7</b> :  | Applying appropriate techniques, resources and tools with an understanding of limitations. (Technology savvy/usage)   |  |  |  |  |  |  |  |  |
| <b>PO-8</b> :  | 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)  |  |  |  |  |  |  |  |  |
| <b>PO-10</b> : | Have the technical ability to correctly repeat images, when the quality is not adequate for diagnostics.  |  |  |  |  |  |  |  |  |
| <b>PO-11</b> : | Demonstrate radiation safety for self, staff, and patients as set foRSh by the ALARA standards.   |  |  |  |  |  |  |  |  |
| <b>PO-12</b> : | Demonstrate an understanding of advanced multiple imaging modalities and the need for lifelong learning.  |  |  |  |  |  |  |  |  |

## BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS)



## Program Specific Outcomes (PSOs)

#### BACHELOR OF MEDICAL RADIOLOGICAL IMAGING SCIENCES (BMRIS) PROGRAMME SPECIFIC OUTCOME (PSOs)

Program Specific Objectives (PSOs) are specific statements that describe the professional career accomplishment that the program is designed. The PSO's of the BMRIS program are as follows:

| <b>PSO1</b> : | Understanding the basic concepts, theories of applied sciences (physics, chemistry, Anatomy, physiology,  |  |  |  |  |  |  |
|---------------|---|--|--|--|--|--|--|
| F301:         | biochemistry, pathology) relevant to radiological imaging techniques.                                     |  |  |  |  |  |  |
| <b>PSO2:</b>  | Remembering the relationship between physics and radiology & modern imaging                               |  |  |  |  |  |  |
| <b>PSO3</b> : | Understanding provisions for radiation safety by various national & international regulatory bodies and   |  |  |  |  |  |  |
| r 303.        | applying quality assurance measures.  |  |  |  |  |  |  |
| <b>PSO4:</b>  | Safety procedures and maintenance of radiological equipments.   |  |  |  |  |  |  |
|               | Operating all radiological and imaging equipment independently and perform the image processing in X-Ray, |  |  |  |  |  |  |
| <b>PSO5</b> : | Fluoroscopy, Computed Tomography, Dual Energy X-Ray Absorptiometry (DEXA), Mammography, Digital           |  |  |  |  |  |  |
|               | Subtraction Angiography, Magnetic Resonance Imaging, Ultrasonography, Nuclear Medicine                    |  |  |  |  |  |  |