**Integrated M.Sc. Mathematics (Semester - 8)**
**Assessment Policy**
**060090805: Mathematical Imaging Techniques (Theory – 4 Credits)**

| Assessment Code | Assessment Type | Duration of each | Occurrence | Each of marks | Weightage in CIE of 40 marks | Remarks |
|---|---|---|---|---|---|---|
| A1 | Unit Test | 90 minutes | 2 | 30 | 7 x 2 = 14 | Unit Test – 1: After completion of Unit-1 and Sub Units 2.1, 2.2 and 2.3<br><br>Unit Test – 2: After completion of Sub Units 2.4, 2.5 and Unit – 3. |
| A2 | Internal Examination | 180 minutes | 1 | 60 | 14 x 1 = 14 | After completion of Unit-4, which covers all units. |
| A3 | Assignment | 10 days | 4 | 10 | 2 x 4 = 8 | Assignment - 1 : After completion of Unit-1<br>Assignment - 2 : After completion of Unit-2<br>Assignment - 3 : After completion of Unit-3<br>Assignment - 4 : After completion of Unit-4 |
| A4 | Viva | 1 hour | 1 | 10 | 4 x 1 = 4 | Based on the fundamental concepts of Mathematical Imaging |

**Assessment Type Classification:**

| Assessment Code : | A1 | Coverage of Content : | Unit Test – 1: Covers Unit-1 and Sub Units 2.1, 2.2 and 2.3.<br><br>Unit Test – 2: Covers Sub Units 2.4, 2.5 and Unit – 3. |
|---|---|---|---|
| Assessment Type : | Unit Test-1 and Unit Test -2 | Tentative Date : | Unit Test – 1: 20/02/2019<br>Unit Test – 2: 01/04/2019 |
| Kind of Question Format: | Que. 1 -A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 1- B) Very Long Questions ( Any one out of two, each of 6 marks)<br>Que. 2-A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 2-B) Very Long Questions ( Any one out of two, each of 6 marks) | | |
| Assessment : | Formative | | |

| Assessment Code : | A2 | Coverage of Content : | All Units |
|---|---|---|---|
| Assessment Type : | Internal Examination | Tentative Date : | 26/04/2019 |
| Kind of Question Format: | Que. 1 -A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 1- B) Very Long Questions ( Any one out of two, each of 6 marks)<br>Que. 2-A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 2-B) Very Long Questions ( Any one out of two, each of 6 marks)<br>Que. 3 -A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 3- B) Very Long Questions ( Any one out of two, each of 6 marks)<br>Que. 4-A) Long Questions ( Any three out of four, each of 3 marks)<br>Que. 4-B) Very Long Questions ( Any one out of two, each of 6 marks) | | |
| Assessment : | Formative | | |

| Assessment Code : | A3 | Coverage of Content : | Assignment - 1 : After completion of Unit-1<br>Assignment - 2 : After completion of Unit-2<br>Assignment - 3 : After completion of Unit-3<br>Assignment - 4 : After completion of Unit-4 |
|---|---|---|---|
| Assessment Type : | Assignment | Tentative Date : | Assignment - 1 : 20/01/2019<br>Assignment - 2 : 15/03/2019<br>Assignment - 3 : 30/03/2019<br>Assignment - 4 : 20/04/2019 |
| Kind of Question Format: | 1. Per topic an example has to solve.<br>2. Questions will be given on regular bases of completion of particular topic.<br>3. Assignment has to be submitted after two days of completion of whole unit.<br>4. Zero mark will be given for submission after given deadline. | | |
| Assessment : | Formative | | |

| Assessment Code : | A4 | Coverage of Content : | All Units |
|---|---|---|---|
| Assessment Type : | Viva | Tentative Date : | 16/09/2018 |
| Kind of Question Format: | 1.  10-12 basic and short type of question asked to each student from any unit with equal weightage.<br>2.  Marks will be given on the basis of knowledge share. | | |
| Assessment : | Summative | | |

**Integrated M.Sc. Mathematics (Semester - 8)**
**Assessment Policy**
**060090805: Mathematical Imaging Techniques (Theory – 2 Credits)**

| Assessment Code | Assessment Type | Duration of each | Occurrence | Each of marks | Weightage in CIE of 40 marks | Remarks |
|---|---|---|---|---|---|---|
| A1 | Practical Examination | 120 minutes | 2 | 20 | 10 x 2 = 20 | Practical – 1: After completion of Unit-1 and Unit-2<br><br>Practical – 2: After completion of Unit-3 and Unit-4 |

| | | | |
|---|---|---|---|
| **Assessment Code :** | A1 | **Coverage of Content :** | Practical – 1: After completion of Unit-1 and Unit-2<br><br>Practical – 2: After completion of Unit-3 and Unit-4 |
| **Assessment Type :** | Practical Examination | **Tentative Date :** | Practical – 1: 12/03/2019<br><br>Practical – 2: 25/04/2019 |
| **Kind of Question Format:** | 1. Practical Programme ( 1 out of 2, each of 10 Marks)<br>2. Journal Submission (5 Marks)<br>3. Viva Voce (5 Marks) | | |
| **Assessment :** | Formative | | |

**Assessment Type Mapping with Course Outcomes and Program Outcomes:**

**Course outcomes:**

Upon completion of the course, students shall be able to

**CO1:** know the formation of digital image, its sampling and quantization in spatial domain.

**CO2:** transform intensity of a digital image using spatial filtering process.

**CO3:** understand frequency domain and be able to construct filter transfer functions directly in frequency domain.

**CO4:** restore digital image using various filters viz. linear, non-linear and adaptive spatial filters, periodic noise reduction using frequency domain.

**CO5:** reconstruct image from projections and able to familiar with their applications to compute tomography.

**CO6:** understand basic concept of mathematical morphology and application of it in digital image processing.

**CO7:** develop algorithms based on binary morphology for performing tasks such as morphological smoothing, edge detection, extracting connected components, skeletonizing.

**Programme Outcomes (PO)**

**PO1: Knowledge**

Provides knowledge about the fundamentals of pure, applied and computing mathematics and its applications to students that creates the opportunities in industries and research centers.

**PO2: Core Competence**

Creates competency in science and mathematics to formulate, analyses and solve problem and/or also to pursue advanced study or research.

**PO3: Breadth**

Trains students having good knowledge in unearth core of academia and industry by the roots of mathematics.

**PO4: Evaluation**

Imparts in students to raise trial and error-based curiosity and problem-solving functionality with research based advanced tutorial for higher level decision makings tools.

| Assessment Code | Course Outcomes | | | | | | | Programme Outcomes | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | CO1 | CO2 | CO3 | CO4 | CO5 | CO6 | CO7 | PO1 | PO2 | PO3 | PO4 |
| A1 | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | ✓ |
| A2 | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| A3 | | | ✓ | | | | | | ✓ | ✓ | ✓ |
| A4 | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ |